

# **The systematic development of a complex community-based men's health intervention, the 12th Man**

Oliver James Bell

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Population Health Sciences Institute, Newcastle University

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*“Sport teaches what we make it teach. It is a wonderful, glorious, powerful, penetrative empty vessel. When we fill it full of things which are ethical evidence-based, kind, empathetic, then it can do incredible things.”*

*- John Amaechi OBE*

## **i. Abstract**

Across the globe life expectancy at birth is 5.1 years shorter for men than women. To address this inequality and improve overall health, lifestyle interventions are delivered through primary care, but they often fail to engage groups of men. Interventions using football as a vehicle of delivery demonstrate success in both the recruitment of men and improvements in long term physical health. However, few are designed to improve holistic health and there are no interventions in the North East of England. This thesis aimed to explore the barriers and facilitators to health intervention attendance faced by men; systematically develop a complex multi-component lifestyle intervention; and pilot the feasibility and acceptability of this intervention in groups of men.

Chapter 3 used qualitative data from focus groups to study the barriers and facilitators of lifestyle intervention participation in men and highlighted key ingredients for intervention development. This study identified the need for interventions to draw parity of esteem between mental and physical health; it summarised common barriers to lifestyle change and highlighted important intervention considerations. Building on the findings in Chapter 3, insight from the literature, and guidance, frameworks, and taxonomies to systematically develop a men's health intervention, the 12<sup>th</sup> Man, is described in Chapter 4. Chapter 5 piloted this intervention and used qualitative data from focus groups, and quantitative data relating to attendance and adherence to conclude the 12<sup>th</sup> Man to be feasible to deliver and acceptable to the participants, however improvements were suggested. Chapter 6 integrated suggestions to redevelop the intervention and outline a protocol for a subsequent pilot randomised control trial.

This thesis collectively demonstrated key barriers and facilitators which informed the development of the 12<sup>th</sup> Man Intervention and offers suggestions for subsequent intervention developers when targeting traditionally hard-to-reach males. These suggestions involve key intervention components which include using football as a vehicle for delivery for a face-to-face, group-based intervention that is gender sensitised and underpinned by behaviour change theory and follows a recommended framework during development. This thesis presents an additional framework for developing complex health interventions and demonstrates how this can be used in practice. Finally, this thesis concludes the 12<sup>th</sup> Man Intervention to be acceptable and feasible, giving confidence to developers in subsequent randomised control trials.

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### **iii. Preface**

#### **Publications derived from work within this thesis**

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## **vii. List of Abbreviations**

Analysis of Covariance	<b>ANCOVA</b>
Behaviour Change Techniques	<b>BCTs</b>
Behavioural Regulations in Exercise Questionnaire	<b>BREQ-2</b>
Body Mass Index	<b>BMI</b>
Blood Pressure	<b>BP</b>
C-Reactive Protein	<b>CRP</b>
Club Community Organisations	<b>CCOs</b>
Confidence Intervals	<b>CI</b>
Consolidated Criteria for Reporting Qualitative Research	<b>COREQ</b>
Control Theory	<b>CT</b>
Dehydroepiandrosterone Sulphate	<b>DHEAS</b>
Football Fans in Training	<b>FFIT</b>
Health, Illness, Men and Masculinities	<b>HIMM</b>
Hockey Fans in Training	<b>HFIT</b>
Hypothalamic-Pituitary-Adrenocortical	<b>HPA</b>
Inter Quartile Range	<b>IQR</b>
Interleukin 6	<b>IL-6</b>
Medical Research Council	<b>MRC</b>
Newcastle United Football Club	<b>NUFC</b>
Newcastle United Foundation	<b>NUF</b>

Non-Esterified Fatty Acids	<b>NEFA</b>
Physical Activity	<b>PA</b>
Personal Improvement Plan	<b>PIP</b>
Premier League Health	<b>PLH</b>
Randomised Control Trial	<b>RCT</b>
Self-Determination Theory	<b>SDT</b>
Social Cognitive Theory	<b>SCT</b>
Standard Deviation	<b>SD</b>
Theoretical Domains Framework	<b>TDF</b>
Tumour Necrosis Factor- $\alpha$	<b>TNF-<math>\alpha</math></b>
World Health Organisation	<b>WHO</b>

## **Chapter 1 Literature Review**

## 1.1 Life expectancy differences between males and females

### 1.1.1 *The historical context*

Over the centuries there have been many myths, philosophies, and theories to explain the differences between the sexes. From the creation of Adam and Eve in the book of Genesis (Mittwoch, 2000) to Zeus splitting Primeval spherical creatures with four hands, four legs and two faces into two people (Stévant, Papaioannou and Nef, 2018). The determination of the foetuses sex was often debated amongst ancient Greek philosophers with the position of the child in the womb being the source of one theory while the left or right testicle determining the sex being another (Stévant, Papaioannou and Nef, 2018). Scientific advancements in the 19<sup>th</sup> and early 20<sup>th</sup> century led to Nettie Maria Stevens concluding that biological males carry a Y chromosome while biological females carry an X chromosome (Stévant, Papaioannou and Nef, 2018). Throughout this thesis, “males” refers to those who were assigned biological male at birth and “females” refers to those assigned biological females at birth. The term “man” describes someone who identifies as a man and “woman” refers to someone who identifies as a woman. It should be noted, however, that not everyone identifies with either of these terms and may consider themselves non-binary or gender non-conforming. In 1956, Ford and Hamerton identified that males have an X and Y chromosome while females have two X chromosomes (Ford and Hamerton, 1956). Although it took thousands of years to develop the scientific theory for sex difference, interest between the sexes has been common across the millennium.

This interest continues through to present day. In 2019, the global life expectancy for a male was lower than that of a female. At birth, females were expected to live for an average of 5.1 years longer than males (75.9 years compared to 70.8 years, respectively) (WHO, 2020). Life expectancy in developed countries was also greater than that of the global average. However, the similar trend that females live longer are still observed (84.4 years compared to 79.9 years respectively) (Wang *et al.*, 2020). The UK life expectancy was slightly lower than Western Europe in the same year with females expecting to live 82.9 years and males 79.2 years at birth (Wang *et al.*, 2020).

Attributing the discrepancy between life expectancy would help to understand inequalities and burden of disease. Biological, behavioural, and societal theories are often presented as explanations for discrepancies. Some argue that females live longer but unhealthier lives compared to males who live shorter lives with fewer physical illnesses (Austad, 2006). Purely



biological based arguments like these may be over simplistic and a generalisation which does not consider geographical or historical differences in life expectancy.

Understanding life expectancy throughout history and between different countries can help to support or dispute a purely biological theory for discrepancies. Looking at birth cohorts between 1800 to 1935 in 13 developed countries, Beltrán-Sánchez, Finch and Crimmins (2015) reports a divergence in adult male mortality in cohorts born after 1880. Ratios increased by as much as 50% from a baseline of around 1:1. Crimmins *et al.* (2019) analysed individual level survey data on the older population from nationally representative sources to determine sex differences in health. The authors of this study reported that in 2016, the gap in life expectancy was larger in Eastern European Countries, for example, 10.5 years in Kazakhstan and 8.4 years in Kyrgyz Republic. In contrast, the differences between male and female life expectancies are considerably smaller in other regions of the world. For example, 0.22 years is the gap in life expectancy in the Maldives and 0.26 years in Nepal. If biological causes were the sole determinant for shortened life expectancy in males, it could be assumed that the life expectancy gap would remain constant over time and between locations. It is clear from these data that this is not true.

## **1.2 The biological contribution to life expectancy**

### *1.2.1 Chromosomes, mitochondria, and telomere shortening.*

It's clear biological influences are not the sole determinant of life expectancy, but they may still play a role. Differences in life expectancy between the sexes may be explained by biological factors such as X chromosomal inactivation, telomere attrition and mitochondrial inheritance (Seifarth, McGowan and Milne, 2012). Human females inherit an X chromosome from their non-birthing parent and gestational parent, whereas a male inherits a Y chromosome from their non-birthing parent and an X from their gestational parent. Two X chromosomes gives the advantage of inactivating one chromosome in females, ultimately protecting against disadvantageous gene expression (Christensen, Orstavik and Vaupel, 2001). This skew towards inactivating X chromosomes has been observed to be more progressive in older females (Christensen *et al.*, 2000), lending them more capable at defending against physiological stress and aging than males (Seifarth, McGowan and Milne, 2012). Additionally, the mitochondrial genome is expressed on the X chromosome (Rand, 2005). Through evolution, this gene has been under selection longer in females than in males and may therefore be optimised for function in females (Tower, 2006). Mitochondrial dysfunction may be implicated in diseases

including cancer (Brandon, Baldi and Wallace, 2006) and other age related illnesses (Trifunovic and Larsson, 2008).

Aging also leads to a shortening of chromosomal and telomere length (Campisi, 2005) which has been correlated with shorter life spans in several species of animal (Barrett and Richardson, 2011). Adult human males exhibit shorter telomers than females which is correlated with some degenerative diseases and a decreased survival rate in humans (Barrett and Richardson, 2011). However, a cautious approach has been suggested and there are likely many variables to the difference in telomere attrition between the sexes.

### *1.2.2 The role of body fat distribution on life expectancy*

When excess energy intake through diet, and reduced energy expenditure from physical inactivity occur, subcutaneous fat acts as a metabolic sink in which excess free fatty acids and glycerol are stored (Ibrahim, 2010). When storage within subcutaneous adipose tissue reach capacity, or if storage is impaired because of genetic predispositions or stresses, fat accumulates in areas outside the subcutaneous tissue, including in visceral adiposity (Ibrahim, 2010). Those with higher android adiposity, or fat stores located in the upper abdominal or central area, are at greater risk of cardiovascular disease than those who have gluteofemoral, peripheral or gynoid obesity (Ibrahim, 2010). There are two prominent hypotheses to describe why there is an increased risk in cardiovascular disease in visceral compared to subcutaneous fat storage which are the anatomical locations and secretions of the two tissues. Venous blood drains through the portal vein directly into the liver unlike subcutaneous fat in which venous drainage is through systemic veins (Ibrahim, 2010). One theory suggests that an increase in portal free fatty acids induces hepatic insulin resistance and inhibits the action of insulin (Björntorp, 1990). This exposes the liver to higher concentrations of insulin which leads to peripheral hyperinsulinemia, stimulating gluconeogenesis, reduced insulin sensitivity and an increased risk of type 2 diabetes (Item and Konrad, 2012; Seifarth, McGowan and Milne, 2012). Increasing this risk further is the composition of visceral fat in that adipocytes are the main cellular component of adipose tissue and are insulin resistant which is a risk factor for cardiovascular disease (Ibrahim, 2010; Heinrich, Castell and Andus, 1990). Adipocytes also contribute to synthesis of pro-inflammatory and anti-inflammatory proteins and increase macrophage infiltration which are the source of tumour necrosis factor- $\alpha$  (TNF $\alpha$ ) and interleukin 6 (IL-6) (Ibrahim, 2010; Seifarth, McGowan and Milne, 2012). Elevated circulating TNF $\alpha$  and IL-6 is a predictor of cardiovascular disease (Ridker *et al.*, 2020; Yuan *et al.*, 2020). Visceral adiposity is also associated with a host of metabolic conditions including, obstructive

sleep apnoea (Shinohara *et al.*, 1997), ischemic heart disease (Matsuzawa *et al.*, 1995), and endothelial dysfunction (Romero-Corral *et al.*, 2010). There are further associations to conditions including glucose intolerance, hyperlipidaemia and hypertension (Matsuzawa *et al.*, 1995).

Body fat distribution differs between males and females. Females tend to have greater amounts of stored body fat mainly in the gluteal or peripheral areas compared to males who store fat centrally and in visceral areas (Kautzky-Willer, Harreiter and Pacini, 2016; Swainson, Batterham and Hind, 2020). Body fat distribution further explains the sex differences in life expectancy.

### *1.2.3 Physiological and psychological stress*

According to the free radical theory of aging, free radicals produced during cellular respiration cause cumulative oxidative damage which results in aging and death (Harraan, 1955). It is theorised that oestrogen may provide antioxidant benefits which puts females at an advantage to oxidative stress. This coupled with theories outlining higher antioxidant gene expression (Borrás *et al.*, 2003), higher mitochondrial rRNA expression (Ozacmak and Sayan, 2009), and higher basal levels of cellular antioxidants in female rats compared to males (Borrás *et al.*, 2005) may leave females to be better adapted to oxidative stress than males.

As well as oxidative stress, physiological and psychological stress responses could contribute to the explanation for changes in life expectancy. Physiological stress response is often associated with the activation of the hypothalamic-pituitary-adrenocortical (HPA) axis and the sympathetic nervous system (Del Giudice, Ellis and Shirtcliff, 2011). Acute activation of the HPA axis is considered an adaptive response required to deal with the metabolic demands of a stressor (Heck and Handa, 2019). Cortisol and Dehydroepiandrosterone Sulphate (DHEAS) are hormones secreted during HPA axis activation (Stratakis and Chrousos, 1995). Hyperactivation of the HPA axis occurs during chronic stress and can lead to altered secretions of cortisol (Miller, Chen and Zhou, 2007). This may lead to immune and inflammatory responses, cardiovascular disease, obesity, cancer, and increased risk for mortality (Adam *et al.*, 2017). It may also be linked to depression, anxiety and mixed depression and anxiety disorder (Adam *et al.*, 2017; Pariante and Lightman, 2008).

Understanding sex differences to psychological stress response could further explain differences in life expectancy. However, theories are conflicting. Some suggest females are better adapted to psychological stress, as observed when asked to perform a public speaking

and mental arithmetic task in front of an audience. Here, male participants reported greater mean cortisol level responses compared to females (Kirschbaum *et al.*, 1992). Although this theory explains nicely why stress response is a contributor to increased mortality in males, it is not consistent throughout the literature. Some studies indicate an increased HPA response to acute stress in males, others in females and others report no significant difference (Bangasser and Valentino, 2014; Kirschbaum *et al.*, 1999; Seeman *et al.*, 2001; Kudielka and Kirschbaum, 2005). When investigating the effects of chronic stress, females are twice as likely as males to present with affective disorders such as depression and anxiety (Bangasser and Valentino, 2014). One explanation for this could be females experiencing more discrimination as a result of gender roles, increasing the risk for environmental stress, occupational stress, and sleep disturbances (Kautzky-Willer, Harreiter and Pacini, 2016).

The ability to handle acute and chronic stress is not simply best dealt by one sex or the other. Factors including the type of stressor, age of individual, overall health, and the menstrual stage of the female participants will all have an impact on findings in studies (Bangasser and Valentino, 2014). However, what is clear is that an individual who responds poorly to stressors is more at risk of health implications and mortality (Adam *et al.*, 2017).

Although biological factors to sex differences in life expectancy is important to consider, it is not the only factor. Other theories such as societal and behavioural factors need to also be considered.

### **1.3 Socially constructed norms and their impact on life expectancy**

#### *1.3.1 The definition of gender identity*

Gender is not a binary choice that is dictated by biological sex. Biological characteristics of females and males are determined by the XX or XY chromosomes, but gender is not. Gender is defined as the socially constructed norms which determine and enforce roles, relationships, and positional power for people across their lifetime (Shannon *et al.*, 2019). Gender explains that many people have traits of masculinity or femininity which can coexist and can be expressed to different degrees (Mauvais-Jarvis *et al.*, 2020). The behaviours which apply to men, women and non-binary people in society can influence everyday actions, expectations, and experiences and are referred to as gender norms. Gender identity is how an individual perceives themselves and what gender norms they adopt. The way in which people interact with one another and in turn how they are treated is influenced by ascribed gender and is referred to as gender relations (Mauvais-Jarvis *et al.*, 2020). West and Zimmerman (1987) describe gender

as “not simply an aspect of what one is, but... is something that one *does*, and does recurrently, in interactions with others.” Together, these gender constructs influence health differently than biological sex. They can determine an individual’s access to health care, their motivations to accessing health care and how they use health care systems (Mauvais-Jarvis *et al.*, 2020). Gender-related behaviours, therefore, can either exaggerate risk exposure or bolster preventative health behaviours in several diseases (Regitz-Zagrosek *et al.*, 2016; Mosca, Barrett-Connor and Kass Wenger, 2011; Kandrack, Grant and Segall, 1991; Walker *et al.*, 1988).

### *1.3.2 Theoretical overview of hegemonic masculinity*

Masculinity and femininity are considered “prototypes of essential expression” which establish a contract for the social situation but are also expressive behaviours that portray our “essential nature” (West and Zimmerman, 1987). One theory for masculinity is described by Connell (2020) who suggests men aspire to, or are aware of, a traditional code of masculinities known as Hegemonic Masculinities. This code promotes rationality, autonomy, control, self-reliance, competitiveness, physical strength, emotional stoicism, risk-taking, and predatory heterosexual behaviours (Connell, 2020). These gender constructs subordinates’ femininities as well as other forms of masculinity (Courtenay, 2000b). Although only a minority of men may enact on these traits, the theory describes a pattern of practices which allow men’s dominance over women. Hegemony does not mean violence and even without displaying strong masculine dominance, men still benefit from patriarchy through culture, institutions, and persuasions. (Mann and Krane, 2017).

Hegemonic masculinity has been used to understand and research topics including education and classroom behaviours (Martino, 1995); criminology and hooliganism (Newburn and Stanko, 2013); media representations of men (Jansen and Sabo, 1994); and men’s health and risk-seeking behaviour (Sabo and Gordon, 1995) among others (Connell, 2020).

### *1.3.3 Hegemony, power, and health*

The power and dominance that hegemonic masculinity displays over femininity and other forms of masculinity is important to understand when describing why men may adopt unhealthy behaviours. It has been suggested that men who demonstrate masculine ideals through their health beliefs and behaviours may reinforce patriarchy and dominance (Courtenay, 2000b). Beliefs such as refusing to acknowledge pain, for example, portrays a man as powerful. The denial of weakness or vulnerability; displaying emotional and physical control; appearing

strong and robust; dismissing any kind of help; a constant interest in sex; and demonstrating aggression and physical dominance are all examples of health-related behaviours which undermine men's health, but are mechanisms in which men structure and acquire power (Courtenay, 2000b). Courtenay (2000b) explains how cultural ideals portray men as more powerful and less vulnerable than women; that their bodies are stronger and more efficient structurally; or that asking for help and caring for your own health are traits of femininity; and that powerful men disregard health and safety. This reinforces power but exacerbates men's health.

#### *1.3.4 Hegemonic masculinity and weight loss*

Behaviours associated with hegemonic masculinity are proposed to allow men to acquire power, but they may also be detrimental to health outcomes. A good example of this is how men behave when required to lose weight. The denial of weakness or vulnerability can be observed when men question or reject the validity of medical definitions associated with common tools to assess body weight and health, namely, body mass index (BMI) (Gray *et al.*, 2011). Here, men who were classed as overweight or obese believed muscle mass, as opposed to body fat, was the cause of this classification. Even when categorised as overweight or obese, men underestimate their vulnerability to obesity-related illnesses including type 2 diabetes mellitus (DeVile-Almond *et al.*, 2011). When attempting to manage weight loss, men are more likely to exercise than diet and also express concern about being too thin or weak when losing weight, both of which are examples of appearing strong or engaging in activities which display physical dominance (Kiefer, Rathmanner and Kunze, 2005). Demonstrating hegemonic masculinity by refusing to acknowledge increased body weight, underestimating the health risks associated with this or disengaging in physical activity or adopting a healthy diet places men at an unfavourable risk to metabolic and cardiovascular diseases.

The reluctance to adopt a physically active lifestyle or a healthy diet are not the only behaviours which pose a risk to men's health. A review by Garfield, Isacco and Rogers (2008) discussed further health behaviours and the masculine ideologies which drive them. Similar to Kiefer, Rathmanner and Kunze (2005), the authors describe how men are less interested than women in food decisions and when they are interested, focus mainly on the protein and vitamin content of food. As protein is the main macronutrient for muscle metabolism (Tipton and Wolfe, 2001), it would be fair to suggest this is a demonstration of displaying physical control or dominance.

### *1.3.5 Hegemonic masculinity, tobacco, and alcohol*

Tobacco use in men is greater than women. Men smoke on average 3 times more cigarettes a day than women (Gritz *et al.*, 1998), and are more likely to smoke cigars and smokeless tobacco (Courtenay, 2000a). The risks that are associated with smoking tobacco have been widely known for a long time (Freund *et al.*, 1993) and the denial of knowledge to these risks could be considered risk-seeking behaviour, another behaviour of hegemonic masculinity.

Alongside smoking tobacco, alcohol consumption is equally known to lead to health risks and the frequency and quantity of alcohol consumption is higher in men than women (Wilsnack *et al.*, 2000). Health risks associated with alcohol and tobacco consumption include hypertension, liver cirrhosis, chronic pancreatitis, injuries, violence and for cancers of the oral cavity, oesophagus and larynx (Corrao *et al.*, 2004). This is worsened when considering other unhealthy behaviours including: high-risk sexual activity, risk of sexually transmitted diseases, suicidal thoughts, and unplanned suicidal attempts (Courtenay, 2000a). Despite this, it is culturally accepted for men to drink alcohol habitually (de Visser and Smith, 2007). Garfield, Isacco and Rogers (2008) suggest that alcohol consumption allows men to demonstrate masculinity, enhance male camaraderie and sociality toward the opposite sex, and provides a temporary escape from emotional problems. Again, these are all characteristics typically associated with hegemonic masculinity.

### *1.3.6 Hegemonic masculinity and help seeking behaviour*

Displaying behaviours associated with masculinity can create a barrier to accessing health services. Previous reviews demonstrate that those men who hold negative attitudes toward healthcare are less likely to seek help and may also hold traditional beliefs about masculinity and male gender roles (e.g. emotional control, self-reliance, being successful at any cost, and avoid feminine behaviours) (Garfield, Isacco and Rogers, 2008). These negative attitudes may be a barrier to seeking help from mental health services. Men often access mental health treatment only after a long period of displaying symptoms and one in four men will prematurely drop out of treatment once they receive it (Seidler *et al.*, 2018). These barriers and subsequent behaviours may exist because of beliefs including the feeling of vulnerability, fear in displaying weakness or belief of incompetence to other men.

Beliefs and behaviours which align to hegemonic masculinity and traditional male gender roles may prevent men from accessing support beyond mental health services. Men are less likely than women to seek support for stress or strain and would use friends or relatives as support

mechanisms over GPs (Oliver *et al.*, 2005). Similar findings for negative attitudes and delays in seeking support are replicated in studies focusing on depression, substance misuse, and other stressful life events (McKay *et al.*, 1996; Möller-Leimkühler, 2002; Seidler *et al.*, 2016; Courtenay, 2000b; Oliver *et al.*, 2005)

Negative attitudes towards health services clearly create a barrier in men accessing support before or after ill health develops. This compounds already pre-existing risks such as gendered beliefs and physiological influences which put men at greater risk of premature mortality.

### *1.3.7 Alternative forms of masculinity*

It is important to recognise that hegemonic masculinity is not practised by all men all the time. Hegemony explains how men maintain a hierarchical position over other men and women, however, marginalised men may attempt to compensate for their subordinate status by constructing alternative forms of masculinity (Courtenay, 2000b). Other alternative forms of masculinity include oppositional (Messerschmidt, 1993), compulsive (Majors and Billson, 1993), compensatory (Pyke, 1996), or protest (Connell, 2020) which may be adopted by men who have had their masculine identity and self-esteem undermined by higher-status males (Courtenay, 2000b). These are termed “hypermasculine” constructs and can be equally self-destructive or dangerous to men’s health (Meinecke, 1981). Men with a lower hierarchical class status may feel the need to compensate by demonstrating compulsive masculinity leading them toward smoking, drug and alcohol abuse, fighting, sexual conquests, dominance and crime (Majors and Billson, 1993).

Homosexual men may feel unable to demonstrate hegemonic masculinity and instead opt for protest masculinity by dismissing the risks associated with high numbers of sexual partners or unprotected sexual activity. The suppression of sexual desire by homosexual men in their earlier years has been suggested to lead to overcompensation which would manifest itself as unsafe risky behaviour (Connell, 2020).

The demonstration of hypermasculinities within marginalised men are not considered hegemonic as there is no intention to claim power through the behaviour (Courtenay, 2000b). Courtenay (2000b) also explains how the promotion of hypermasculine beliefs by gay and bisexual men allows them to show they are still “real” men, despite their sexual preference. It is, however, also important to remember that masculinity and the way it is expressed through speech, dress, physical appearance, activities and relations with others is fluid, self-regulated



and specific to the context in which the man encounters (Courtenay, 2000b; Messerschmidt, 1993).

### *1.3.8 The flexibility and fluidity of masculinity*

The beliefs and behaviours aligned to masculinity are not fixed or demonstrated constantly. An example of this can be observed when looking at masculinity in different situations or even across an individual's life. A man may behave differently in some situations compared to others. For example, men display emotional or physical pain easier to their partners but may consider it unacceptable to do the same in front of other men (Courtenay, 2000b). Behaviours and beliefs also fluctuate throughout a man's life course. In a young man's life, risk taking, or performative acts of masculinity, is a prominent behaviour which can result in recklessness, road accidents, violent behaviour and can influence a young man's body image (Marcos-Marcos *et al.*, 2019). Young men may also be driven to demonstrate power, seduction and sexual agency (McCabe and Ricciardelli, 2004), by adopting extreme diets, regularly consuming protein supplements or even anabolic steroids (Kimergård, 2015) – all of which conform with traditional male ideology (Martin and Govender, 2011).

The position of power which men hold in their younger years is reinforced through family dynamics when men enter middle age. When a man begins a family, it is socially expected for men to continue working and be the “breadwinner” of the family. Not only does this contribute to the inequalities in gender pay and professional development, but it can lead to health issues for men (Marcos-Marcos *et al.*, 2019). For instance, men are often the sole earner for a household and this financial stress has been associated with declining mental (Artazcoz *et al.*, 2004) and physical health (Lundin *et al.*, 2014). Men are socially expected to continue working in the early stages of a child's life meaning they may adopt an inferior role with childcare responsibilities. This has been suggested to contribute to poor knowledge and skills on how to look after the health of others, and therefore themselves (Marcos-Marcos *et al.*, 2019; Noone and Stephens, 2008).

Masculinity and power continue to change throughout a man's life. As a man ages, and if marriages are broken due to divorce, the legal process for divorce may create a shift in family power. The father's role may become less significant, they may lose power and their wellbeing may be compromised (Catlett and McKenry, 2004). Some studies describe how divorced men have lower life satisfaction (Andreß and Bröckel, 2007) and increased risk of mortality in the

years following a divorce (Shor *et al.*, 2012). However, evidence is conflicting and the disparity between the health of divorced men and women is inconclusive (Leopold, 2018).

The changing of behaviours across a man's life can further be observed as men enter older age. In the UK, adults have the option to retire, thanks to state or private pensions, meaning a removal from the labour market (Banks and Smith, 2006). Men who retire may no longer be the financial linchpin of a family. The omnipotence that financial power and authority associated with being the "breadwinner" is lost in those who retire. This, alongside the reduced physical strength associated with aging (Thompson, 2007), may cause men to renegotiate or reject hegemonic masculinity (Flurey *et al.*, 2018). Examples of renegotiation are presented by Flurey *et al.* (2018) who describes how men diagnosed with Rheumatoid Arthritis adopt activities which are still within their physical capabilities, but also allow them to demonstrate masculinity. These activities include participating in sports such as motorcycling. Similar behaviours to renegotiate masculinity have been reported in studies with men diagnosed with prostate cancer (Maliski *et al.*, 2008), and those with depression and coronary heart disease (O'Brien, Hart and Hunt, 2007). These examples reinforce the idea that masculinity is fluid and adapts to different situations over time. Despite beliefs and behaviours changing across time, risk to health underpins each example. Behaviours which change across time, but remain risky, can further explain why there is a gap in life expectancy between men and women.

#### *1.3.9 Key considerations of masculinities when developing health interventions*

Biological factors are not the sole contributor to reduced life expectancy in men. The social constructs of gender dictate that men conform to codes which align with a spectrum of masculine identities. These codes promote competitiveness, physical strength, emotional stoicism, and risk-taking (Connell, 2020) which compromise the health and safety of men and leads to reductions in healthcare access and the promotion of risk seeking behaviour. These behaviours include: the reluctance to engage in weight loss interventions or mental health services; recklessness and violent behaviour; adopting of extreme diets and the use of anabolic steroids; and the increase in tobacco or alcohol consumption. Men display these and similar behaviours in different situations and throughout their life. These behaviours and the drivers for those behaviours need to be considered when developing health interventions. Failure to do so may compromise the effectiveness of the key components in an intervention designed to change men's health behaviour.

## 1.4 Gender specificity in health interventions

### 1.4.1 Under-representation of men in health interventions

Despite life expectancy being shorter for men, health interventions disproportionately recruit females, especially in weight loss interventions. Pagoto *et al.* (2012) reviewed 224 lifestyle weight loss interventions in which just less than a quarter (27%) of participants were male. Similar findings have been reported in other systematic reviews of weight loss interventions for adults living with obesity (Robertson *et al.*, 2016).

Weight loss interventions can be delivered in various environments and through various modalities, but there does not appear to be an approach which can address the male to female imbalance in recruitment. When using Primary Care as a model of delivery in weight loss interventions, for example, the representation of males is significantly lower than females. Ross *et al.* (2008) evaluated weight loss interventions from 65 GP practices around the UK and reported 23% of the 1,906 participants as being male at baseline. Similar disparities are found in group-based weight loss interventions. Borek *et al.* (2018) reviewed group-based lifestyle weight-loss interventions for overweight or obese ( $\text{BMI} \geq 25 \text{ kg/m}^2$ ) adults with no comorbidities or illnesses. Over the 17 year study inclusion period, 60% ( $n = 36$  out of 60) of interventions only targeted females, 8.3% ( $n = 5$  out of 60) targeted males only and of the 19 interventions which included both males and females, an average of 65% of participants were females (Borek *et al.*, 2018).

Removing the barrier of attending health interventions within primary care and instead delivering them within the community could engage more men. However, some reviews suggest otherwise. Interventions which used face-to-face counselling/group sessions, exercise/walking sessions, mail or telephone interventions, public campaigns, e-mail, computer or web-based formats were reviewed by Bock, Jarczok and Litaker (2014). Fifty-five studies were selected for review amounting to 20,532 participants, of whom 66.9% were female.

While delivering physical activity interventions through web-based platforms is an innovative method for lifestyle intervention recruitment, similar disparities in gender participation still exist. Vandelanotte *et al.* (2007) reviewed studies which used websites or emails to encourage increases in physical activity behaviours. All but one study recruited more men than women and overall, 66% of participants in the review were women. Similar findings have been demonstrated in more recent reviews and for studies which assessed health related outcomes from workplace interventions (Howarth *et al.*, 2018). Here, authors reviewed digital

interventions delivered through computer, tablet, smart-phone, or email, either as a website, app, or download-able software. Of the 22 articles included in analysis, 69% of participants were female. Interventions delivered digitally does not address under representation of men in health interventions.

Under representation of men is not unique to physical health interventions but occurs in mental health interventions too. Mental health interventions often report lower response rates (Oliver *et al.*, 2005), participation (Baumeister *et al.*, 2014), and long term engagement (Borghouts *et al.*, 2021) with men. Drew *et al.* (2020) reviewed lifestyle behaviour change interventions designed for males aged 18 to 65 years old which also included at least one mental health or mental illness measure. Of the nine studies selected for review, one designated 10 minutes of wellbeing related activities (mindfulness-based stress reduction), but no other study included components which specifically targeted mental health. Authors concluded a need for lifestyle interventions which target only men and are powered to detect changes to mental health.

It's clear that men do not engage in traditional physical or mental health interventions. It is also clear that there is a lack of interventions which are specifically designed for men. If interventions could successfully engage this group, the gap in life expectancy between the sexes may be reduced.

#### *1.4.2 Defining men as a hard-to-reach group*

Hard-to-reach is a term used inconsistently in the literature. It has been used when referring to marginalised groups, for example minority ethnic groups; for hidden populations, for example illegal drug users; but is often used for broader groups in society, for example young people (Jones and Newburn, 2001). In relation to health research, hard-to-reach refers to populations who are difficult to contact or influence by traditional techniques (Walsh *et al.*, 1993; Freimuth and Mettger, 1990). These groups may have no available services or fail to access the services which are available (Barlow *et al.*, 2005). A poor representation of particular groups in the health service, combined with poor health profiles, give further concern to the medical profession (Zwolinsky *et al.*, 2013).

With a clear demonstration that men do not engage in health interventions, despite offering services through different environments and modalities (Pagoto *et al.*, 2012; Ross *et al.*, 2008; Borek *et al.*, 2018; Vandelanotte *et al.*, 2007; Howarth *et al.*, 2018; Bock, Jarczok and Litaker, 2014; Oliver *et al.*, 2005; Baumeister *et al.*, 2014; Borghouts *et al.*, 2021), it would be fair to categorise them as hard-to-reach. Men may be hard-to-reach because of feelings of vulnerability

or weakness (Garfield, Isacco and Rogers, 2008). It may also be due to shame or the fear of difficulty to maintain an illusion of strength and normality, or the belief that treatments such as therapy are effeminate and contradict the masculine norm (Seidler *et al.*, 2016). The beliefs of accessing health care services may be multi-faceted, but the outcome of these beliefs leave men vulnerable which, in the presence of unhealthy lifestyle behaviour and the reluctance to change, may be dangerous to their health (Zwolinsky *et al.*, 2013). Identifying groups, like men, as hard-to-reach can be helpful when providing appropriate healthcare. However, understanding the key components of health intervention for men is imperative when designing intervention for this population.

#### *1.4.3 Key constructs in men's health interventions*

Despite a low representation of men in health interventions delivered in different settings and via innovative modalities, considering a gender sensitised approach has demonstrated improved recruitment and adherence in groups of men. Reviews investigating the effectiveness of physical activity interventions for men were published in 2012 (George *et al.*, 2012) but have since been updated (Bottorff *et al.*, 2015).

George *et al.* (2012) reviewed studies which included males aged between 18 and 65, or studies with both males and females where male data was reported separately, which assessed changes in physical activity, physical fitness, or changes in biomarkers of disease risk related to physical activity. A total of 14 studies reviewed targeted physical activity and nine studies combined physical activity and nutrition. Ten and four of these studies, respectively, demonstrated increases in physical activity. Two of the 14 physical activity only interventions targeted men only, however they were not tailored exclusively for men. Face-to-face, group-based, and community-based interventions proved to be the most successful at improving physical activity, compared to internet and print based interventions. Seven of the nine combined physical activity and nutrition studies were male only with three of these designing interventions which were specific to men. All face-to-face interventions, all internet-based interventions and three of the four group-based interventions reported improved health benefits to those who received the intervention. Two of the three print-based interventions demonstrated improvements to health in men who received the intervention, but the third study also reported improvements in the study arm which received both print and face-to-face interventions. Morgan *et al.* (2009) compared print based to face-to-face interventions and reported significant weight loss in participants in both groups. From the review by George *et al.* (2012), it is clear that face-to-face and group-based physical activity and nutrition interventions effectively improve health

outcomes in groups of men. This review also highlighted the small number of studies specific for men, however, there was little focus on the role of masculinities and gender specificity within men's health interventions.

Bottorff *et al.* (2015) extended the findings of George *et al.* (2012). Here, authors investigated the influences of sex and gender in the context, design, and delivery of men's health interventions. Thirty-five articles were selected for review which were based on 31 separate programmes. Twenty-eight of the 31 programmes improved physical activity or a secondary measure which suggests an increase in physical activity.

It is important to understand the theoretical constructs which underpin health interventions. Bottorff *et al.* (2015) concluded that 14 of the 31 men's health interventions outline theoretical constructs with the Social Cognitive Theory (SCT) underpinning the majority of these (12 of the 14 studies). Other studies were not guided by theory but used the Theory of Planned Behaviour as a template for interpreting findings. During post-intervention interviews, Gram *et al.* (2014) reported participants adherence to exercise behaviour as the result of positive attitudes about exercise, a sense of obligation or social pressure, and perceptions of control about ability to succeed. Similar attitudes to the importance of physical activity and the subsequent action of physical activity in participants from Sheeran *et al.* (2013) also demonstrates how the Theory of Planned Behaviour can be used to interpret findings. Here, authors suggest that changes to one of the three sets of belief-based perceptions on behaviour from the Theory of Planned Behaviour may contribute to health improvements in participants. These include improvements to attitudes, subjective norm and perceived behaviour control (Hagger and Chatzisarantis, 2009). This demonstrates that despite theoretical underpinning to interventions, some still consider theories in the interpretation of findings.

Alongside the theoretical underpinning of interventions, it is equally important to consider other key components, including the modality of intervention delivery. Bottorff *et al.* (2015) described the interventions mode of delivery in the review. Fifteen of the 35 studies offered group-based physical activity sessions while most studies encouraged participants to exercise on their own. The interventions which encouraged individual activity all failed to increase physical activity levels of participants. (Werkman *et al.*, 2010; Maruyama *et al.*, 2010; Plotnikoff *et al.*, 2013). Eight interventions involved a digital component which ranged from online websites to emails to mobile phone apps. Some digitally innovative delivery methods allowed family members and counsellors to comment on progress (Maruyama *et al.*, 2010) and a medium to connect with male peers to promote social support (Duncan *et al.*, 2014). Friendly

competition and team-based programmes were encouraged on one virtual platform (Freak-Poli *et al.*, 2011). Despite the innovative methods designed to improve health outcomes through digital platforms, group-based and face-to-face interventions are clearly a superior delivery method.

An interesting finding in the review by Bottorff *et al.* (2015) was that 12 of the 20 programmes offered exclusively to men considered sex-specific and gender sensitivity from the beginning of design. Three of the 12 programmes utilised the involvement of football (or soccer) to capture men's interest (Hunt *et al.*, 2014b; Pringle *et al.*, 2013; Zwolinsky *et al.*, 2013). All three of these programmes demonstrated high success in increasing physical activity as well as other health behaviours. Gender sensitivity and the involvement of sport as a motive for recruitment and retention appear to be innovative in men's health interventions.

Bottorff highlighted interventions which did not use sport as a vehicle for engagement and understanding the key gendered components here is important when understanding how content can be tailored to suit masculine ideals. For example, SHED-IT, an Australian weight loss programme for men, used tailored resources which affirmed masculine virtues, for example by using language which is culturally sensitive (e.g. "Weight Loss Handbook for Blokes") (Morgan *et al.*, 2009). Humour and informal descriptions of physical activity and dietary behaviours were also used to appeal to men's masculine virtues. Other interventions capitalised on the hegemonic ideal of strength, lack of weakness and masculinities by naming the intervention POWERPLAY (Johnson *et al.*, 2016). Interestingly, the POWERPLAY intervention reinforced how men are more interested in food which focusses on protein (Kiefer, Rathmanner and Kunze, 2005), potentially because this is the main macronutrient for muscle metabolism (Tipton and Wolfe, 2001). Other interventions which did not focus on sport simply used friendly competition and camaraderie to engage men and motivate behaviour change (Hooker *et al.*, 2011) which are further examples of using codes of hegemonic masculinity when targeting men.

#### *1.4.4 Using the power of sport/football to engage men in health interventions*

In relation to health research, interventions which are gender sensitised are those which recognise and integrate male specific interests and preferences. They also focus on masculine ideals and gender influences to create behaviour change in an otherwise considered hard-to-reach audience. For instance, in a systematic review conducted by Bottorff *et al.* (2015), 12 of the 20 interventions reviewed considered gender or sex specific factors during either design or

delivery. One intervention which demonstrated how these considerations are made and the implication of doing so is Football Fans in Training (FFIT).

FFIT was an intervention which used local football as a vehicle for recruitment and retention to weight loss interventions aimed at men (Hunt *et al.*, 2014b). The evident success in recruitment and retention and the long term health outcomes in participants (Hunt *et al.*, 2014b) explain why the same model has been adjusted for populations across the globe (Gill *et al.*, 2016; Kwasnicka *et al.*, 2020; Wyke *et al.*, 2019). Understanding the components of FFIT may help to replicate success in subsequent interventions.

Football is clearly a key component in recruitment, engagement and behaviour change in the FFIT intervention and its derivatives. Hunt *et al.* (2014a) describes how the association with a football club was the most important factor in recruiting men to the intervention. One participant described how “... the main thing that drew us to it was because it’s [Club07]. You’re going to be involved at [Club07], whether it just be at the ground, stadium ... That was what really attracted me to it”. Once recruited, men also reported feelings of relief when attending the first session because they recognised others with a similar physical appearance to themselves. This created familiarity and feelings of comfort or belonging. Comfort was exaggerated with group sizes of around 15 participants as they encouraged conversations on sensitive issues (Gray *et al.*, 2013b). Comfort was further cultivated by encouraging humour, which authors highlighted as a key component of the delivery style (Gray *et al.*, 2013a). This comfort and sense of belonging was reaffirmed as the intervention progressed and participants gained privileged access to areas of the football club. Belonging rapidly materialised into a group identity where individuals felt they were part of a bigger team, despite individual backgrounds. Identity was created not only from familiarity, belonging, and humour, but simply by providing clothing with club branding. “...you definitely feel a connection to the club that you maybe didn’t have before. Even just the t-shirts we all got.”. Once a sense of identity had been created within the FFIT intervention, humour was also used to translate complex, and traditionally stigmatised health topics. Humour and fun encouraged learning and exercise and did not impede them (Wyke *et al.*, 2015). This style of delivery conformed with the gender sensitised approach in which the intervention was based around.

A key strength of FFIT is that it considered concepts of masculinity in the content, context, and style of delivery. Authors termed this *gender sensitivity*. Delivering an intervention in a football setting is an example of how the intervention context was gender sensitised. Humour, camaraderie, and a shared sense of identity between participants are examples of a gender



sensitised style of delivery. Gender sensitised examples of intervention content include simple health education which focused on health behaviours closely aligned to masculine ideals including alcohol and weight loss. Finally, the inclusion of club insignia on clothing captured men's interest and demonstrated how simple concepts can align to the masculine beliefs that men hold (Gray *et al.*, 2013a). Despite collecting data on mental health, the contents of FFIT did not focus on mental health related topics, such as stress, anger, or sleep. Given the lack of mental health interventions designed specifically for men (Drew *et al.*, 2020), it's clear that there is a need for such interventions.

FFIT, however, is not the only intervention to apply a gendered approach to intervention context, content, and style of delivery. Others have adopted similar approaches with similar success to health outcomes. Caperchione *et al.* (2017) referred to masculinity theories when designing the HAT TRICK programme which was a 12-week healthy lifestyle intervention designed for men using Canadian Ice Hockey as the vehicle for engagement. During the design, the authors used gender-related strategies to influence men's health behaviours. These included activity-based approaches, self-monitoring, friendly competition, and the encouragement of camaraderie. Consideration was also given to the resources offered to men on the programme which were dark in tones, used "average" men performing activities, and capitalised upon the language or tone in the descriptions of health-related topics. An example of this innovative approach includes "power foods" to describe healthy foods. A process evaluation of the HAT TRICK intervention suggests high levels of participant satisfaction, acceptability and engagement (Sharp *et al.*, 2020a).

A gendered approach to intervention design for hard-to-reach men is clearly beneficial. Those studies which use football as a vehicle for delivery have consistently shown improvements to health behaviours or health outcomes (Pringle *et al.*, 2013; Hunt *et al.*, 2014b; Zwolinsky *et al.*, 2013). However, interesting findings from Sharp *et al.* (2020a) suggest room for improvements with interventions. During post intervention open ended questionnaires and telephone interviews, participants indicated an interest and desire to learn more about mental health and the influences of emotions on eating behaviours, alcohol consumption, and physical activity. One participant describes "...I'm not only eating bad but also drinking, not heavily, but maybe using alcohol when I'm feeling down or depressed .... As a stress reliever.". Indeed, mental, and physical illnesses can co-exist (Rønne *et al.*, 2020; Sanna *et al.*, 2013; Scott *et al.*, 2009) suggesting that interventions would benefit from targeting mental, physical and social health behaviours, which can be termed *holistic* health. No intervention, to my knowledge, has used a

combination of mental, physical, and social wellbeing education in an intervention designed for men and delivered through a football club. There is also no such intervention available for men in the North East of England. According to most recent public health data, the North East and Yorkshire NHS region has the highest prevalence of hypertension and coronary heart disease; second highest prevalence of stroke and common mental health disorders; and the lowest male life expectancy (North East region) and self-reported wellbeing (Disparities, 2023). This clearly demonstrates a need for such an intervention within this region of the United Kingdom.

## **1.5 Theoretical overview**

This thesis describes the systematic development of a men's health intervention, the 12<sup>th</sup> Man. The development of this intervention followed a structured framework for intervention development and aligned with psychological and behavioural change theories. It is important to explore each of these theories while also describing the rationale for their selection in the development of the 12<sup>th</sup> Man.

### *1.5.1 The Social Cognitive Theory*

Albert Bandura developed a comprehensive framework for understanding human behaviour throughout the 1960's and 1970's (Bandura and Walters, 1977). This theory has been developed and applied to health promotion in recent years (Bandura, 2004). Bandura initially highlighted key differences between this theory and others in human behaviour which included the importance of observational learning which was argued as more efficient a technique of behaviour change over other techniques (Grusec, 1994). Bandura's theory focusses on how people cognitively operate on their social experiences and how these cognitive operations influence behaviour. Humans are said to absorb and learn information from social experiences, including verbal discussions and encounters, which in turn inform how the person reacts to those environments and the environments they seek out in the future (Grusec, 1994).

The initial SCT outlined key components including observational learning (Bandura, Grusec and Menlove, 1966), self-regulation (Bandura, 1991), self-efficacy (Bandura, 1982), and reciprocal determinism (Bandura, 1978). Observational learning involves attention, retention, action and motivation (Grusec, 1994). For someone to learn through observation, they must first give their attention. They would then retain this observation in their memory (either in imaginal or verbal representation systems). They then act upon replicating the behaviour and finally have the motivation to repeat this behaviour again in the future.

Self-regulation describes how learnt behaviours are not spontaneous or in response to an external stimulus. Bandura (1982) describes how knowledge, transformational operations, and component skills are necessary for behaviour, but not sufficient for that behaviour to occur. People may know what behaviour is required, but they may still not enact upon it (Bandura, 1982). People have internal judgement or standards of behaviours which determine whether self-blame or self-praise will be the outcome of the behaviours. These standards of behaviours are the product of numerous evaluations of others exhibiting the same behaviours, or by the same individual demonstrating the same behaviour in different circumstances. This informs the development of general standards in which an individual judges themselves against. An individual's own perception of competence, the value of the specific activity or whether they have the ability to complete these behaviours are all important contributors to the success of these standards of behaviours (Grusec, 1994).

According to Bandura, self-efficacy describes an individual's belief about their ability to complete a behaviour, which drives their effort in that performance in a particular situation thereby improving motivation (Grusec, 1994). Self-efficacy is the belief that actions will result in the desired effects, thereby increasing the likelihood of the individual to perform those actions. However, if there is a lack of belief, or self-efficacy, then there is little incentive to act, especially in adverse situations (Bandura, 2004). Self-efficacy is considered one of the most powerful predictors to explain health behaviours (Luszczynska, 2005) and despite other factors, the core motivator for change is the belief that one has the power to produce change (Bandura, 2004).

Reciprocal determinism describes a continuous reciprocal interaction between behavioural, cognitive, and environmental influences (Bandura, 1978). Examples of cognitive influences are goals, self-perception, and physical structures which all influence and direct behaviours and those behaviours conversely influence these cognitive and biological properties (Grusec, 1994). Environmental influences may be modelling, instruction, and social persuasion which may impact the person differently depending on their personality and physical features (Grusec, 1994). Behaviours impact which environmental influences the person may experience which, in turn, influence how that person behaves in that environment (Grusec, 1994).

As an extension of the initial key components of observational learning (Bandura, Grusec and Menlove, 1966), self-regulation (Bandura, 1991), self-efficacy (Bandura, 1982), and reciprocal determinism (Bandura, 1978), additional key components can be considered for health promotion (Bandura, 2004). Outcome expectations and the expected costs and benefits for

different health habits is a key consideration for health behaviour change and is described in three forms. The first is the physical outcome, which may result in material losses or benefits. Second is the social outcome, which may be approval or disapproval of behaviour and subsequent impact on interpersonal relationships. The final consideration is the self-evaluative reaction to the health behaviour or health status. This self-evaluation is a set of personal standards which regulate behaviour through self-satisfaction, self-worth and self-dissatisfaction (Bandura, 2004). Behaviours which create self-satisfaction or self-worth increase motivation, but motivation can also be enhanced through goal setting.

Goal setting can encourage people to change habits by setting concrete plans and strategies for achievement. Goals need to be rooted in a value system as this provides self-incentive and guides health habits. Long-term goals likely impact personal change but are at risk of influence to current behaviour. Creating short-term goals navigate these influences by creating actions for the here and now (Bandura, 2004).

Influences on behaviour may be facilitators or impediments and may be rooted in self-efficacy. Beliefs of success are measured against varying challenges which, if insurmountable, make behaviour action difficult. If there are no impediments or challenges, behaviour is easy to perform (Bandura, 2004).

When considering health behaviour change, Bandura's SCT outlines key considerations which include knowledge acquisition, self-regulation, self-efficacy, reciprocal determinism, outcome expectations, goal setting and perceived facilitators and impediments.

Bandura's SCT is prevalent within the behaviour change field as a theory around which interventions are built. However, Caperchione *et al.* (2017); Gill *et al.* (2016); Gray *et al.* (2013a) all describe how the theoretical constructs of the SCT are used within interventions designed specifically for men.

### *1.5.2 The Self-Determination Theory*

When focussing on health behaviours, it is important to understand what drives motivation, and the orientation of motivation (Ryan and Deci, 2000). SDT is a macro-theory of human motivation and personality developed by psychologists Edward Deci and Richard Ryan (Ryan and Deci, 2000). This theory extends upon various psychological theories and research including organismic integration theory (Ryan, Kuhl and Deci, 1997), cognitive evaluation theory (Deci and Ryan, 2013), and intrinsic motivation (Csikszentmihalyi and Rathunde, 1993;

Ryan, 1995). SDT describes how any behaviour can be intrinsically motivated, extrinsically motivated or amotivated (Ryan and Deci, 2000). SDT has been used within men's health research to motivate men to change behaviour (Caperchione *et al.*, 2017; Gray *et al.*, 2013a).

Intrinsic motivation is the tendency to seek out novel behaviours which provide challenge, give someone the opportunity to exercise their own capabilities and to explore and learn (Ryan and Deci, 2000). Extrinsic motivation refers to a performance which attains an outcome which is separate of the behaviour itself (e.g. attaining a reward or avoiding a punishment). This is unlike intrinsic motivation which refers to doing an activity for the inherent satisfaction of the activity itself (Ryan and Deci, 2000). Extrinsic motivation is detailed further by Deci and Ryan (2013) in the organismic integration theory which describes a continuum in which people can move from more controlling forms of motivation (e.g. extrinsic), through to more self-determined forms of motivation. This continuum can be seen in Figure 1.1. The far left of the self-determination continuum is amotivation where someone has no intent to act on a behaviour. Following amotivation and moving from left to right of the continuum, extrinsic motivation and the four distinct forms are described. The least autonomous form of extrinsic motivation is *externally regulated*. Here, behaviours are performed to satisfy an external demand or reward. The second type of extrinsic motivation is *introjected regulation* where behaviours may be performed to avoid guilt or anxiety or to attain ego enhancements such as pride and is where introjection involves taking in a regulation but is not fully accepted as one's own. As autonomy increases and people become more self-determined, they may experience *identified regulation* and the person may accept that the behaviour is personally important. The most autonomous form of extrinsic motivation is *integrated regulation* where behaviours are fully evaluated and aligned with one's values. These behaviours are very similar to intrinsic motivation, the differences being the lack of enjoyment and behaviours are still being performed to achieve a separate outcome.

	Nonself-determined					Self-determined
<b>Motivation</b>	Amotivation	Extrinsic Motivation				Intrinsic Motivation
<b>Regulation Styles</b>	Non-regulation	External regulation	Introjected regulation	Identified regulation	Integrated regulation	Intrinsic motivation
<b>Perceived Locus of Causality</b>	Impersonal	External	Somewhat external	Somewhat internal	Internal	Internal
<b>Relevant Regulatory Processes</b>	Nonintentional, non-valuing, incompetence, lack of control	Compliance, external rewards and punishment	Self-control, ego-involvement, internal rewards and punishment	Personal importance, conscious valuing	Congruence, awareness, synthesis with self	Interest, enjoyment, inherent satisfaction

Figure 1.1 - The self-determination continuum as described in Ryan and Deci (2000)

The SDT focuses on the role of three psychological needs required for motivation. These are: the need for competence (Harter, 1978; White, 1963), for relatedness (Baumeister and Leary, 2017; Reis *et al.*, 2000) and autonomy (DeCharms, 1972). Together, these needs foster intrinsic motivation and psychological well-being (Ryan and Deci, 2000).

Competence relates to the need to feel effective and capable in one's interactions with the environment, involving a sense of mastery, efficacy, and the ability to achieve desired outcomes (Ryan and Deci, 2000). The cognitive evaluation theory, a sub theory within SDT (Deci and Ryan, 2013), argues that the social-contextual events (e.g., feedback, communications, rewards) encourage feelings of competence, and therefore intrinsic motivation (Ryan and Deci, 2000). However, feelings of competence will not enhance intrinsic motivation unless it is accompanied by a sense of autonomy (DeCharms, 1972). People must experience competency or self-efficacy, in tandem with self-determination for intrinsic motivation to be evidenced (Fisher, 1978; Ryan, 1982). There are a myriad of examples of competency within sport including confidence in performing a skill or feedback from coaches, teammates or others (Ryan and Patrick, 2009).

Being connected to others or feeling a sense of belonging and having meaningful relationships where someone feels understood, cared for and valued by others are all examples of relatedness (Ryan and Deci, 2000). When there is a lack of interest in behaviours, and someone is experiencing extrinsic motivation, initial reason for participation may be because behaviours are prompted or modelled by significant others (Ryan and Deci, 2000).

Autonomy refers to the need to feel a sense of free will or volition in one's actions (Kuhl and Fuhrmann, 1998). Behaviours need to be aligned to one's true desires and values, rather than feeling of control or external pressure (Ryan and Deci, 2000). Examples of promoting autonomy in healthcare include allowing patients to make their own decisions and respecting their preferences for treatment which includes respecting their right to refuse treatment (Deci and Ryan, 2012).

### *1.5.3 Theoretical Domains Framework*

The Theoretical Domains Framework (TDF) is a comprehensive framework used in behavioural science and implementation research to understand and address factors influencing behaviour change (Atkins *et al.*, 2017). Researchers synthesised theories of behaviour and behaviour change and clustered them into initially 12 (Michie *et al.*, 2005) and subsequently 14 domains (Cane, O'Connor and Michie, 2012). The framework provides a structured approach

for identifying barriers and facilitators to behaviour change, thereby aiding the development of effective interventions.

The 14 theoretical domains each represent a set of related psychological constructs. These domains are:

1. Knowledge: Awareness and understanding of the behaviour and its consequences.
2. Skills: Abilities and capabilities to perform the behaviour.
3. Social/Professional Role and Identity: How individuals perceive their roles and identities in relation to the behaviour.
4. Beliefs about Capabilities: Confidence in one's ability to perform the behaviour.
5. Optimism: Expectations about positive outcomes associated with the behaviour.
6. Beliefs about Consequences: Perceptions of the consequences, both positive and negative, of the behaviour.
7. Reinforcement: External factors that encourage or discourage the behaviour.
8. Intentions: Individual's plans or motivations to engage in the behaviour.
9. Goals: Personal objectives related to the behaviour.
10. Memory, Attention, and Decision Processes: Cognitive factors influencing behaviour.
11. Environmental Context and Resources: Physical and social factors surrounding the behaviour.
12. Social Influences: Influence of others on behaviour.
13. Emotion: Emotional factors influencing behaviour.
14. Behavioural Regulation: Self-monitoring, self-control, and other regulatory processes related to behaviour.

Authors of the development of the TDF describe three key advantages to the framework. The first is that it offers a comprehensive coverage of possible influences on behaviour. Secondly, it offers clarity about each kind of influence and the subsequent result of each domain being specified by component constructs. The final benefit is that the framework makes links between theories of behaviour change and techniques of behaviour change to address implementation problems (Cane, O'Connor and Michie, 2012). As a result, researchers and practitioners can use the TDF to systematically identify relevant domains for a particular behaviour which can be invaluable when developing interventions. The process in which the TDF can be involved in intervention development includes initially identifying domains which can be targeted to specific barriers and facilitators through focus groups or qualitative research (French *et al.*, 2012). The TDF offers a comprehensive and systematic approach to understanding behaviour



change which helps researchers and practitioners develop more effective interventions to promote desired behaviours and improve outcomes.

#### *1.5.4 The Behaviour Change Wheel and the Behaviour Change Taxonomy*

The Behaviour Change Wheel and Behaviour Change Taxonomy are frameworks developed to facilitate the understanding and implementation of behaviour change interventions. They were created to address the complexity of behaviour change and provide a systematic approach to designing effective interventions.

The Behaviour Change Wheel was developed by Susan Michie, Lou Atkins, and Robert West in 2011 (Michie, Van Stralen and West, 2011). Prior to the developing of the Behaviour Change Wheel, interventions would often be designed without the use of an existing framework, or frameworks would not be used to understand why interventions may have failed. Authors of the Behaviour Change Wheel describe how it is important to first understand the model of behaviour which should capture the range of mechanisms that may be involved in change (Michie, Van Stralen and West, 2011).

The Behaviour Change Wheel is based on a synthesis of 19 frameworks of behaviour change and serves as a guide for designing interventions to change behaviour at individual, group, or population levels. The Behaviour Change Wheel describes the Capability, Opportunity, Motivation model (COM-B). This model was developed through a stepped process in which the minimum number of factors required for a target behaviour to change was considered. Authors drew upon two sources for these considerations. The first highlighted the conclusions of a consensus meeting of behaviour change theorists (Davis *et al.*, 2015). Here, three factors were determined to be necessary and sufficient prerequisites for performance of a specified volitional behaviour to occur. These were the skills necessary to perform the behaviour, a strong intention to perform the behaviour, and no environmental constraints that make it impossible to perform the behaviour. The second source used in consideration for the model was drawing upon US criminal law. Under US criminal law, for one to be proven guilty, there has to be evidence of three things: means or capability, opportunity and motive. Subsequently, authors determined that this provided the platform in which to present the necessary conditions for a volitional behaviour to occur and termed the model as COM-B.

COM-B proposes that for a behaviour to occur, individuals need the capability, opportunity, and motivation. Capability refers to the individual's psychological and physical capacity to engage in the behaviour. Opportunity refers to the external factors that make the behaviour

possible or prompt it. Motivation refers to the brain processes that direct behaviour, including conscious decision-making and habitual processes. The COM-B model interacts with nine intervention functions and seven policy categories. The nine intervention functions are education, persuasion, incentivisation, coercion, training, restriction, environmental restructuring, modelling, and enablement. The seven policy categories are communication/marketing, guidelines, fiscal measures, regulation, legislation, environmental/social planning, and service provision.

The Behaviour Change Wheel provides a systematic approach for selecting intervention functions and policy categories based on the analysis of the target behaviour and its determinants. Target behaviours can be selected from the BCT which is a system of 93 hierarchically clustered behaviour change techniques (BCTs) (Michie *et al.*, 2013). These techniques can be used within behaviour change interventions to elicit health behaviour change. They provide a standardised language for describing the active ingredients of interventions, making it easier to replicate and evaluate interventions across different contexts.

#### *1.5.5 Justification for the choice of theory within this thesis*

The intervention outlined in this thesis, The 12<sup>th</sup> Man, aimed to change men's health behaviours. Bandura's SCT has multiple key constructs which, if incorporated into a health intervention, would increase the likelihood of behaviour change. For example, the SCT describes how observational learning involves a person observing a behaviour and replicating that behaviour in the future (Bandura, Grusec and Menlove, 1966). The theory also describes how people create internal standards, or self-regulation, following numerous observations of individuals demonstrating behaviours, which people judge themselves against and will ultimately determine if that behaviour will be replicated (Bandura, 1982). Approval or disapproval by peers within a social setting also determine the success of replicating the behaviour in the future (Bandura, 2004). The 12<sup>th</sup> Man is an intervention which harnesses all of these key components. Men observe other men demonstrating behaviour which results in social acceptance in a group setting.

The SDT is a theory used with similar populations as that targeted by the 12<sup>th</sup> Man intervention to create effective and prolonged health change (Gray *et al.*, 2013a; Teixeira *et al.*, 2012). The 12<sup>th</sup> Man is also designed so that it encourages the psychological needs of the SDT, specifically the feeling of relatedness. Connection between 12<sup>th</sup> Man participants was continually harnessed during the intervention so participants felt understood, cared for and valued by others which is

a key driver for intrinsic motivation (Ryan and Deci, 2000). Participants of the 12<sup>th</sup> Man intervention may be reluctant to participate in physical activity, but they may do so after observing others model that behaviour. This, again, aligns to the basic psychological need of relatedness (Ryan and Deci, 2000).

The TDF, the Behaviour Change Wheel and the BCT are all frameworks and taxonomies used regularly within behaviour change research and intervention development. They provide suitable guidance for developing health interventions which address outcomes and were identified as appropriate when developing the 12<sup>th</sup> Man intervention.

## **1.6 Summary**

Men do not live as long as women (WHO, 2020). Explanations for life expectancy differences may be grounded in biological or environmental causes. Attempts to address the disparity in life expectancy have historically been delivered through primary care interventions, which fail to recruit or engage men. Because of this, men have been posed as a hard-to-reach group. Local football, and its influence upon men, has been adopted as a vehicle for delivery in men's health interventions. There have been strong examples of using football for recruitment and retention to health interventions which have demonstrated long term physical health impacts in the otherwise considered, hard-to-reach audience. However, there is still a need for interventions to address men's mental, physical, and social health, which is often termed holistic health. There is an equally greater gap in men's health interventions delivered within the North East of England where, arguably, the greatest risks for ill health exist. The aim of this thesis is to address this gap by:

- (i) Identifying and understanding the facilitators and barriers to health intervention uptake and participation by men.
- (ii) Identifying the key components of health behaviour change interventions that successfully recruit men and engage men in activities that facilitate changes in behaviours and long-term health improvements.
- (iii) Systematically developing a multibehavioural lifestyle intervention that can be delivered within the community through a footballing organisation.
- (iv) Piloting the multibehavioural lifestyle intervention to assess acceptability and feasibility.

Each respective chapter presented within this thesis addresses each of these specific aims.

## **Chapter 2 General Methods**

## **2.1 Defining methods and methodologies**

Prior to engaging in research, it is first important to understand what type of methodologies and methods should be used to address the purpose of the research, and why these methodologies and methods should be used. To help define methods and methodologies, Braun and Clarke (2021) use the analogy of arriving at a new city on a train and either having the itinerary decided for you (methodologies), or having a choice of options to choose from (methods). Methods are a set of tools, which include techniques, practices, and guidelines, which organise, interrogate and interpret a dataset. Crotty (2014) defines methods as *“the technique and procedures used to gather and analyse data related to some research question or hypothesis”* and methodologies as *“the strategy, plan of action, process or design lying behind the choice and use of particular methods and linking the choice and use of methods to the desired outcomes”*. However, Crotty (2014) goes on to explain that the choice of methods and methodologies is heavily influenced by a researcher’s assumptions about reality and theoretical perspective which is defined as *“the philosophical stance informing the methodology and thus providing a context for the process and grounding its logic and criteria”*. The choice of methods or methodology is also influenced by the understanding of what human knowledge is and what knowledge will be achieved by research. This is an epistemological question and Crotty (2014) describes epistemology as *“the theory of knowledge, embedded in the theoretical perspective and theory in the methodology”*. Epistemology directs and informs the theoretical perspective which informs the methodology which subsequently influences the methods. This presents a clear hierarchy within these four elements.

## **2.2 Choice of Epistemology and Theoretical Perspective**

The ontology of interpretivism often adopts a constructivist approach which suggests that reality is socially constructed through human interpretation and meaning-making processes (Crotty, 2014). The epistemology of this approach emphasises the subjective nature of human experience and understanding. Because of this, it holds that knowledge is context-dependent and socially situated, shaped by individuals' interpretations, values, and cultural contexts (Crotty, 2014). When applying an interpretivist methodology, a researcher may use methods such as interviews, observations, and focus groups as this allows meaning, perspectives and subjective experiences to be explored in individuals and groups.

The experiences of men, their perceptions on health and their palatability of a health intervention could all be explored by adopting a constructivist epistemology and a interpretivist

theoretical approach (Crotty, 2014). This would account for the complexity and diversity of human experiences while also acknowledging the role culture and context plays in shaping the interpretations of these experiences.

## **2.3 Research methodology and methods**

### *2.3.1 A mixed methods approach*

Understanding the purpose of this research influenced epistemology, theoretical perspective, methodology and the methods. It was clear from the literature review that men's health interventions which use football as a vehicle for engagement addresses the physical health needs of hard-to-reach men. However, there was a gap in understanding men's perceived barriers and facilitators to engaging in community-based lifestyle interventions. There was also a need for understanding the intervention content and mode of delivery which would adequately addresses men's needs and preferences.

According to Braun and Clarke (2021), a research purpose which is mostly broad, focusses on meaning, and aims to generate contextualised and situated knowledge is best approached using qualitative methods. However, I was keen to explore if, when an intervention was developed, there could be any health behavioural outcomes which may improve. The best methodology to approach understanding the truth of a hypothesis, according to Braun and Clarke (2021), would be quantitative methodology and methods. Both qualitative and quantitative approaches offered benefits to various aspects of the research question, justifying the choice of a mixed methods approach. However, the integration of qualitative insights to explore quantitative findings, particularly through focus groups, highlights the pragmatic underpinning of this decision.

Qualitative methodology is rooted in interpretivism and constructivism and emphasises on understanding the social phenomenon from the perspectives of participants (Creswell and Creswell, 2017). This gives the benefit of understanding meaning and interpretations which participants attached to their experiences. Braun and Clarke (2021) describe how this allows the researcher to gain rich, in-depth understanding from smaller sample sizes. Unlike qualitative research, quantitative methodology is grounded in positivism and post-positivism which concentrates on the objective measurement and analysis of social phenomena. The aim of quantitative research is to understand the causal relationships between variables through the systematic observation and statistical analysis. Quantitative research seeks to find a singular

truth unlike qualitative research which may orientate toward partial or multiple truths. The contribution to knowledge from a qualitative perspective is building on understanding, whereas from a quantitative perspective it is aiming to achieve perfect understanding. The researcher's role within quantitative research is impartial as an observer of the study and aims to be unbiased. Bias threatens the validity of quantitative research and yet is an asset within qualitative research. For example, reflexive engagement within qualitative methodology means life experiences equip the researcher with the ability to interpret data differently.

A mixed methods approach allowed the opportunity for the nuances behind binary data to be explored, which was of value within this thesis. For example, it was important to understand whether the 12<sup>th</sup> Man Intervention was acceptable to participants and feasible to deliver within the setting selected. But what is important for replication in the future is further understanding of *why* the intervention was (or was not) considered acceptable or feasible and *why* participants attended and adhered to the intervention protocol. Quantitative data collection and analyses can report important outcomes including adherence and attendance, however qualitative data collection and analyses can explore reasons for adherence to the intervention and attendance at intervention sessions.

However, a mixed methods approach is not simply collecting quantitative and qualitative data independently. A critical component of a mixed methods approach is the intentional integration of qualitative and quantitative data (Creswell and Clark, 2017). Quantitative and qualitative data was collected across the different sub-studies within this thesis, and were equally important to gain a true understanding of the key outcomes and the context and reasoning around those outcomes. For example, Chapter 3 reported on the findings of a qualitative focus group study that aimed to identify the barriers and enablers to engaging men in lifestyle interventions. The findings of this study provided important guidance about what to include in a lifestyle intervention, who should deliver it, and where. A subsequent feasibility study (Chapter 5) used a mixed-method approach to assess acceptability and feasibility of the intervention developed, where qualitative data provided important context around the quantitative findings – i.e. qualitative findings were able to further explain quantitative findings and could be used to optimise the intervention and associated study procedures ahead of a larger scale evaluation. Combining quantitative and qualitative research approaches can provide stronger evidence, and essentially more confidence in findings (Wasti *et al.*, 2022). Furthermore, a mixed-method

approach can help to overcome some of the limitations of using a single methodological approach.

The type of mixed methods research design used to assess feasibility and acceptability of the 12<sup>th</sup> Man intervention outlined in Chapter 5 was an explanatory sequential design. The intent of this design is to first use quantitative data and then qualitative methods to help explain the quantitative results in more depth (Creswell, 2021). The benefit of using this mixed methods design for this study was that quantitative data could be explored using qualitative methodology so context and reasoning could be better understood (Creswell, 2021). For example, one aim of the study described in Chapter 5 was to better understand the acceptability of the intervention through qualitative research. However, for the intervention to be considered acceptable, quantitative data for attendance and adherence needed to be collected. This approach was more suitable than others as it better informed the optimisation of the 12<sup>th</sup> Man Intervention which was an aim of the study described in Chapter 5 and subsequently described in Chapter 6.

## **2.4 Researcher positioning**

Braun and Clarke (2021) describe how reflexive researchers should interrogate their positions, values, choices and practises within the research process as these can influence knowledge and interpretation of data. It's important to understand that our perspectives are not singular or fixed but are multiple, complex, and evolving. Prior to conducting qualitative research, I felt it important to consider my research positioning and my own perspectives. I first needed to articulate my philosophical positioning, theoretical assumptions, ideological and political commitments, social identity, research training and experience, disciplinary assumptions and frameworks, and the knowledge that I had about the research topic.

I grew up in a privileged, white, middle-class household with parents who provided for our family to an extent that we rarely experienced financial difficulty. My parents were separated, and I was raised by my step father meaning that, throughout my teenage years, I had two male father figures to offer me guidance and support. Both my father's held strong stoic beliefs and rarely displayed emotion. Once leaving the family home for University, I moved to the North East of England where I worked within the community for two years prior to conducting the research for this thesis. During this time, I worked with men who came from working class backgrounds, were predominantly white and were similar to both my fathers in their identities, demographics and beliefs.



The resemblance between my fathers, and the participants who joined my focus group studies, certainly influenced my perceptions during focus group discussions. Following focus groups, I would be regularly surprised to hear men who came from a similar background to me, and my fathers, openly discussing topics which I had never heard my fathers discuss. Emotion, difficulty, health, wellbeing and mental illness were all conversations I had never discussed with my fathers and yet those who were close in identities were openly discussing these with me. This likely influenced how I interpreted the data during analysis as I was more aware to themes relating to mental health and wellbeing.

Other influences on how I interpreted the data were my prior experience and knowledge in the area of research. I had become immersed within the field of men's health for several years prior to the qualitative research outlined within this thesis. This research study, and the PhD itself, were funded externally and a project proposal needed to be made prior to grant funding. To build a project proposal, I needed to become acquainted with research relating to men's health and interventions delivered within the community. Although I had not conducted a full literature review, this prior knowledge of the research field influenced how I analysed data during thematic analysis.

It is also important to consider how I appeared to the participants who completed the focus group discussions. I attended each focus group in Newcastle United Football Club (NUFC) clothing, such as a track suit. The participants were clearly fans of NUFC as each focus group discussion involved conversations relating to the team prior to focus groups. It's likely that the clothing that I wore influenced the trust and relationship that I gained with participants, and likely influenced their honesty during focus group discussions. Wearing clothing which represented a football club often referred to as "a boyhood team" meant that a greater level of trust was gained. This benefitted focus group data as participants would more likely discuss topics which they may not have otherwise felt comfortable to do.

## **2.5 Thematic Analysis**

According to Braun and Clarke (2021), Thematic Analysis (TA) is a method for data analysis which analyses and interprets patterns across a dataset. It involves the systematic process of data coding to develop themes. This allows datasets to be organised, interrogated and interpreted. There are different varieties of, and procedures for TA but the commonality between these variations are an interest in patterns of meaning, developed through processes of coding.

There are six phases to thematic analysis. They are:

- 1) Dataset familiarisation – Researchers should begin by becoming immersed within the data to become familiar with its content. Read or review the data repeatedly, such as interview transcripts, field notes, or other relevant sources.
- 2) Data coding – As the researcher engages with the data, they should start to generate initial codes by identifying meaningful units of information, concepts, or themes. These codes are labels or tags that capture the essence of the data.
- 3) Initial theme generation – The researcher should group the initial codes into potential themes that share similar ideas or concepts. Patterns, repetitions, or connections within the data that relate to the research question or have some similarity of meaning should be identified. Next, the researcher should cluster together potentially connected codes into candidate themes and explore these initial meaning patterns. Themes should have broader categories that encompass multiple codes which relate to the research question and are part of the wider analysis.
- 4) Theme development and review – Researchers should review the viability of the initial clustering to understand if there is any scope for better pattern development. Here, the researcher should aim to develop richness within the themes to be analysed so that they address the research question. Each theme should have its own focus and should not merge into one theme, but each theme should weave together to tell an overall story which addresses the research question.
- 5) Theme refining, defining and naming – Researchers should further develop the themes in a more precise analytical way. Themes should be refined and structured which effectively map the way the researcher will report the findings in the final stage. To test the accuracy of the theme, a definition of that theme can be produced in which a few sentences clarify and illustrate what the theme is about. For example, this may be a key takeaway of the theme.
- 6) Writing up – Unlike quantitative research where a report is produced after the analysis has been completed, writing about the findings occurs throughout the data analysis in TA. This final stage involves presenting the findings in a coherent and meaningful way, typically through a written report. The themes, sub-themes, and supporting evidence will be described, and rich and nuanced account of the data analysis process will be provided.

I chose thematic analysis as a method for collecting and analysing datasets gathered through focus groups as it offers a flexible and versatile approach that allows researchers to gain a deep understanding of qualitative data. Flexibility and versatility are possible through the reflexive approach to data collection and production. I was able to follow a topic guide but adapt questioning throughout the data collection process and focus group discussions. I would adapt questioning based on my own perceptions of the answers, opening the possibility of deeper understanding of meaning. I found this beneficial as I was able to understand the nuanced complexity, and sometimes contradictions, within the data.

As well as approaching the data collection through the lens of TA and reflexivity, I also found the collaborative approach to coding beneficial, particularly as this was my first time using thematic analysis. Collaboration, and subsequently individual researchers' subjectivity, or their reflexive approach, gave interesting understanding and interpretation while coding data. During theme development I found the sharing of ideas, meanings or concepts from the data interesting as it identified blind spots which I may not have otherwise seen. Thematic analysis was beneficial to me in comparison to other analytical tools, for example content analysis (Krippendorff, 2018) or framework analysis (Spencer *et al.*, 2004), as it reduces the risk of oversimplifying complex meanings.

Both focus group studies outlined within this thesis aimed to explore men's perceptions around either engagement in lifestyle interventions or the 12<sup>th</sup> Man Invention. As I was keen to explore perceptions and focus group studies gave the benefit of group discussions, I had the flexibility for the topic guide and structure of conversations to change or be adapted throughout focus group discussions. This allowed the nuances of individual interpretations and perceptions, and the true meaning of opinions to be explored throughout focus group studies.

## **2.6 Review**

A review which followed the methodology of a scoping review was the chosen for addressing the research question within this thesis. The methodology of conducting the review followed recommendations from the Joanna Briggs Institute and published guidance (Peters *et al.*, 2020).

Scoping reviews differ from systematic reviews in that they map key concepts that underpin a research area (Peters *et al.*, 2015). Scoping reviews have the advantage of addressing questions which go beyond the effectiveness on intervention. This advantage was considered beneficial for this thesis as prior systematic reviews into men's health intervention effectiveness had

already been completed (Bottorff et al., 2015; George et al., 2012). However, identifying key intervention components within those interventions which result in improvements in health outcomes has not been explored.

### 2.6.1 Title selection

The first step within this guidance is to choose a concise title which reflects the PEC (population, concept and context) principles. The benefit to this is a clear concise title which gives indication of the topic as this is easier for a reader to identify. The title “*What are the behaviour change theories, techniques and key components used in effective men’s health interventions delivered in community-based football clubs?*” was created following the PEC principles. This clear title guides informs the development of a specific inclusion criteria.

### 2.6.2 Eligibility criteria

According to Peters *et al.* (2020), the inclusion criteria should specify the important characteristics of the reviews participants (population) which may include age gender and any other relevant factors help address the research question. The population of focus within this thesis is men, without specification of age. Studies were excluded if they focussed on diseased populations or included mixed gendered intervention groups.

### 2.6.3 Concept

The concept of interest for the review was community-based interventions designed for men which used sport as a vehicle for improving specific health outcomes through behaviour change theories or techniques. Examples of specific health outcomes included body weight, blood pressure, blood lipids, blood glucose, smoking behaviours, or self-reported physical activity. Examples of behaviour change theories or techniques included the SCT, SDT, Transtheoretical Model of Change, or any of the BCTs described in Michie *et al.* (2013) cluster of BCTs.

Interventions which did not report specific health outcomes or behaviour change theories or techniques were excluded from review because they would not help to address the research question.

#### *2.6.4 Context*

The context of interest within this review were interventions which were delivered in community settings. Community settings were defined as those delivered in settings including workplaces, community centres, leisure centres, parks, community-based sport clubs. Interventions were excluded if they were delivered exclusively within research-only (e.g., university laboratory) or hospital settings.

#### *2.6.5 Types of sources*

The review considered both experimental and quasi-experimental study designs including randomised controlled trials, non-randomised controlled trials, before and after studies and interrupted time-series studies. In addition, analytical observational studies including prospective and retrospective cohort studies, case-control studies and analytical cross-sectional studies were considered for inclusion. This review also considered descriptive observational study designs including case series, individual case reports and descriptive cross-sectional studies for inclusion.

Qualitative studies also considered were those that focused on qualitative data including, but not limited to, designs such as phenomenology, grounded theory, ethnography, qualitative description, action research and feminist research.

In addition, systematic reviews that meet the inclusion criteria were also considered, depending on the research question. Text and opinion papers were also considered for inclusion in this review.

#### *2.6.6 Search strategy*

The search strategy aimed to locate published peer-reviewed studies. A search was undertaken to identify articles on the topic. An electronic search of PubMed was conducted and Table 2-1 presents the search string used. Standard Boolean operators (AND, OR) were used to concatenate the search terms. Reference lists and forward citations of included studies and relevant reviews to identify potentially eligible studies were also searched.

Table 2-1 - Search string for the Review

---

[Title/Abstract] male\* OR men

AND

[Title/Abstract] “behaviour change” OR “behavior change”

AND

[Title/Abstract] intervention

AND

[Title/Abstract] sport

---

#### *2.6.7 Study/source of evidence*

One reviewer (OB) conducted a systematic search of PubMed articles published before December 2019. All citations retrieved were reviewed by OB to further clarify eligibility as outlined in the eligibility criteria. Studies were selected by reviewing the title and abstract. If published studies passed the eligibility criteria, an appropriate full text review was conducted.

#### *2.6.8 Data Extraction*

A data charting table was used to record key information of research articles including: the author, reference, results or findings, intervention setting, target participants, intervention duration, measurement duration, mode of delivery, the outcome measures used, and the key behaviour change techniques or theories.

#### *2.6.9 Data Analysis*

Basic descriptive analysis of the type of behaviour change technique used and the behaviour change theory which underpinned each intervention was analysed. The frequency of these techniques and theories accumulated across all studies identified was used in the presentation of the results. The results are further detailed in Table 4-1.

## **2.7 Secondary data analysis of focus group data**

Secondary analysis can be beneficial to conduct as it can identify patterns or findings which were previously missed in initial data analysis. This may be important as data initially analysed can be re-analysed, but for a different purpose. Secondary analysis has the benefit of being cost and time effective as a researcher does not need to conduct research with new participants. Analysing data that already exists with new research questions or a hypothesis can lead to novel insights and perspectives which were not initially considered during the original study.

I conducted every secondary analysis within this thesis. The benefit here is that I understood the original study including research questions, objectives, methodology, and findings. This gave context for the secondary analysis and allowed me to clearly define a new research objective for each of the secondary analysis which could help determine which aspects of the data I wanted to explore through a new research question.

### **Chapter 3 Identifying behavioural barriers and facilitators to engaging men in a community-based lifestyle intervention to improve physical and mental health and wellbeing**



### 3.1 Introduction

Increased prevalence of long-term physical and mental health conditions has impacted significantly on life expectancy (Steel *et al.*, 2018). In 2016, the leading causes of life years lost due to premature mortality were cardiovascular, respiratory and Alzheimer's disease, with evidence that men are disproportionately affected (Steel *et al.*, 2018). Men are twice as likely to develop ischaemic heart disease and report poorer health than women (Steel *et al.*, 2018). Multiple factors contribute to the elevation of health risks of men compared with women, and include biological causes including cellular responses to stress (Yonker *et al.*, 2013) and body fat distribution (Swainson, Batterham and Hind, 2020). Men are more likely to accumulate visceral fat (Swainson, Batterham and Hind, 2020) which is associated with conditions including metabolic syndrome (Bergman *et al.*, 2006), coronary heart disease (Matsuzawa *et al.*, 1995) and ischemic heart disease (Matsuzawa *et al.*, 1995). Furthermore, research has shown that men often underestimate health risks (Gray *et al.*, 2011) and express concern about being too thin or weak when losing weight (Kiefer, Rathmanner and Kunze, 2005). These beliefs, paired with the reduced likelihood of engaging with healthcare services lead to increased health risks. Importantly, physical and mental health conditions frequently co-exist with multi-factorial associations and robust evidence for bi-directionality (Rønne *et al.*, 2020; Sanna *et al.*, 2013; Scott *et al.*, 2009), therefore it is important to address physical and mental health conditions to reduce risk of morbidity and mortality.

Several barriers exist that can impact negatively on uptake and engagement of men with interventions that target behaviours to improve physical and mental health (Baumeister *et al.*, 2014; Borghouts *et al.*, 2021; Oliver *et al.*, 2005; Pagoto *et al.*, 2012), particularly interventions delivered within healthcare settings by healthcare professionals (Ross *et al.*, 2008). A possible explanation is that few interventions are developed or tailored exclusively for men, and the way in which these interventions are offered, do not appeal (George *et al.*, 2012). Intervention developers often do not consider sex-specificity or gender sensitivity during the development stage (Bottorff *et al.*, 2015). Therefore, uptake and meaningful engagement of men is often sub-optimal, and they are considered, in some cases 'hard-to-reach' (Zwolinsky *et al.*, 2013).

In the context of improving physical and mental health, a wealth of evidence supports the use of physical activity and exercise interventions (White *et al.*, 2017). However, it is important to fully understand the specific requirements and support needs of men, and specifically their barriers and enablers to engagement with lifestyle behaviour change interventions. A 2015

systematic review of lifestyle interventions targeting men identified 12 programmes informed by consultation with men from design through to implementation (Bottorff *et al.*, 2015). Four of these programmes utilised interest in sport and the ‘power of the badge’ as a vehicle to engage men in group-based exercise sessions at local sport clubs. “Banter” in discussions about sensitive health issues including weight gain or loss was considered key to the success of one of these programmes (FFIT) (Hunt *et al.*, 2014b). The authors of FFIT reported statistically significant increases in self-reported physical activity and weight loss in the intervention group at 12 months follow-up. Participants described how taking part in a programme at a football stadium made them feel “kinda part of it...” and significantly increased acceptability of the programme (Hunt *et al.*, 2014a).

The success for FFIT has been replicated worldwide using different sports to engage men (Gill *et al.*, 2016; Kwasnicka *et al.*, 2022; Wyke *et al.*, 2019). However, there is a paucity of interventions that address both physical and mental health using football as a vehicle for engagement. Given the impact that mental health can have on sedentary behaviour, and the resultant increased risk that sedentary behaviour can have on physical health (Sanna *et al.*, 2013), there is a pressing need to understand how interventions can be designed to reduce barriers to engaging in physical activity interventions to improve both mental and physical health in men.

Understanding men’s perceived barriers and facilitators to engaging in community-based lifestyle interventions is critically important to ensure intervention content and mode of delivery is appropriate and adequately addresses their needs and preferences. However, despite the positive impact of the football-informed community-based interventions, there is a dearth of evidence reporting on the active ingredients of these interventions (i.e., key intervention features including mode of delivery, form and content, duration). As such, the key components of interventions to promote continued engagement following uptake is still unknown. This hinders replicability, faithful delivery, modification to local needs, and optimisation to maximise engagement and outcomes. Furthermore, previously published qualitative studies focus predominantly on physical health rather than mental health, or both. Where studies do report on barriers and facilitators to uptake and ongoing engagement with lifestyle interventions, often they report on practical barriers and facilitators, and place less of an emphasis on emotional and psychological challenges (Yannitsos *et al.*, 2020). Finally, a large

proportion of studies focus on the experiences of women, or do not report sex or gender of participants making it difficult to extrapolate the specific barriers and facilitators of men.

This chapter is an integral step to the development of the 12<sup>th</sup> Man, as described later in this thesis. When designing multibehavioural lifestyle interventions, a focus group study can inform the needs assessment, as described in step 1 of Chapter 4. Therefore, a qualitative focus group study with adult men was conducted to explore the aims of this chapter which are:

- (i) Explore the perceived barriers and facilitators to uptake of interventions designed to target physical and mental health
- (ii) Identify health issues considered important to address
- (iii) Obtain participant views on how to best engage men in community-based interventions
- (iv) Use the findings to inform the development of a multibehavioural complex community-based intervention (called 'The 12<sup>th</sup> Man') presented in Chapter 4.

### **3.2 Methods**

This study was conducted with reference to the Consolidated Criteria for Reporting Qualitative Research (COREQ) (Tong, Sainsbury and Craig, 2007) and can be found in Appendix A. Ethical approval was obtained from Newcastle University's Research Ethics Committee (Ref. 6228/2018). All participants provided informed written consent prior to participation.

#### *3.2.1 Design*

A qualitative focus group study was chosen as the most suitable method for exploring the research question. Alternative methods, including interviews or questionnaires, would limit the richness of data gathered over focus group data. As detailed by Tong, Sainsbury and Craig (2007), semi-structured discussions with groups between 4 – 12 people allow an exploration of a specific set of issues. Researchers can begin with broad questions followed by specific focal questions which has the benefit of encouraging participants to talk and interact with one another. This builds on the idea that group interaction encourages respondents to explore and clarify individual and shared perspectives. My research question was to explore and understand the meaning and perceptions of participants meaning that a semi structured interview approach would likely give the greatest chance of answering the research question. The use of a topic guide and following a reflexive process encouraged further clarity on individual participant

perspectives. I was able to interrogate meaning into questioning further, which gave an added benefit to this method of data collection.

During data collection, I found value in approaching the topic guide and questioning in an informal approach creating comfort and safety within the group. This was clearly beneficial as we were talking about topics which traditionally the participants might not have otherwise discussed in social settings. Comfort and safety gave participants the permission to talk more emotionally, which had great value in interrogating meaning. I found it important to allow conversations to flow naturally, to allow silences for participants to further explore their thoughts, and regularly used non-verbal communication, such as small nods of encouragement, which promoted conversation.

### *3.2.2 Participants and setting*

A volunteer sampling approach was undertaken to recruit participants from the local community using advertisements placed on social media including Twitter, (14,453 followers, May 2018) and Facebook, (108,229 followers, May 2018) accounts associated with the club community organisation Newcastle United Foundation (NUF). Potential participants were asked to indicate their interest via an email or telephone which was described in the social media advert. Invitations to participate were also sent directly to men who fulfilled the eligibility criteria who had previously registered their interest in community health and wellbeing programmes with NUF. Those indicating their interest were emailed a copy of the participant information sheet and consent form. Eligible participants were men aged between 28 and 65 years who were interested in improving their physical and/or mental health and wellbeing. This age range was selected because 30 and 65 years are two milestones within a man's life, according to the health, illness, men and masculinities (HIMM) framework (Evans *et al.*, 2011). This framework suggests that men at age 30 typically begin to consider establishing a family which can be socially isolating. At age 65, men generally consider retirement which, again, brings with it social isolation and a loss of purpose. Recruitment took place between May and August 2018. Invitations to participate were also sent directly to men who fulfilled the eligibility criteria and had previously registered their interest in community health and wellbeing programmes with NUF. Informed written consent was obtained from all participants prior to the conduct of the study. All consenting participants were screened for eligibility prior to the conduct of focus groups.

Although no financial incentives were provided for participants, those who attended St. James Park for the focus groups were offered the chance to visit pitch side. Participants' interest in professional football was not recorded, but it would be fair to say assume that the majority were football fans. Again, although this was not recorded, it's likely participants attended focus group discussions because of their interest in football.

### *3.2.3 Data collection*

Focus group discussions were conducted in person between July and November 2018 in a meeting room located at St. James Park, the home football stadium of NUFC. Participants could also request an alternative location, including workplaces, if this was their preference. The meeting room in which focus groups were conducted at St. James Park looked out on to the football pitch. Workplace focus group discussions were in a communal room within the workplace.

An interview topic guide was developed (Appendix B), informed by the literature to facilitate discussion about the following topics: perceived barriers and facilitators to uptake of interventions aimed to improve physical and mental health and wellbeing, salient health issues, and views on how to best engage men in interventions. A total of 20 questions were asked. The topics were informed by a review of the literature conducted to identify existing lifestyle interventions targeted at men (further detailed in Chapter 4). The selected articles were further screened to identify associated qualitative findings reporting on barriers and facilitators to uptake and engagement with lifestyle interventions. Although the topic guide was not pilot tested prior to initial data collection, research team members met following the conduct of focus group one to discuss the data generated and to identify any potential issues with the topic guide. This process was repeated following the conduct of focus group two.

I was the lead researcher and facilitated all focus groups having had no previous contact with study participants. At the time of conducting the research, I was 25-years-old, identified as a male, and introduced myself to participants as a PhD student with an academic background in Sport, Exercise and Nutrition. I also wore a NUFC tracksuit during all focus groups.

All focus groups hosted at St. James's Park required participants to arrive at the main reception where they were then directed to a lift and taken to the 6th floor. On this floor, the executive suites can be accessed, and it was likely that participants had never had access to this area of

the stadium before. When entering the room in which the focus groups were held, participants regularly expressed surprise or shock upon seeing the football pitch from the glass balcony. One focus group was conducted within the workplace setting. Here, the lead researcher was met at reception by an employee or the employer and led to a meeting space. Participants had previously registered interest to attend the focus group discussions and entered the room of their own volition. Prior to focus groups beginning, the lead researcher would create a relationship with participants by asking their interests in football, their life, and even how their day was.

During attendance to focus group discussions participants were clearly interested in NUFC and talking more about men's mental health. This led to interesting discussions and conversations between the lead researcher and participants around the wider project and PhD. It was clear that the dress worn by the researcher created interest and trust between participants and researcher. The relationship between researcher and participant may be different from that in a clinical setting. The differences being a greater level of trust which had the added benefit of providing psychological safety for participants who were more comfortable to go into greater detail during focus group discussions.

Once all participants had arrived, the lead researcher described the purpose of the research by following a standardised introduction which had been written beforehand. The lead researcher went on to explain how all conversations would be audio recorded via a Dictaphone, however during analysis individuals' names were to be removed from data to maintain anonymity. Informed consent was then obtained from all participants and questioning following the topic guide began.

During the focus groups, there would often be silences or pauses which were encouraged by the lead researcher as this allowed space for participants to expand further on their opinions. However, within all focus group discussions there were more dominant characters who could quite easily dominate the conversation had the lead researcher not been attuned to those who had not contributed their opinion but may want to do so. The lead researcher made sure to give everyone the opportunity to contribute during discussions.

Once focus group discussions were finished, the lead researcher stopped the Dictaphone and ended the conversations. However, many participants were interested to learn what would happen next. Many of them expressed an interest in becoming a participant in a wider Men's

health intervention. In these situations, the leader researcher made note of their details to contact them later to inform them of the 12<sup>th</sup> Man Intervention.

#### *3.2.4 Data analysis*

Focus groups were audio recorded using a Dictaphone. Following each focus group discussion, the audio files recorded from the Dictaphone were uploaded to a computer and sent to a transcription company. A transcription company was chosen to transcribe the data as this made the research process quicker. Once audio files were transcribed, they were sent back to the lead researcher. The lead researcher then shared those transcripts, as well as the original audio files, with the research team for thematic analysis (Braun and Clarke, 2012).

It was important for focus group discussions to be recorded as the lead researcher needed to be part of the discussions. If they were taking notes and trying to capture all the data manually by taking notes, they would likely miss data, and they would not be able to explore the nuances of meaning from participants to gain richer data. Recording conversations allowed the lead researcher to express non-verbal communication, such as eye contact, with participants which would encourage further conversation. Another benefit of audio recording the data is that when transcripts are shared with other researchers, they can interpret the data using a reflexive approach. This may add value in that it can create a greater understanding of the data, beyond what would otherwise have been interpreted by just one researcher.

Following the completion of the first focus group, the transcript was read and re-read by two researchers who independently applied preliminary codes to the data. The same two researchers subsequently held a meeting to discuss preliminary coding, agree on a coding framework, and any modifications to the topic guide ahead of the second focus group discussion. This process was repeated by the same two researchers following each focus group until it was agreed that the data generated was meaningful and had reached the point of saturation. MS Excel was used to manage the data.

The process of data analysis using a thematic approach meant that initial coding data was highlighted and then put into a table within MS Word with supporting themes. This table was added to following the analysis of each focus group discussion. As focus group discussions progressed, more data codes were added to the table. Those data codes which were similar

generated themes. Following focus group five, there were few themes generated and at focus group six, no additional themes were generated.

### **3.3 Results**

Six focus group discussions were conducted. Five took part in a meeting room at the St. James Park (n=18 participants), and one in a workplace setting (n=7 participants). The duration of group discussions ranged from 27 to 57 minutes (median time 45 minutes (inter quartile range [IQR] = 14 minutes) and involved a total of 25 male participants (median age 41 years, IQR = 21 years).

All questions within the topic guide were asked, although, a minority of questions generated limited or closed responses that did not constitute a theme. During data analysis, and following a thematic analysis process, there were initially 10 themes and three sub-themes. However, the nature of thematic analysis means that these themes can be re-assessed and generate broader themes which capture what would have been smaller, independent themes on their own. Step 5 of thematic analysis outlines how refining, defining and naming themes is a process which results in reporting the findings effectively. As a result, thematic analysis generated seven themes. These are presented in Table 3-1 with supporting direct quotes and key recommendations. Each transcript was coded immediately following the conduct of each focus group. Codes were generated and placed into categories, and categories were assigned preliminary labels. Some themes generated more codes than others. For example, theme 1 'Lifestyle behaviours for both mental health and physical health' and theme 5 'Relationship between body image and self-confidence on mastery of skills for physical activity and exercise' generated more codes than other themes across focus groups. Theme 2 'Work pressures are barriers to engaging with lifestyle behaviour change' was generated from codes from across groups, but mostly from the workplace setting focus group. Initial codes included 'goals' that were linked to both mental and physical health, 'enjoyment' linked to any activity undertaken to make positive lifestyle changes, and 'stress' that was most often associated with work, but also other life pressures including family and inability to access any free time.

During the refining of themes, 'lacking motivation', 'individual motivators' and 'goal setting' were initially independent themes. However, these themes did not have enough codes to warrant individual themes. Therefore, they were refined and renamed as 'building motivation and personal goal setting'. The same process created one independent theme 'Lifestyle behaviours for both mental health and physical health' from an initial two themes named 'Being healthy is



not limited to physical health’ and ‘Lifestyle behaviours can impact on physical and mental health, which influence each other’.

Table 3-1 - Summary of themes identified from transcripts of focus group discussions and key recommendations

Theme	Supporting Quotes	Key recommendations
Theme 1: Lifestyle behaviours for both mental health and physical health	<p>“Good lifestyle, good food, fitness, going to bed at a decent time [all influence physical and mental health]..” (Participant 2, aged 48)</p> <p>“I’ve started going to bed earlier, now, to get the sleep in and I find now I’m getting more sleep and I’m not as stressed” (Participant 5, aged 61)</p> <p>“I think wellbeing is the best word ever because it’s not like you [only] need to be fit, [or that] you need to stop eating bags of chips. It’s wellbeing. I think that is definitely mentally as well as physically.”(Participant 24, aged 51)</p>	<ul style="list-style-type: none"> <li>• Reinforcement of links between lifestyle behaviours and physical and mental health by a credible individual or credible resource</li> </ul>
Theme 2: Work pressures are barriers to engaging with lifestyle behaviour change	<p>“I think most of it is work, as with most people nowadays. Where there’s less people working and they’re expecting people to pick up the work and the workload’s getting heavier...” (Participant 5, aged 61)</p> <p>“You want to do exercise, but if you get up at 05:30 in the morning to get here [work place], and you are getting home at 6:30pm, you just want to have something to eat, have a shower, and go to bed” (Participant 9, aged 33)</p>	<ul style="list-style-type: none"> <li>• Provision of workplace interventions and self-help activities</li> <li>• Engagement with employers</li> <li>• Incorporate barrier identification and problem-solving activities</li> <li>• Signpost to facilities close by to reduce time to travel</li> <li>• Tackle workload issues practically and personally</li> </ul>
Theme 3: Previous injuries are barriers to engagement in physical activity and exercise	<p>“About a year ago I hurt my Achilles, and I haven’t been able to run properly since” (Participant 4, aged 38)</p>	<ul style="list-style-type: none"> <li>• Include graded tasks and facilities/activities to enable this process</li> <li>• Incorporate personalised barrier identification and problem solving</li> </ul>
Theme 4: Impact of personal and peer group relationships on lifestyle behaviour change	<p>“....if I went and trained and stuff and went away, participated in events and stuff, I don't think she'd be too happy” (Participant 25, aged 39)</p>	<ul style="list-style-type: none"> <li>• Incorporate social support when signposting to lifestyle services/programmes/activities. To include social, practical, and emotional support</li> </ul>

“...if you’ve got a peer group that’s going to keep you motivated, keep you on target” (Participant 4, aged 38)

“...my wife has pushed me on any sport I've done or any fitness thing or healthy eating” (Participant 23, aged 57)

Theme 5: Relationship between body image and self-confidence on mastery of skills for physical activity and exercise

“Whenever you’re big, walking through the door of the gym with all fit and beautiful people is really hard” (Participant 19, aged 45)

“There’s no point in me rocking up to a training session that these guys on a Saturday play because I’d just be out of my depth, and I’d look a fool.” (Participant 25, aged 51)

- Generation of rules to address perceived judgement and negativity
- Promote group-based activities of similar individuals

Theme 6: Building motivation and personalised goal setting

“But it's having that motivation and having that time when you're not tired to be able to go and take some exercise and say, "Well this is doing me the world of good.” (Participant 16, aged 62)

“I think it was small targets that you could see you were achieving, and if you do this you will see results....Setting small targets and seeing small results that help a lot.” (Participant 19, aged 45)

- Identifying a range of options to facilitate lifestyle behaviour change
- Identify different ways of making meaningful changes in lifestyle behaviours
- Incorporate practical, emotional, and social support, and treat all three equally
- Offer a means to self-monitor progress

Theme 7: Credible individuals increase uptake and continued engagement with lifestyle behaviour change

“I think, good information, given to you... You’ve got to have somebody there who’s accredited or qualified, to actually tell you what you should be doing” (Participant 3, aged 32)

“You look like you’re the type of guy that has got knowledge in these areas [referring to facilitator]. Rather than just doing it myself, I would go to the gym. I’ve got no trainer” (Participant 8, aged 52)

- Use of qualified/trained and non-judgemental individuals who participants can relate to on a personal level (e.g., professionals with lived experience, peer support workers)
- Provide up-to-date, evidence-informed information

### *Theme 1: Lifestyle behaviours for both mental health and physical health*

The consensus from participants was that being healthy involves having good physical and mental health, including a good social life. Together this increases wellbeing:

*“I think wellbeing is the best word ever because it’s not like you [only] need to be fit, [or that] you need to stop eating bags of chips. It’s wellbeing. I think that is definitely mentally as well as physically.” (Participant 24, aged 51)*

*“I think it’s a healthy mind, so if you have all the stress in the world, that plays a massive part on your health.” (Participant 7, aged 32)*

In addition, positive emotions were reported to be key to optimal health and wellbeing. The importance of being happy and enjoying life was commonly reported across focus groups. Participants often paired happiness with accomplishment of goals and setting themselves a new challenge. When participants were asked to describe the healthiest person they know, happiness was a feature of the response:

*“...they [healthy people] tend to be happier people as well, like [group member] said, they are positive, upbeat and [they] have a target.” (Participant 17, aged 34)*

Another participant supported the view that healthy people enjoy “...whatever it is that they do.” (Participant 4, aged 38)

Maintaining a good social life was reported to be instrumental to being healthy and that this could help to cope with stress:

*“But I think having a laugh is the best thing for me and family and friends...” (Participant 17, aged 34).*

The role of a good social life for maintaining health was consistently highlighted by participants:

*“It’s celebrating your success and being happier with yourself and getting a good social life which can help you achieve those goals”. (Participant 6, aged 61).*

*“....sometimes on a Saturday morning we do a health walk.... Sometimes it's not just about the walking, it's the social aspect. It provides health benefits as well. So, it's not just about getting fit, it's about keeping mental awareness.. being healthy, healthy body, healthy brain” (Participant 25, aged 39).*

When prompted to discuss the links between lifestyle behaviours, physical and mental health and wellbeing, participants agreed that physical activity and exercise (collectively referred to as exercise by the participants) in particular can have specific benefits for mental health:

*“I think it [exercise] can definitely impact [positively] on your mental health and help you to face the problems that you are facing every day.”*  
*(Participant 6, aged 61).*

Participants described the positive effects that exercise had on their lives:

*“I’ve found doing more exercise puts me in a better frame of mind, it clears my head”. (Participant 18, aged 34).*

*“I am getting fitter, again, not just physically but mentally as well”.*  
*(Participant 24, aged 59)*

One participant explained the importance of his walk home from work and how it allowed him to *“...not bring any stress from here [work] home” (Participant 9, aged 33)*. Others agreed with how physical activity and exercise can impact positively on stress. Some considered it a priority:

*“Fresh air for me, as well. Just a nice walk through the park. So, if it’s been a busy, stressful day, I’ll just walk through the park. It takes an extra twenty minutes to get home but it’s worth it.” (Participant 4, aged 38)*

When asked specifically about strategies used to overcome stress, participants referred to specific lifestyle behaviours including sleep, and how sufficient sleep can help prevent or reduce stress levels.

*“I’ve started going to bed earlier, now, to get the sleep in and I find now I’m getting more sleep and I’m not as stressed.” (Participant 5, aged 61)*

This view was supported by other participants across focus groups. However, there were specific lifestyle behaviours such as alcohol consumption that participants were aware had a negative impact on sleep quality and subsequently stress levels:

*“...you have a few drinks to try and de-stress which seems to improve your sleep a bit. Then you start suffering from insomnia and then you drink again, and it becomes a cycle.” (Participant 4, aged 38).*

#### *Theme 2: Work pressures are barriers to engaging with lifestyle behaviour change*

This theme was salient throughout all six focus group discussions. Increasing workloads and ‘doing more and for less’ appear to be a feature in a large proportion of the participants’ lives. This was linked to long working hours that reduced the time and motivation for engaging in health promoting behaviours:

*“I think most of it will be work, as with most people nowadays. Where there’s less people working and they’re expecting people to pick up the work and the workload’s getting heavier...” (Participant 5, aged 61).*

The increase in workload and lack of time to complete daily tasks was described as ‘frustrating’.

*“If I plan to do something at a certain time and I don’t get to do it, I feel as though I’m playing catch up for the rest of the day...” (Participant 15, aged 35).*

The recurrence of this pattern was described to decrease the opportunity to engage in positive health behaviours and reducing or removing this barrier would likely be mutually beneficial to the individual and the workplace.

Participants described time constraints to be a barrier, even outside of work, which left them with little time to engage with physical activity and exercise, and consider other health-related behavioural changes:

*“You want to do exercise, but if you get up at 5:30 in the morning to get here [work place], and you are getting home at 6:30, you just want to have something to eat, have a shower, and go to bed.” (Participant 9, aged 33)*

Other participants described similar situations across focus group discussions:

*“It is pretty hard, I find it anyway, to slot a gym session in somewhere along the line” (Participant 24, aged 51).*

Time taken to travel to facilities to exercise was reported as a further barrier:

*“So it is, it's about time and being able to get there, to the place to do it.”  
(Participant 25, aged 39).*

Although participants did acknowledge the importance of making time for yourself “...you’ve got to make time, haven’t you? That’s probably the thing”. (Participant 8, aged 52).

### *Theme 3: Previous injuries prevent engagement in physical activity and exercise*

Recovering from injuries (acquired recently or in the past) was a common barrier to engaging in physical activity and exercise. Although exercise was considered a ‘good stress reliever’, several participants had discontinued exercise due to injury:

*“About a year ago I hurt my Achilles, and I haven’t been able to run properly since” (Participant 4, aged 38).*

Exercising after injuries was reported to be a challenge due to lack of motivation following time away from exercise. It was particularly difficult for participants to reclaim the time and effort required to re-engage: “...after about six weeks, after I’d healed, I just couldn’t get myself back into it.” (Participant 10, aged 37). Furthermore, injuries influenced participant’s physical and mental health:

*“A mate of mine has broken his foot, obsessed with running, literally meticulous in his eating and everything. Since he’s done his foot, he’s never been so depressed. He’s been hitting rock bottom because he can’t get out and do that exercise” (Participant 18, aged 34).*

### *Theme 4: Impact of personal and peer group relationships on lifestyle behaviour change*

Participants reported several challenges associated with making lifestyle behaviour changes to improve their physical and mental health, however the barriers reported became more of a challenge if those around them made lifestyle behaviour change more difficult.

*“...having a group of people around you who are not supportive [negatively affects your lifestyle behaviour choices]” (Participant 17, aged 34)*

*“You get home and your lass says, ‘Do you want a vodka and coke’”*

*(Participant 12, aged 51)*

*“I lost 24 kilos, something like that. My friends were saying, ‘Oh, you’ve lost enough weight now; you’ll look ill if you lose any more weight.’ And I thought, ‘Alright’. And I stopped and that was the worst thing that I ever did” (Participant 5, aged 61)*

*“.... if I went and trained and stuff and went away..., I don't think she'd [partner] be too happy” (Participant 25, aged 39).*

Childcare was also an issue when trying to make positive lifestyle changes. Some participants reported feelings of guilt if taking time out for themselves away from their children:

*“I've got a young daughter. I think it would be quite off for me and my wife both to go to the gym together because we'll have to get my daughter looked after and things.” (Participant 25, aged 39).*

Several participants reported how taking part in a group-based programme would provide important social support:

*“...team sports like walking football, extensions on that and I think you'd get the social side of that” (Participant 23, aged 57).*

***“I've always known for a fact, if I engage myself in something that was part of a group, that I would be better because I think that's the way I work but I think it's better to work as a team.” (Participant 17, aged 34)***

Participants consistently reported the belief that social support would help to maintain motivation over time:

*“Also, if you’ve got a peer group that’s going to keep you motivated, keep you on target”. (Participant 4, aged 38)*

*“...I'd love to get involved in a group, with the support of everybody around, to help change my lifestyle and change my mind-set...” (Participant 7, aged 32)*



Previous participation in group-based activities where competition was an important motivator was reported as beneficial: *“I think that became a competitive thing with a group of peers and I think that helped” (Participant 21, aged 41).*

*Theme 5: Relationship between body image and self-confidence on mastery of skills for physical activity and exercise*

Participants consistently reported self-confidence issues when attempting to engage in exercise, particularly within community settings:

*“Whenever you’re big, walking through the door of the gym with all fit and beautiful people is really hard...you're trying to hide your body away even though you can't, so it's like you don't want to expose yourself to ridicule.”*

*(Participant 19, aged 45)*

*“I think that was the one daunting thing I hated every time I did go to the gym. There would be buckets of sweat pouring off of me and I'd only been there for ten minutes and there'd be guys doing crunches with their legs up in the air and stuff, completely posing and looking at every mirror.”*

*(Participant 21, aged 41).*

Self-consciousness and body image concerns extended to buying clothing to participate in physical activities and sports:

*“That’s hard. The people are fit. They know what they are doing. And most sports shops don’t cater for big people. So finding clothes that fit is embarrassing and really really difficult.” (Participant 19, aged 45)*

Feelings of anxiety relating to ability to master and perform specific skills was also reported:

*“There’s no point in me rocking up to a training session that these guys on a Saturday play because I’d just be out of my depth, and I’d look a fool.”*

*(Participant 24, aged 51)*

There was an expectation that others would be amused by participants inability to master activities: *“...see all these blokes but it’s mostly women who are fit and muscly and I’m thinking they’re laughing at me.” (Participant 19, aged 45).’*

### *Theme 6: Building motivation and personalised goal setting*

A common barrier reported across focus groups was a lack of motivation to even consider making lifestyle changes. This was specifically linked to physical activity and exercise:

*“taking the first step, that’s the hardest one to take” (Participant 3, aged 32).*

*“But it’s having that motivation and time when you’re not tired to be able to exercise....” (Participant 16, aged 62)*

*“I’ve always tried losing weight, doing exercise but it’s just finding the motivation... because I don’t particularly like exercise.” (Participant 15, aged 35)*

*“...can’t be bothered. That’s the top and bottom of it” (Participant 9, aged 33)*

Although it was acknowledged that taking the first step was the most difficult, and that once a routine was established it became easier: *“The first few weeks is always the hardest and then you get into a routine and then after that you do feel the benefits” (Participant 17, aged 34)*, several participants provided insights into their lack of motivation. For example, enjoyment was frequently reported as an issue. Participants understood the health benefits of increased physical activity and exercise, however the lack of enjoyment experienced during specific exercises was reported to prevent participants from living more active lives:

*“...I just don’t particularly enjoy that gym side of things, using the machines etc. it just doesn’t motivate me...” (Participant 20, aged 57)*

There was consensus that setting and reaching behavioural goals (e.g., achieving physical activity targets) would lead to positive outcomes (e.g., improved mental health), and that this would be an important motivator to continue. It was emphasised that goals should be graded and achievable:

*“I think it was small targets that you could see you were achieving, and if you do this you will see results....Setting small targets and seeing small results that help a lot.” (Participant 19, aged 45)*

*“Rather than just the big picture, small incremental changes. Instead of thinking, ‘Oh, this programme is going to go for six months or twelve months. What can I do?’ just little daily changes.” (Participant 8, aged 52).*

The focus groups also explored how and why participants monitored their health. Although some participants described using body weight scales to monitor health (i.e., a weight within a normal range was an indicator of health), most participants preferred visual cues, specifically clothing, to gauge whether they were becoming unhealthy:

*“The size of my trousers, that's a big one.” (Participant 23, aged 57).*

Others reflected on a time when they were overweight and expressed a desire to not return to a past state:

*“It's seeing the benefit. It's seeing the visual and thinking, “I don't want to get back to what I was and what I felt like” (Participant 18, aged 34).*

Participants described how feedback from physical activity monitoring devices impacted positively on their behaviour. Specifically, activity trackers highlighted levels of inactivity and prompted behavioural changes:

*“And you can be surprised how few steps I'll actually do if I just drive to work, go to work, and go back home again, and potter around the house”  
(Participant 14, aged 56)*

It was also felt that activity trackers can be used positively to create competition with others: *“... both me and the missus have got iPhones and we're both pretty much mapping, step by step, doing the same route” (Participant 1, aged 35).* Physical activity monitoring was also described as a prompt to reach a specific goal:

*“...if you're near your target, at the end of the day, you just randomly walk around the house trying to just make up the steps? Yes” (Participant 3, aged 32)*

*“I do that in the office, mind. Ten minutes before the hour comes, it tells you how many steps you've got to, and you've got to do 250 every hour.”  
(Participant 5, aged 61)*

As referred to previously, family members were often considered barriers to making positive lifestyle changes, however they could also be facilitators. Once family members provided their

support, they were considered instrumental to success, particularly when encouragement or practical support was required/provided:

*“Definitely, my wife has pushed me on any sport I’ve done or any fitness thing or healthy eating.” (Participant 25, aged 39)*

*“If I get a Tuesday off she’ll say, ‘Come on, you go to the gym while I go swimming...so I’d go but that’s because she’s dragging me along...”*  
*(Participant 15, aged 35)*

*Theme 7: Credible individuals increase uptake and continued engagement with lifestyle behaviour change*

A consistent and salient finding across focus groups was that participation in interventions, designed to improve physical and mental health and wellbeing, would be enhanced if delivered by a credible individual who can provide accurate and evidence-based information. Accreditation or relevant qualifications was considered a marker of credibility:

*“You’ve got to have somebody there who’s accredited or qualified, to actually tell you what you should be doing” (Participant 3, aged 32)*

*“You look like you’re the type of guy that has got knowledge in these areas.” (Participant 9, aged 33)*

*“I think there are men who like facts – this is what you’ve got. This is bad for you. Do this. It will put it right. That’s really what we want.”*  
*(Participant 13, aged 60)*

Accuracy of health information was a concern, particularly when the information was received from multiple sources, including the media, which can cause confusion:

*“The media complicate things. They don’t know whether you should be eating this or whether you should be eating that, and you get lost at the end.” (Participant 10, aged 37)*

### **3.4 Discussion**

The aim of this chapter was to identify the behavioural barriers and enablers to engaging men with lifestyle behaviour change interventions targeting physical and mental health. Three themes identified related specifically to barriers experienced by participants when engaging in lifestyle interventions, and have been identified previously by two systematic reviews (Burgess,

Hassmén and Pumpa, 2017; McIntosh, Hunter and Royce, 2016). For example, work and family pressures; health and physical limitations; a perceived lack of enjoyment, motivation and time (Burgess, Hassmén and Pumpa, 2017; McIntosh, Hunter and Royce, 2016). Similar barriers identified related to forming intentions to make lifestyle changes, particularly in the context of physical activity and exercise when it was perceived as a chore and not enjoyable. Although not reported within the findings of this chapter, as there was not enough data to support a theme, there were participants who described happiness as a key component to health. This is interesting and had there been stronger evidence to warrant a theme of its own, happiness and health would prove to be an interesting discussion point. Happiness, and the need to provide signposting or access to a range of enjoyable activities is important to promote uptake and continued engagement is an important intervention consideration. This finding is consistent with SDT (Deci and Ryan, 2000) and specifically, intrinsic motivation involving engagement with an activity based on interest, enjoyment and inherent satisfaction. Teixeira *et al.* (2012) reported how seeking an internal goal, that leads to personal enjoyment can satisfy basic psychological needs for motivation, and ultimately lead to success. Findings from this study support the value of goal setting and goal pursuit as a means of maintaining motivation when making lifestyle behaviour changes. Specifically, the need to set small, tangible, and achievable goals and the benefits of receiving positive feedback was considered important. Behavioural goal setting has been used successfully in previous men's health interventions (Caperchione *et al.*, 2016; Hunt *et al.*, 2014b; Wyke *et al.*, 2019; Young *et al.*, 2012) and should be considered a candidate for inclusion in future interventions.

Burgess, Hassmén and Pumpa (2017) reported how barriers to behaviour change in adults with obesity include lack of awareness or gaps in knowledge. For example, some authors have found adults with obesity to lack awareness about the amount of time spent sitting and the impact on health (Martínez-Ramos *et al.*, 2015). This study did not support this finding; indeed, participants showed a good understanding about the importance of physical and mental health, and how the two impact on each other, however knowledge and awareness does not naturally lead to behavioural change (Sniehotta, Scholz and Schwarzer, 2005). These findings, and those of Burgess, Hassmén and Pumpa (2017), suggest that future interventions should continue to highlight the important relationship between lifestyle and optimal physical and mental health, but should place greater emphasis on practical strategies to make and sustain behavioural changes (e.g., graded goal setting, social support), location of facilities and credentials of those delivering them.

Men's participation in physical activity interventions can often be hindered by barriers relating to confidence or embarrassment. A cross-sectional study investigating barriers to physical activity in men found that those who did not meet physical activity recommendations were more likely to lack knowledge, motivation, mastery of skills, and report intimidation or embarrassment. Furthermore, those who reported increased stress levels were also more likely to report intimidation and embarrassment as a key barrier (Ashton *et al.*, 2017). These behaviours may further explain why men often only access mental health services following prolonged periods of displaying symptoms and why one in four men will drop out of management regimens (Seidler *et al.*, 2018). Systematic reviews have also reported negative attitudes of men towards healthcare due to traditional beliefs about masculinity and male gender roles (e.g., emotional control, self-reliance, and being successful at any cost) (Garfield, Isacco and Rogers, 2008). The findings in this chapter highlighted similar barriers to studies investigating men's perceptions of physical activity intervention participation. Participants described a lack of self-confidence relating to mastery of skills which prevent engagement in lifestyle behaviours, specifically physical activity and exercise due to fear of embarrassment. These findings highlight the need for interventions to target emotions and should aim to support men to develop coping strategies to overcome these challenges. If emotional barriers to lifestyle behaviour change are not addressed alongside other barriers, uptake and long-term engagement will likely remain low. It would be fair to offer recommendations based on these findings which include the generation of 'rules' to address perceived judgement and negativity and the promotion of group-based activities with individuals who have similar perceived ability. These strategies were suggested by participants and have proven successful in previous men's health interventions (Hunt *et al.*, 2014b).

Work related issues and increased stress was a consistent finding of this chapter. Workplace interventions have emerged to overcome this issue, however there are few interventions that take into account the specific barriers faced by men (e.g., pressure to take on overtime at work, and barriers discussed already) (Howarth *et al.*, 2018). Seaton *et al.* (2021) reported findings from a gender sensitised workplace intervention that aimed to improve self-reported physical activity. The intervention achieved its aims with an increase in walking by 156.5 min/week and was reported to be acceptable by men (Seaton *et al.*, 2021). A specific finding, consistent with this chapter was that participants reported that a reduction in workload facilitated physical activity engagement. Interventions to address this issue would likely create opportunities to make and sustain lifestyle behaviour changes.

Findings from this chapter also reflect the role of masculinities in the context of health. The issue of work-related issues as barriers to improving lifestyle behaviours could be interpreted as traditional norms of masculinity discouraging men from seeking help for emotional issues (Mahalik, Burns and Syzdek, 2007). Furthermore, injuries as barriers to re-engaging with previous levels of physical activities or exercise may reflect men's hyper-competitiveness and a need to strive for physical prowess (Gough, 2013), which men may feel that they can no longer engage with due to injury, which leads to feelings of inadequacy if men identify with these perceptions of masculinity. In addition, issues related to body image and self-confidence with engaging in exercise in community settings is identified in this study, as well as reflecting perceived societal norms about men's bodies, also reflects the high numbers of men who report experiencing weight stigma. In one study of 1,513 men (Himmelstein, Puhl and Quinn, 2018), 40% reported some form weight stigmatisation (most commonly, verbal mistreatment from peers, family members, and strangers).

Additional findings from this study identified specific facilitators to lifestyle behaviour change to optimise physical and mental health. These included practical support to set personalised and meaningful goals, graded to build confidence, a means to self-monitor progress, and elicit practical and social support from family and peers. A credible individual facilitating and supporting intervention delivery was considered vital, particularly someone who was qualified and could provide evidence-based information and advice in a friendly manner. Furthermore, it was reported to be important that facilitators understood the specific issues related to lifestyle behaviour change for men, were approachable and non-judgemental, and importantly that they were not healthcare professionals. Healthcare professionals often provide information about the benefits of health behaviour change which is widely reported as a mechanism to encourage behaviour change, increase initial uptake of interventions and to promote continued engagement (Van Achterberg *et al.*, 2011; Morton *et al.*, 2015; Glidewell *et al.*, 2018). However, for those who do not engage with healthcare services or who feel pressurised by healthcare professionals, it was considered important that information and support is provided by someone who the target demographic can relate to and get along with.

A credible individual could be a healthcare professional, celebrity, an expert in a relevant field, or an expert by experience. An example of this was reported by the authors of the FFIT intervention study where guests, who are typically former participants, were invited to talk to the male participants about their experiences of the programme, and this demonstrated to be acceptable and preferable (Gray *et al.*, 2013a). The findings within this chapter highlighted the

confusion created with broad health messages in society. Participants talked about how the media can complicate important health messages, “*So the media complicate things. They don’t know whether you should be eating this or whether you should be eating that, and you get lost at the end*”(Participant 3, aged 32) making decisions on health behaviour change more difficult. Participants suggested that a solution to this confusion is important health information being communicated by an approachable and credible individual or team who they can relate to, and importantly who can relate to them. To address the latter, there are good examples of peers becoming a conduit of information in previously conducted health interventions delivered via other North East Football Clubs (e.g., The Cleveland and Redcare Bootroom (Dixon *et al.*, 2019) and this could be replicated to maximise uptake and continued engagement.

This chapter suggests that social support, including practical support from family members and peers can both positively and negatively influence health-related behaviours, which is a finding previously reported (Burgess, Hassmén and Pumpa, 2017). However, in participants in this chapter, this was often linked to work. For example, greater resistance was experienced when trying to find time to take part in leisure time activities and make healthier choices in terms of diet if the working day had been long. Participants reported feeling guilty and explained how partners became resentful. Despite this, participants also described partners and children as being vital when maintaining healthy and physically active lifestyles once they are on-board. Findings also emphasised that participants prefer to be part of a group of similar individuals that creates a sense of identity. This finding corresponds to outcomes reported by the FFIT study that highlighted the role of ‘banter’ and ‘comradery’ as a source of motivation and social support (Hunt *et al.*, 2014b).

Social support has also been used effectively as part of interventions to improve the physical activity of men by introducing competition (Andersen, Burton and Anderssen, 2012; Hood *et al.*, 2015; Hooker *et al.*, 2011; Hunt *et al.*, 2014b; Young *et al.*, 2012) and this was an important finding in this chapter. Participants reported pursuit of goals and meeting personalised targets and referred to healthy competition within group environments. Competition has been used successfully in behaviour change intervention for male participants within workplaces (Freak-Poli *et al.*, 2011; Seaton *et al.*, 2021), countries outside the UK (Hooker *et al.*, 2011; Kwasnicka *et al.*, 2020), and within football clubs (Hunt *et al.*, 2014b). As such, social support and competition should be considered key ingredients of interventions targeting lifestyle behaviour change of men.



Longevity as a motivator for behaviour change emerged as a brief discussion point. One man described how he wanted to *'be around to spend a lot of time with them'* (Participant 20, aged 57), indicating the value he placed on increased longevity. Others highlighted how they *"...want to live as long as I possibly can, and be as healthy for that time as long as I possibly can."* (Participant 13, aged 60) or how *"..prolonging your life."* (Participant 17, aged 34) was important for behaviour change. The importance of longevity to older men (UK retirement age) is highlighted in the HIMM framework (Evans *et al.*, 2011). Specifically, as men age, they become more aware of their mortality which, when combined with major life events such as retirement, can increase stress (Soares *et al.*, 2008). This stress can be augmented during economic downturn or when work is enforced or unexpected (Soares *et al.*, 2008). Evans *et al.* (2011) summarises how the ageing process, reduced physical activity, susceptibility to illness, and the deterioration of gender expectations highlights the importance for the provision of health care in older men. Again, despite aging and longevity not forming an independent theme of its own, this is an important consideration for the age criteria for a men's health intervention. This justifies including participants up to the UK retirement age (65 at time of writing) within a men's health intervention.

Stress was a consistent topic throughout focus group discussions. Participants regularly talked about a desire to reduce stress and improve quality of sleep to impact positively on daily interactions. However, few intervention studies have considered the impact of sleep on health, specifically those designed for men (Kohn *et al.*, 2020). This warrants further consideration, specifically how best to target sleep and communicate the benefits over and above what ordinarily might be expected.

Throughout the refining stage of themes generation and while adhering to the stages of thematic analysis, initial themes identified how participants of this chapter understood and acknowledged mental health as an integral component of overall health. Participants also understood the role physical activity and exercise plays in improving mood and overall well-being. Although there was not enough data to support this as a theme in the final stages of data analysis, it is still an interesting finding. According to Zwolinsky *et al.* (2013), men are typically termed hard-to-reach as they enact sub-optimal healthy lifestyle behaviours and do not recognise the need to change health behaviours. This is opposed to the findings of this chapter as men understood the importance of maintaining good mental, physical and social health, despite there not being strong enough data for this to generate a theme of its own. Had there been strong enough data to support this theme, there would be a good argument that participants

within this chapter were challenging the theory that men do not consider healthy lifestyle behaviours as important or in need of change.

It's important to highlight the setting in which data was collected. All but one focus group was delivered within St. James Park, with the other being delivered in the workplace. Participants' interests in football were not recorded, but it could be assumed that most participants were football supporters. That is important as it could have influenced the data collected and created bias. Although the findings of the focus groups conducted in a workplace setting versus the football stadium did not differ markedly, data from the workplace setting generated more work-related barriers and enablers, therefore setting in which data is collected should be considered. Furthermore, it is worth noting that enablers were more forthcoming from participants in the focus groups delivered within the football stadium. This is understandable if most participants within the focus groups delivered at the football stadium were football fans. It's possible that these participants had a more positive outlook, and were in a better mood, therefore were able to identify enablers easier. Likewise, those participants within the workplace may have external influences which negatively impacted their wellbeing or their mindset thereby making it easier to identify barriers. Despite these biases, the consistency within the data which generated themes accounts for extreme opinions which may have skewed the data.

A secondary aim of this chapter was to use the findings to inform the development of a community-based intervention (The 12<sup>th</sup> Man) targeting improvements in physical and mental health and wellbeing of men. Specifically, identification of target behaviours and key intervention ingredients to engage men and to support them to make personally important changes to their health-related behaviours was a priority. Findings highlighted that physical activity, exercise, alcohol, and sleep to improve mood, function, wellbeing, and reductions in weight, were important to men, although interestingly diet was not frequently identified or discussed as a target for intervention. With reference to active intervention ingredients, it was agreed that a future intervention should be delivered by a credible individual, or team of individuals who are knowledgeable, can communicate complex and evidence-based health messages simply, and someone who is non-judgemental who participants can relate to and who is considered part of the group. Social pressure was consistently reported as a factor that prevented participants from engaging in health behaviour change. For example, body image and the negative impact it has on mastery of skills and confidence was reported to prevent engagement with physical activity and exercise. Therefore, including strategies within an intervention to reduce or overcome perceived or actual pressure involving social support is

important. In terms of optimal duration, there was no consideration of when an intervention should start and end, instead participants talked about the need for interventions that provided knowledge, skills, social support, and signposting to local services/activities of interest to enable long-term, sustainable change.

Findings from this chapter can help inform the subsequent development of an intervention which targets men. The barriers and facilitators described in this chapter can help to identify behavioural determinants and BCTs most likely to have effective change on behaviour. Therefore, subsequent chapters within this thesis will describe the process of systematic intervention development and how intervention mapping can increase the likelihood of achieving aims to improve the mental, physical, and social health of men.

#### *3.4.1 Strengths and limitations*

A key strength of this chapter was the recruitment strategy that was successful in identifying and recruiting male participants who reported a reluctance to engage in health-related interventions offered by healthcare settings. This suggests that the approach taken engaged a different group of men who might be considered as ‘hard-to-reach’ (Zwolinsky *et al.*, 2013). This could be attributed to the links with NUFC for the reasons reported previously (Dixon *et al.*, 2019; Hunt *et al.*, 2014a; Parnell *et al.*, 2015; Pringle *et al.*, 2016). Secondly, the interview topic guide and lead researcher facilitated discussions around men’s interests initially to understand what prevented them from pursuing their interests rather than something completely new. This approach was successful in identifying barriers and facilitators that could inform the content of a future intervention by incorporating strategies to enable men to participate in activities of choice to improve health and wellbeing.

A potential weakness of the chapter is that health-related data from participants that could characterise the sample was not collected. However, a decision was taken not to collect this information so not to dissuade men from participating in a study that is essentially designed to inform intervention development. Lastly, this research focussed on men between the ages of 30 and 65 years in accordance with the rationale provided within the methods, however it should be acknowledged that younger men also have mental health needs that require further attention in future research.

### **3.5 Conclusion**

This chapter was successful in identifying behaviours (specifically, physical activity and exercise and other lifestyle behaviours including sleep and alcohol, albeit to a lesser extent) as

targets for intervention that were perceived by men to be important for optimal health and wellbeing, and barriers and facilitators associated with health behaviour change and maintenance. Key active intervention ingredients were also identified as potential mediators to behavioural change (e.g., setting, mode of delivery, intervention content, and duration). Findings were used to inform the development of the 12<sup>th</sup> Man Intervention designed to target lifestyle behaviours to achieve improvements in physical and mental health of men and for delivery through a Club Community Organisation, NUF. A detailed account of how the findings were used within a systematic intervention development process are presented in Chapter 4.

## **Chapter 4 Systematic development of a multibehavioural lifestyle intervention: The 12<sup>th</sup> Man**

## 4.1 Introduction

The Medical Research Council (MRC) Framework for the Development and Evaluation of Complex Interventions (Skivington *et al.*, 2021) recommends that intervention developers follow a 4 phase process when designing interventions which is described in Figure 4.1.

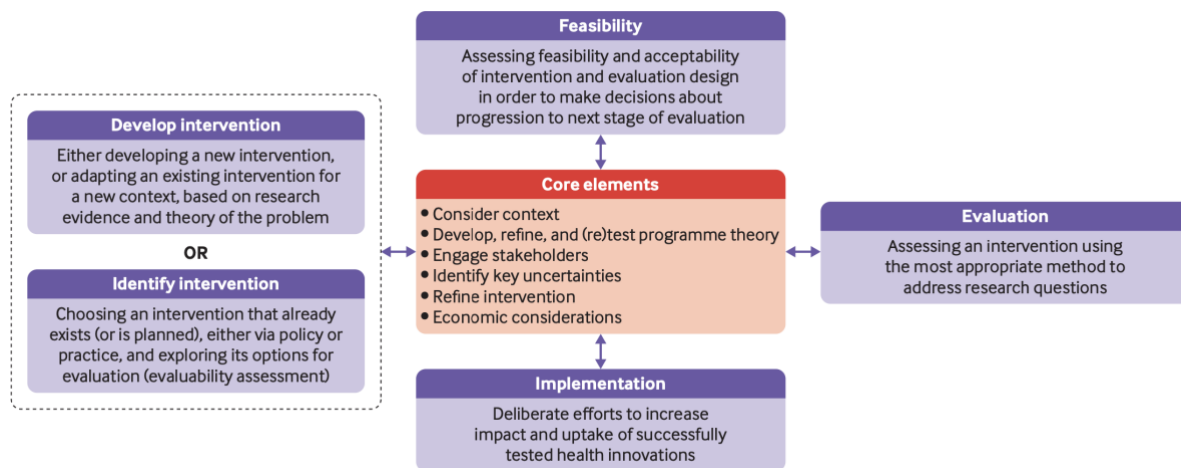


Figure 4.1 - A schematic which describes the development and evaluation of complex interventions. Considering Context = how an intervention is conceived, developed, evaluated, and implemented. Programme theory = how an intervention is anticipated to affect the population, and under what conditions. This should be tested and refined at all stage to address uncertainties. Stakeholders = the targeted population of the intervention or policy, those who developed or delivered the intervention or those who have personal or professional interests. Uncertainties = using programme theory, research team, and wider stakeholders to identify the key uncertainties that exist. These will inform the research question. Refinement = following preliminary prototypes, making changes to the intervention. Economic considerations = understanding the comparative resource and outcome consequences of the interventions for those people and organisations affected. Figure is taken from Skivington et al. (2021)

However, this development process may begin at any phase, and it is important that phases are revisited to resolve uncertainties or to optimise interventions. Phase 1 of the framework refers to intervention development and relates to the whole process of designing and planning (or identifying) an intervention. This phase includes adaptation (e.g., when adapting an existing intervention for a new population), identifying key features, and uncovering the theoretical basis of an intervention. Phase 2 involves the conduct of a feasibility study to determine the acceptability and feasibility of an intervention and its evaluation design (e.g., uptake of the intervention, acceptability of its content, recruitment, retention, data collection) that informs key decision-making about progression of the intervention to the next stage of evaluation (if appropriate). Phase 3 involves the evaluation of the complex intervention to answer important research questions (e.g., an exploration of the impact of the intervention on outcomes of interest) where researchers should go beyond understanding whether the intervention can be delivered. It is important to know how an intervention works, in which contexts it works, how it contributes to system changes, and how it can be used to support decision making. As such,

throughout each phase of the MRC Framework, a specific core element should be considered. These include contact, developing and refining programme theory, engaging stakeholders, identifying key uncertainties, refining the intervention, and economic considerations. Systematically developing an intervention during phase 1 using robust methodology is integral for producing theory and evidence-informed interventions that can address/support the needs of a target population.

Bartholomew *et al.* (2006) presented a 6-step process to guide intervention developers to enable them to produce transparent interventions that integrate theory and BCTs that target specific theoretical determinants of behaviour and subsequently potential behavioural change. During each of these steps, it is beneficial to consult recommendations from other experts in the field of intervention development who have published frameworks and guidance on intervention development (Kok *et al.*, 2016; French *et al.*, 2012) that can enable selection of BCTs (Michie *et al.*, 2008; Michie *et al.*, 2013), to enable operationalisation of intervention components and inform a robust evaluation (Michie *et al.*, 2018).

The previous experimental chapter (Chapter 3) described men's perceived barriers and facilitators to lifestyle interventions. This data was used to inform the development of an intervention which aims to target behaviours which can overcome barriers. The aim of this chapter is to describe how processes offered by Kok *et al.* (2016) in their approach to Intervention Mapping were used to systematically develop a multi-component, multibehavioural intervention named the 12<sup>th</sup> Man Intervention. The steps taken to design this intervention have been detailed to enable transparency of decision-making and reporting and to facilitate replication. This approach was undertaken to increase uptake of the intervention and to increase the likelihood of health behaviour change and linked improvements in outcomes of behaviour – i.e., physical and mental health.

## **4.2 Methods**

With reference to Intervention Mapping, a 6-stage process was used to develop the 12<sup>th</sup> Man Intervention. Each of these stages are detailed below in chronological order. Ethical approval to conduct the focus group study (step 1) was granted by Newcastle University's Research Ethics Committee (Ref. 6228/2018).

### *4.2.1 Step 1: Needs assessment*

Step 1 of the intervention mapping process involved conducting a needs assessment of the target population (men aged between 30 and 65 years) to identify target behaviours, information, and

support requirements. A review was conducted to identify studies that reported on the behaviour change techniques, theories and key components used in effective men's health interventions delivered in community-based football clubs. The methodology of the review is described further in Chapter 2. It was decided that a review which followed the methodology of a scoping review would be more appropriate than a systematic review because a systematic review of the literature would highlight the pooled *effectiveness* of interventions within the literature rather than the *key components* of interventions which were used in effective interventions. Scoping reviews are commonly used to identify the key ingredients of interventions when systematically developing multi-component lifestyle interventions (Avery *et al.*, 2015).

The findings of the review and discussions with the wider study team informed the development of a topic guide to conduct focus group discussions with 25 men. Focus groups were conducted by one researcher (the author of this thesis) and each transcript thematically analysed independently by two researchers (the author of this thesis and a member of the supervisory team [LA]).

#### *4.2.2 Step 2: Defining the objectives and behaviours to change*

Step 2 involved the secondary analysis of focus group data collected during step 1. The methodology used for secondary analysis is described in the Chapter 2. A secondary analysis was deemed necessary as the primary data analysis conducted in Chapter 3 focussed on a research question which identified the barriers and facilitators to engaging in lifestyle interventions. However, re-analysing the data with a new research question could lead to novel insights and perspectives. Therefore, the aims of the secondary analysis of the data collected in step 1 (and Chapter 3), was to use the Theoretical Domains Framework (TDF) (Atkins *et al.*, 2017) to identify the social cognitive determinants of behavioural intention and behaviour change (i.e., theoretical domains) of participants and identify the change objectives (i.e., behaviour outcomes) of a men's health intervention. It was also important for the literature to inform the identification of the intervention change objectives and target behaviours, as informed through the review described in step 1.

#### *4.2.3 Step 3: Identifying the underpinning theory and practical techniques most likely to initiate change while considering the population and context in which these are delivered*

The domains identified during step 2 were used to select theory-linked BCTs from the behaviour change taxonomy (Michie *et al.*, 2013) for inclusion in the intervention. Selection of BCTs also facilitated a discussion about delivery of the intervention in practice (Michie *et al.*,



2013). For example, how can goal setting be encouraged in practice within the target population. Feasibility of delivery and future implementation was central to discussion. To provide greater confidence in the appropriateness and usefulness of the technique suggested, evidence from similar interventions was presented to demonstrate use of the technique in practice, where possible.

During discussions with the study team (thesis author and supervisory team), it was considered important to explore how the techniques selected would work in practice by providing explicit examples to study participants. For example, ideas of how to set goals to lose weight were given. Furthermore, it was important to consider the population and context in which the intervention was intended to be delivered and what conditions should be satisfied during the practical application of BCTs for the method to be effective (Kok *et al.*, 2016). These decisions are termed the parameters of effectiveness and were considered important during step 3 when determining theory and practical techniques for inclusion in the intervention.

#### *4.2.4 Step 4: Developing a prototype intervention*

Working in collaboration with NUF, the delivery partners for the 12<sup>th</sup> Man Intervention, a prototype of the intervention was developed around the theory-linked practical strategies selected during step 3. It was clear from the outcome of steps 1 and 2 that the intervention should be developed to target behaviours to improve physical and mental health of the target population. However, the findings of the focus group discussions conducted as part of step 1 (reported in Chapter 3 and recently published (Bell *et al.*, 2023)) highlighted the interpretation of improvements to physical and mental health differs between participants and interventions should consider individual needs and preferences when targeting lifestyle behaviours. Furthermore, some participants expressed a specific interest in improving physical health, while others reported on the need to target mental health and wellbeing or a combination of both by changing and maintaining a range of lifestyle behaviours.

To determine the effect of targeting specific behaviours (e.g., physical activity, diet, sleep), outcome measures were identified/selected. Similar to French *et al.* (2012), outcome measures were reliable, valid and were considered feasible to use in the context of a community study. It was important to monitor the feasibility and acceptability of a measurement protocol to coaches who would be delivering the intervention and men taking part in the intervention during a pilot feasibility study.

Once an initial prototype of the 12<sup>th</sup> Man Intervention had been developed, consultations with key stakeholders, including coaches, academic health experts, local public health experts, and individuals from the target population were conducted. The aims of these consultations were to understand initial acceptability and palatability of the proposed intervention to the community, whether the content and mode of delivery for the intervention were considered acceptable in practice, and to highlight or consider any further adjustments to content and mode of delivery. This process would also increase the likelihood of buy-in should the intervention prove to be acceptable and feasible when planning future larger scale evaluation and implementation.

#### *4.2.5 Step 5: Developing an implementation plan*

NUF lifestyle coaches arranged venue hire, facilitated participant recruitment, and supported the delivery of the intervention, under the direction of the study lead (thesis author). Pre and post measures were agreed to be taken from participants at St. James Park, the home of NUFC to increase uptake and acceptability as reported in other similar studies conducted in football clubs (Gray *et al.*, 2013a; Lewis, Reeves and Roberts, 2017; Pringle *et al.*, 2013; Zwolinsky *et al.*, 2013). NUF staff and trained phlebotomists from Newcastle University supported collection of data from study participants. An implementation plan of the intervention was developed in collaboration with colleagues from Newcastle University (e.g., experts in exercise physiology and behavioural sciences), NUF (e.g., experts in community health intervention delivery), NUFC (e.g., specialists in facility management and security), and Newcastle City Council (e.g., specialists in public health) to facilitate effective implementation.

#### *4.2.6 Step 6: Piloting of the 12<sup>th</sup> Man Intervention*

The specific aims of the pilot feasibility study were to assess feasibility and acceptability of the intervention and study procedures from the perspective of study participants and are thoroughly explored in Chapter 5. However briefly, participants were recruited through social media and NUFC match day promotion activities. Participants were considered eligible if they were men aged between 30 and 65 years. Two cohorts of nineteen men were recruited to take part in the 12<sup>th</sup> Man Intervention. Quantitative data relating to recruitment and retention were collected by NUF coaching staff and analysed by the authors of this thesis who led the study. Men were asked to provide outcome measures 1 week before and 1 week after the 12<sup>th</sup> Man Intervention. Measures taken included: height, weight, blood pressure, waist circumference, biomarkers of health, and lifestyle questionnaires. Feedback from study participants were collected via post intervention focus group discussions conducted by a member of the wider research team who

was not involved with recruitment or intervention delivery. All focus group discussions were audio recorded, transcribed verbatim and data coded and subsequently analysed using thematic analysis (Braun and Clarke, 2021). Themes and sub-themes derived from the data were discussed by the wider research team to inform intervention and study optimisation decisions.

## **4.3 Results**

### *4.3.1 Step 1: Needs assessment*

A review of the literature identified 62 articles, five of which met the eligibility criteria. A flowchart of the inclusion and exclusion criteria can be seen in Figure 4.2. These included FFIT (Wyke *et al.*, 2015), Premier League Health (PLH) (Zwolinsky *et al.*, 2013), Hockey Fans in Training (HFIT) (Petrella *et al.*, 2017), HATRICK (Caperchione *et al.*, 2017), and one with no official name but used Rugby as a vehicle of delivery (Sealey *et al.*, 2013). The intervention details, including the author, intervention setting, participants, intervention duration, mode of delivery, country, behaviour change techniques, behaviour change theories and the outcome measures can be seen in Table 4-1. Key intervention components and/or features were identified and are presented in Table 4-2.

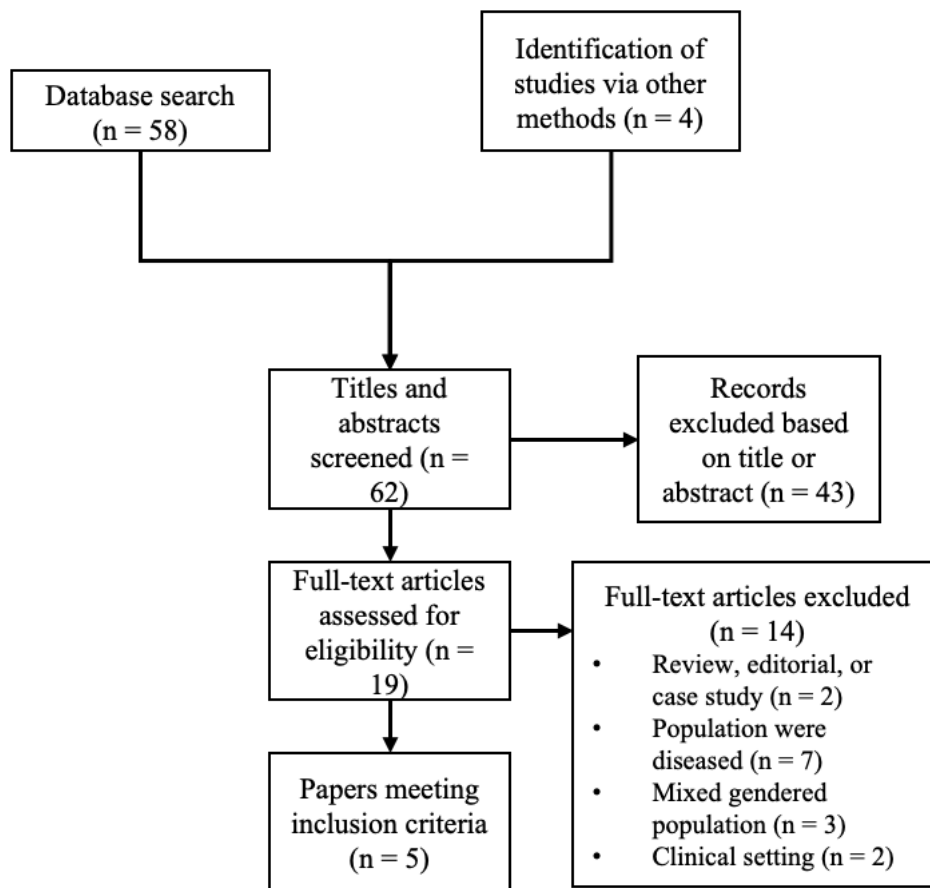


Figure 4.2 - Flow diagram of the review and studies included.

Table 4-1 - Description of included studies in the review.

Authors	Intervention setting	Participants	Intervention duration	Mode of delivery		Country	Behaviour Change Techniques.	Behaviour Change Theory	Outcome Measures
Caperchione <i>et al.</i> (2017)	Ice Hockey	Overweight and inactive men	12-weeks	Weekly to face	face	Canada	Goal setting, Self-monitoring, Social support	SCT, SDT, Masculinities	Anthropometrics, BP, heart rate, PA and sedentary behaviour, diet, smoking, alcohol consumption, sleep habits, risk of depression health-related quality of life and social connectedness
Wyke <i>et al.</i> (2015)	Football club stadia	Men aged 35 - 65. BMI $\geq$ 25 kg/m <sup>2</sup>	12-weeks	Weekly to face	face	Scotland	Social support, regulation, feedback and monitoring, repetition and substitution, antecedents, shaping knowledge, self-belief, goals and	CT, SCT and SDT	BMI, waist circumference, BP, self-reported physical activity and sedentary time, eating and alcohol consumption, psychological and health-

							planning, comparison of outcomes, identity, natural consequences, comparison of behaviour, covert learning		related quality of life.
(Zwolinsky <i>et al.</i> , 2013)	English Premier League Football Clubs	Men aged 18 - 35	12-weeks	Weekly to face	face	England	Social support. Self-monitoring		PA, fruit and vegetable consumption, smoking, alcohol consumption
(Petrella <i>et al.</i> , 2017)	Ice Hockey	men aged 35 - 65. BMI $\geq 28$ kg/m <sup>2</sup>	12-weeks	Weekly to face	face	Canada	Self-monitoring, specific goal setting and review, and feedback on behaviour	CT and SCT	BMI, waist circumference, BP, self-reported PA and sedentary time, eating and alcohol consumption, psychological and health-related quality of life.

(Sealey <i>et al.</i> , 2013)	Rugby league or rugby union	men aged 35 - 65. greater than 25	12 BMI than	Weekly to face	face	Australia	Social support, regulation, feedback and monitoring, repetition and substitution, antecedents, shaping knowledge, self-belief, goals and planning, comparison of outcomes, identity, natural consequences, comparison of behaviour, covert learning	CT, SCT, and SDT	Healthy lifestyle knowledge, waist circumference , BMI
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SCT = Social cognitive theory, SDT = Self-determination theory, CT = Control Theory, BP = Blood pressure, BMI = body mass index, Physical Activity = PA

Table 4-2 - Key intervention components identified from the review of the literature.

<b>Intervention considerations</b>	<b>Source</b>
Community-based football club as vehicle for delivery	(Gray <i>et al.</i> , 2013a; Zwolinsky <i>et al.</i> , 2013)
Group-based face-to-face intervention	(Gray <i>et al.</i> , 2013a)
Group size of 15 participants to one coach	(Gray <i>et al.</i> , 2013a)
Sex specific and gender sensitivity from development through to delivery	(Caperchione <i>et al.</i> , 2017; Gray <i>et al.</i> , 2013a)
Using humour and friendly competition	(Sealey <i>et al.</i> , 2013; Gray <i>et al.</i> , 2013a; Zwolinsky <i>et al.</i> , 2013).
SCT underpinned interventions	(Caperchione <i>et al.</i> , 2017; Gray <i>et al.</i> , 2013a; Petrella <i>et al.</i> , 2017)
Control theory underpinned interventions	(Gray <i>et al.</i> , 2013a; Petrella <i>et al.</i> , 2017)
SDT underpinned interventions	(Caperchione <i>et al.</i> , 2017; Gray <i>et al.</i> , 2013a)
Masculinity theories were referred to during intervention design	(Caperchione <i>et al.</i> , 2017)
Self-regulation was referenced during intervention delivery	(Petrella <i>et al.</i> , 2017)
Goals and planning (Group 1 from the behaviour change taxonomy (Michie <i>et al.</i> , 2013)) used in intervention delivery	(Caperchione <i>et al.</i> , 2017; Gray <i>et al.</i> , 2013a; Petrella <i>et al.</i> , 2017; Sealey <i>et al.</i> , 2013)
Shaping Knowledge (Group 6 from the behaviour change taxonomy) use in intervention delivery.	(Caperchione <i>et al.</i> , 2017; Gray <i>et al.</i> , 2013a; Petrella <i>et al.</i> , 2017; Sealey <i>et al.</i> , 2013)
Natural Consequences (Group 7 from the behaviour change taxonomy) use in intervention delivery.	(Caperchione <i>et al.</i> , 2017; Gray <i>et al.</i> , 2013a; Petrella <i>et al.</i> , 2017; Sealey <i>et al.</i> , 2013)
Comparison of behaviour (Group 8 from the behaviour change taxonomy) use in intervention delivery.	(Caperchione <i>et al.</i> , 2017; Petrella <i>et al.</i> , 2017; Gray <i>et al.</i> , 2013a; Sealey <i>et al.</i> , 2013)
Repetition and Substitution (Group 10 from the behaviour change taxonomy) use in intervention delivery.	(Caperchione <i>et al.</i> , 2017; Gray <i>et al.</i> , 2013a; Sealey <i>et al.</i> , 2013)
Feedback and monitoring (Group 3 from the behaviour change taxonomy) use in intervention delivery.	(Petrella <i>et al.</i> , 2017; Gray <i>et al.</i> , 2013a)
Social Support (Group 5 from the behaviour change taxonomy) use in intervention delivery.	(Gray <i>et al.</i> , 2013a; Petrella <i>et al.</i> , 2017)

SCT = Social Cognitive Theory. SDT = Self-Determination Theory



Interventions selected for review were those which reported participant health improvements post intervention. Key components were identified either by the author of those interventions and reported within the publication or deemed important because of duplication across other interventions. For example, Gray *et al.* (2013a) describes how the group size of 15 was a key component within the FFIT intervention. Although other authors did not describe group size as a contributing factor to effectiveness, Gray *et al.* (2013a) describes that through pilot feasibility research, group size was determined to be an important factor in creating health behaviour change within participants.

Not all interventions identified reported how BCTs were used in practice, however, Gray *et al.* (2013a) did provide this information. As an example of BCTs in practice, the authors of the FFIT intervention used Feedback and Monitoring throughout the 12-week intervention, and this was considered instrumental to success of the intervention. The behaviour change technique Feedback on Behaviour was used during weeks 2 – 6, 9 – 12. An example of this technique in practice is when participants were to compare their food diaries with the healthy eating plate to help men understand the type of changes they may need for a healthier diet. It was therefore considered important to include these BCTs in the 12<sup>th</sup> Man Intervention.

Findings from the review also informed the development of a topic guide to facilitate focus group discussions which is fully described in Chapter 3. The sampling approach, method of recruitment, topic guide and results of focus groups are detailed in Chapter 3 but briefly, 7 themes were generated using thematic analyses. Men highlighted social pressures; lack of enjoyment, motivation, or time; work stressors and impacts on sleep; family pressures and self-confidence as barriers to engaging in lifestyle interventions. They also outlined how goal setting; self-monitoring; peer support and group-based programmes; and an intervention delivered by a credible source would be motivating when attempting to change health behaviours.

#### *4.3.2 Step 2: Defining the objectives and behaviours to change*

Six domains were identified from the secondary analysis of the focus group data and review. These were: social influences, goals, behavioural regulation, skills, knowledge, and environmental context and resources. Following the review, it was clear that there was not a lifestyle intervention which highlighted the importance of improving mental, physical, and social health, delivered through a sporting organisation, targeting groups of men. Findings from the focus group data described in Chapter 3 also indicated that men understood the importance

of maintaining good mental, physical, and social health, although, a limitation of this study was that it did not explore how to change lifestyle behaviours to maximise health outcomes. However, the literature indicates that similar population groups lack knowledge on the impacts of portion size and sedentary activities on health (Burgess, Hassmén and Pumpa, 2017). Therefore, it was decided that change objectives for the intervention were to improve the mental, physical, or social health of participants, and that diet, physical activity, sleep, stress, anger, and happiness should be target behaviours.

#### *4.3.3 Step 3: Identifying the underpinning theory and practical techniques most likely to initiate change while considering the population and context in which these are delivered*

Social support was identified from the data analysis in the focus group phase of Chapter 3 and during the review, social support was a common strategy identified within successful men's lifestyle interventions (Caperchione *et al.*, 2017; Gray *et al.*, 2013a; Petrella *et al.*, 2017), it was decided that SCT should underpin the 12<sup>th</sup> Man Intervention. Additionally, SDT was also selected to underpin the intervention to specifically target self-regulation. Caperchione *et al.* (2017) and Gray *et al.* (2013a) both reported the use of SDT when developing men's health interventions and focus group data described in Chapter 3 indicated that motivation could be a barrier to adopting a healthier lifestyle. For example, Theme 6: Building motivation and personalised goal setting described how lacking motivation can make positive lifestyle changes difficult and how setting and reaching behavioural goals (e.g., achieving physical activity targets) can lead to positive outcomes (e.g., improved mental health) which is an important motivator. This provided confidence that SDT was appropriate to underpin the 12<sup>th</sup> Man Intervention.

Findings from step 1 and step 2 were used to inform the selection of appropriate BCTs with reference to a reliable and valid Behaviour Change Taxonomy (v1) (Michie *et al.*, 2013). Target behaviours informed by either review or focus group data were aligned with TDF domains (Atkins *et al.*, 2017), and appropriate theory-linked BCTs (Michie *et al.*, 2013), given examples of BCTs in practice and the how the population, context, and parameters were considered. This is illustrated in Table 4-3.

Table 4-3 - An overview of when BCT techniques are applied in practice across the 12<sup>th</sup> Man Intervention and which target behaviours they intend to change. The Theoretical Domains Framework (TDF) domains and constructs, relative theory, population, context, and parameters of effectiveness are also described along each Behaviour Change Technique (BCT).

<b>Intervention week</b>	<b>Target behaviours and how these were informed</b>	<b>TDF domain and construct and relative theory</b>	<b>BCT selected and example in practice</b>	<b>Population, context, and parameters of effectiveness</b>
1	Improve physical activity, diet, sleep, stress, anger, and happiness. Informed by focus groups discussions	<b>Domain:</b> Knowledge <b>Construct:</b> Knowledge <b>Theory:</b> SCT	5.1 information about health consequences - Introduce the 12th Man Intervention and explain how it is the product of rigorous research. Opportunity for men to introduce themselves to each other and explain why they have decided to take part in the intervention. This may allow men to begin to explore the health consequences of continuing to neglect mental, physical, or social health.	Population: Men who want to change their health behaviours so they can live longer. Context: Men will be informed about the health consequences of living healthy or unhealthy lifestyle habits. Parameters: Once the information has been given in week 1, solutions to the health problems are highlighted throughout the 12-weeks.
2	Improve social network. Informed by review and focus group discussions	<b>Domain:</b> Social influences <b>Construct:</b> Social Comparison <b>Theory:</b> SDT and SCT	3.1 Social Support (unspecified) - Allow men the opportunity to share common barriers which prevent them from being more physically active in their life. Compare between others the common barriers and how they could overcome them. Men will then work between each other to problem solve ways around these barriers. It will be highlighted to men that	Population: Men who lack social support in their life. Context: Men in the group will be encouraged to use each other as methods of support throughout the 12-weeks. Parameter: Men are all in the same position therefore there are positive expectations from all in the group.

Increase physical activity  
informed by review and focus  
group discussions

**Domain:** Goals  
**Construct:** Goals/target  
setting  
**Theory:** SDT and SCT

an important aspect to  
engaging in exercise is to take  
part in exercises which men  
enjoy.

1.2 Problem Solving - Men  
work together to identify the  
factors influencing the  
behaviour and generate or  
select strategies that include  
overcoming barriers. It will be  
highlighted to men that an  
important aspect to engaging  
in exercise is to take part in  
exercises which men enjoy.

Population: Men who lack the  
motivation to exercise.

Context: The coach will ask  
participants to highlight  
exercises which they enjoy  
and how they can overcome  
barriers.

Parameter: When setting  
goals, understanding the  
context, frequency, duration,  
and time is reinforced.

Goal setting (behaviour) -  
Men will set a goal to achieve  
for the following week in  
relation to how they will  
overcome their personal  
barriers to exercise  
participation.

**Domain:** Behavioural  
Regulation  
**Construct:** Self-monitoring  
**Theory:** SDT and SCT

2.4 Self-monitoring of  
outcome(s) of behaviour -  
Monitor their attempts to  
overcome the barriers outlined  
during the next week. Also  
note if the behaviour that has  
changes has resulted in an  
alternative outcome (e.g.,  
feeling better or feeling fitter).

Population: Men who find that  
monitoring their progress and  
change can be motivating.

Context: coaches encourage  
men to monitor their emotions  
following the changes to  
behaviour.

Parameter: Men are asked to  
monitor which behaviours

made them feel better and which made them feel worse.

		<b>Domain:</b> Behavioural Regulation <b>Construct:</b> Self-monitoring <b>Theory:</b> SDT and SCT	15.2 Mental rehearsal of successful performance - Coaches will suggest mentally visualising overcoming these barriers.	
3	Improve food choices and overall diet informed by focus group discussions	<b>Domain:</b> Goals <b>Construct:</b> Action planning <b>Theory:</b> SDT and SCT	1.4 Action planning - Men plan a meal to prepare for the following week. They describe, in detail, ingredients and cooking instructions.  1.4 Action planning - Participants are encouraged to plan food diaries where they can plan for future meals. This includes Buying the correct ingredients from a shopping list. Cooking food in preparation for when time becomes a barrier. Taking food to work or in the car for when temptation becomes too much. Buying containers to transport food and re-heat in the future.	Population: Men who want to change lifestyle behaviours from unhealthy to healthy habits. Context: weekly workshops which are themed around health-related topics Parameters: Goals need to be difficult but within the skill set of the individual.
		<b>Domain:</b> Social influences	3.2 Social support (practical) - Suggestions will be made	

		<b>Construct:</b> Social support <b>Theory:</b> SDT and SCT	<p>around how to restructure the physical environment to avoid eating unhealthy foods in the future which includes avoiding buying the food in the supermarket or preparing large quantities of food and storing for a later date. Suggestions for employing family members in the support for changes to diet habits will also be made here.</p>	
4	<p>Improve responses to stressful situations informed by review and focus group discussions</p>	<b>Domain:</b> Social influences <b>Construct:</b> Social Comparison <b>Theory:</b> SDT and SCT	<p>3.1 Social support (unspecified) - Men will identify all the stresses in their own lives and compare these to others in the room.</p>	<p>Population: Men who lack social support in their life.  Context: Men in the group will be encouraged to use each other as methods of support throughout the 12-weeks.  Parameter: Men are all in the same position therefore there are positive expectations from all in the group.</p>
		<b>Domain:</b> Goals <b>Construct:</b> Goals/target setting <b>Theory:</b> SDT and SCT	<p>1.1 Goal setting (behaviour) - Men will aim to improve either their stress or their sleep by adopting a management technique suggested before the next week.</p>	<p>Population: Men who want to change lifestyle behaviours from unhealthy to healthy habits.  Context: weekly workshops which are themed around health-related topics</p>

5	Improve reactions to situations which cause anger informed by review and focus group discussions	<b>Domain:</b> Social influences <b>Construct:</b> Social Comparison <b>Theory:</b> SCT	3.1 Social Support (unspecified) - Men will share when they feel anger and compare causes of anger between individuals within the group.	Parameters: Goals need to be difficult but within the skill set of the individual. Population: Men who lack social support in their life. Context: Men in the group will be encouraged to use each other as methods of support throughout the 12-weeks. Parameter: Men are all in the same position therefore there are positive expectations from all in the group.
		<b>Domain:</b> Goals <b>Construct:</b> Goals/target setting <b>Theory:</b> SDT and SCT	1.1 Goal setting (behaviour) - Men set goals for adjusting thoughts/feelings and behaviours relating to anger before next week.	Population: Men who want to change lifestyle behaviours from unhealthy to healthy habits. Context: weekly workshops which are themed around health-related topics Parameters: Goals need to be difficult but within the skill set of the individual.
		<b>Domain:</b> Behavioural Regulation <b>Construct:</b> Self-monitoring <b>Theory:</b> SDT and SCT	2.4 Self-monitoring of outcome(s) of behaviour - Men will be asked to describe the physiological and psychological signs of anger and aggression. They will be asked to monitor and record	Population: Men who find that monitoring their progress and change can be motivating. Context: coaches encourage men to monitor their emotions

			their emotions during and after feelings of anger within the next week.	following the changes to behaviour.  Parameter: Men are asked to monitor which behaviours made them feel better and which made them feel worse.
6	Improve response to situations which would cause sadness informed by review and focus group discussions	<b>Domain:</b> Social influences <b>Construct:</b> Social Comparison <b>Theory:</b> SDT and SCT	3.1 Social Support (unspecified) - Men will share and compare lessons they have learnt to improve their happiness.	Population: Men who lack social support in their life.  Context: Men in the group will be encouraged to use each other as methods of support throughout the 12-weeks.  Parameter: Men are all in the same position therefore there are positive expectations from all in the group.
7	Improve response to situations which would cause sadness informed by review and focus group discussions	<b>Domain:</b> Social influences <b>Construct:</b> Social Comparison <b>Theory:</b> SDT and SCT	3.1 Social Support (unspecified) - Men are also asked to practice their gratitude and share them with others in the group. They are asked to consider changes in the emotions because of this practiced skill.	Population: Men who lack social support in their life.  Context: Men in the group will be encouraged to use each other as methods of support throughout the 12-weeks.  Parameter: Men are all in the same position therefore there



				are positive expectations from all in the group
		<b>Domain:</b> Behavioural Regulation <b>Construct:</b> Self-monitoring <b>Theory:</b> SDT and SCT	2.4 Self-monitoring of outcome(s) of behaviour - Men are asked to create a diary of activities for the following week. For each activity they are asked to monitor if they felt they achieved the activity and if it gave them pleasure.	Population: Men who find that monitoring their progress and change can be motivating.  Context: coaches encourage men to monitor their emotions following the changes to behaviour.  Parameter: Men are asked to monitor which behaviours made them feel better and which made them feel worse.
8	Improve behaviours relating to physical, mental, or social health informed by review and focus group discussions	<b>Domain:</b> Social influences <b>Construct:</b> Social Comparison <b>Theory:</b> SDT and SCT	3.1 Social Support (unspecified) - Men are also asked to share if they have used other parts of the book with their health journey.	Population: Men who lack social support in their life.  Context: Men in the group will be encouraged to use each other as methods of support throughout the 12-weeks.  Parameter: Men are all in the same position therefore there

**Domain:** Goals  
**Construct:** Goals/target setting  
**Theory:** SDT and SCT

1.1 Goal setting (behaviour) - The goal setting sections of the workbook are highlighted here, and men are encouraged to share if they have used these and if they have learnt anything. If men have not used these, they are asked to set themselves health goals that they would like to achieve in a certain time.

are positive expectations from all in the group

Population: Men who want to change lifestyle behaviours from unhealthy to healthy habits.

Context: weekly workshops which are themed around health-related topics

1.5 Review behaviour goal(s) - Review goals that have been set so far. This may be to change the goal or set a new goal. It may be that the time to achieve the goal is also changed.

Parameters: Goals need to be difficult but within the skill set of the individual.

9 Improve behaviours relating to physical, mental, or social health informed by review and focus group discussions  
**Domain:** Goals  
**Construct:** Goals/target setting  
**Theory:** SDT and SCT

1.1 Goal setting (behaviour)- Men are asked to identify barriers and problems within their lives. They are then asked to generate alternative solutions to this problem and identify how to avoid these barriers. They will then be asked to monitor and evaluate their progress in achieving these behaviours.

Population: Men who want to change lifestyle behaviours from unhealthy to healthy habits.

Context: weekly workshops which are themed around health-related topics

			1.2. Problem solving - Men outline problems within their lives, generate alternative solutions to problems and identify how to avoid these barriers.	Parameters: Goals need to be difficult but within the skill set of the individual.
10	No target behaviours during this week			
11	No target behaviours during this week			
12	Improve behaviours relating to physical, mental, or social health informed by review and focus group discussions	<b>Domain:</b> Social influences <b>Construct</b> – Social Comparison <b>Theory:</b> SDT and SCT	3.1 Social Support (unspecified) - Men will be asked to reflect on previous weeks and what they have found particularly useful/what they have adopted and found to work. They will compare others' opinions to their own and take advise of others in the group.	Population: Men who lack social support in their life.  Context: Men in the group will be encouraged to use each other as methods of support throughout the 12-weeks.  Parameter: Men are all in the same position therefore there are positive expectations from all in the group.
		<b>Domain:</b> Goals <b>Construct:</b> Goals/target setting <b>Theory:</b> SDT and SCT	1.1 Goal setting (behaviour) - Men will be asked to reflect on previous weeks and what they have found particularly useful/what they have adopted and found to work. They will compare others' opinions to their own and take advise of others in the group. Men will re-adjust previously made	

goals and set more long-term goals that they would like to achieve. They will be required to use the SMART framework.

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Self-Determination Theory = SDT. Social Cognitive Theory = SCT.

#### *4.3.4 Step 4: Developing a prototype intervention*

Following the identification of target behaviours, behavioural determinants, barriers, and enablers to behaviour change, and the most suitable BCTs to facilitate change and overcome barriers, a prototype intervention was developed and is presented in Appendix C. As additions to BCTs which were integrated during weeks, there were implicit intervention components which addressed target behaviours, some of which were associated to BCTs. The population, context and parameters of effectiveness can be considered when integrating these components. A detailed description of this is outlined in Table 4-4.

Table 4-4 - A description of implicit intervention components which occurred across the whole intervention. The Theoretical Domains Framework (TDF) domains and constructs, relative theory, population, context, and parameters of effectiveness are also described along each BCT technique.

Target behaviour	TDF domain and construct and relative theory	Implicit intervention component and example in practice	Population, context, and parameters of effectiveness
Improve motivations to take part in physical activity as informed by review and focus group discussions.	<b>Domain:</b> Environmental context and resources <b>Construct:</b> Resources/materials used	Across the intervention, a variety of physical activity sessions are provided for the men to take part in. The intention is for men to find an interest and enjoyment in one of these which will motivate them to continue the habit in the future.	Population: Men who lack the motivation to exercise. Context: The coach will ask participants to highlight exercises which they enjoy and how they can overcome barriers. Parameter: When setting goals, understanding the context, frequency, duration, and time is reinforced.
Improve physical activity behaviours as informed by focus group discussions as informed by the literature and focus group discussions.	<b>Domain:</b> Social influences <b>Construct:</b> Social Comparison <b>Theory:</b> SCT and SCT	3.1 Social support (unspecified) - During all workshops, participants exercise as a group with individuals who share similar characteristics in attempt to alleviate anxieties.	Population: Men who are anxious about exercising in public spaces because of confidence issues. Context: Exercise sessions are done in a group with other individuals who share similar confidence and self-esteem issues. Feedback on how they felt following exercise is encouraged. Parameters: When setting goals, understanding the context, frequency, duration, and time is reinforced.
Increase likelihood of adherence and attendance to intervention protocol as informed by the	<b>Domain</b> – Social influences <b>Construct</b> – Social Comparison <b>Theory:</b> SDT and SCT	13.4 Valued self-identity - The intervention name is The 12 <sup>th</sup> Man. In football, this is often used to refer	Population: Men who have supported the local football club for a long time

literature and focus group discussions.		<p>to the crowd in the stadium who can often provide enough support to the 11 players on the pitch that it feels like the team has a 12<sup>th</sup> player and an overall advantage. This name may help participants to feel part of the football team who they have supported throughout their lives.</p> <p>The first three weeks of the intervention were based at the home football stadium, St. James Park. This location triggered positive emotions for participants which allowed them to feel safe and welcomed when discussing emotive topics. The pre and post measurement protocols were also at St. James Park.</p> <p>The coaches who deliver the programme were encouraged to wear the training tracksuit of the home team. This again reinforces that they are part of the football club.</p>	<p>and feel pride and a sense of belonging as a result.</p> <p>Context: Three weeks are based at St. James Park, the home football group of Newcastle United Football Club.</p> <p>Parameters: Using social-cultural characteristics will make messaging more receptive.</p>
Increase social cohesion and friendships between participants as informed by the literature and focus group discussions.	<p><b>Domain</b> – Social influences</p> <p><b>Construct</b> – Social Comparison</p> <p><b>Theory:</b> SDT and SCT</p>	<p>Coaches were encouraged to use humour and the participants were given matching t-shirts to wear.</p> <p>3.1 Social Support (unspecified) - Limiting participation to those aged between 30 and 65.</p>	<p>Population: Men who share similar physical and cultural characteristics</p> <p>Context: Group setting where team work and banter are encouraged.</p> <p>Parameters:</p> <p>Population: Men who are of similar age.</p>

3.1 Social Support (unspecified) –  
Group-based intervention.

Context: Group setting.

Parameters: Men need to be willing to reach out to others and understand that support is available.

Population: Men aged between 30 and 65.

Context: Weekly workshops are in groups of no more than 20 individuals.

Parameters: Willingness to reach out to others within the group for support.

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Self-Determination Theory = SDT. Social Cognitive Theory = SCT.



Participants who took part in focus group discussions during step 1 (detailed further in Chapter 3) reported the importance of lifestyle interventions to help them change specific lifestyle behaviours including physical activity, diet, sleep, stress, anger, and happiness which provides justification for discussing topics during the intervention. Participants reported feeling that mental, physical, and social health were important for overall wellbeing, and as such were important concepts to learn more about. To encourage affiliation and belonging to the local football club (i.e., social identity), a suggested approach was to name the intervention “*The 12<sup>th</sup> Man*”. The rationale for this was that in football the supporters at a stadium are often referred to as the 12<sup>th</sup> Man. The literature indicated that in previous men’s health interventions the attachment to a boyhood club can be a motivator for uptake/participation (Gray *et al.*, 2013a). The 12<sup>th</sup> Man implies that participants are all on the same team, therefore encouraging social cohesiveness and social support. Another suggestion was to hold data collection (i.e., measurement sessions) and the first three weeks of the intervention at the football stadium. Finally, coaches were encouraged to wear football club branded clothing to facilitate the concept of team. All these strategies addressed the domain ‘Social Influences’ and associated BCT ‘social support (unspecified)’. To harness camaraderie, the coaches were encouraged to use humour throughout intervention delivery. This has previously been shown to be a key ingredient of other men’s health interventions (Gray *et al.*, 2013a). Social identity was also facilitated by keeping the ages of participants between 30 and 65. The justification for this was twofold. Firstly, the physical capabilities of a man aged 65 are likely to be closer to a man aged 30 than one aged younger and therefore may feel that the intervention was for people “like them”. Secondly, 30 and 65 years are two milestones within a man’s life, according to the HIMM framework (Evans *et al.*, 2011). At age 30, men typically begin to consider establishing a family which can be socially isolating. At age 65, men may begin to consider retirement which, again, brings with it social isolation and a loss of purpose. The final implicit key intervention component was encouraging group-based exercise and not individual exercise. This was a component which gives greater chances of success when encouraging lifestyle behaviour change (Bottorff *et al.*, 2015).

There were other considerations made during intervention development to increase the likelihood of successful behaviour change. These included the duration of the intervention which was chosen to be 12-weeks, similar to other interventions (Gray *et al.*, 2013a; Caperchione *et al.*, 2017; Sealey *et al.*, 2013; Petrella *et al.*, 2017). Each week would include a workshop and a physical activity component, like other successful interventions, and are described in Table 4-5.

Table 4-5 - A description of the target behaviours, the focus of workshops and physical activity sessions for the 12th Man Intervention

<b>Week</b>	<b>Target behaviours and outcomes</b>	<b>Workshop</b>	<b>Physical Activity</b>
1	Improve physical activity, diet, sleep, stress, anger, and happiness.	Introduction	Walking
2	Improve social network.	Barriers to Exercise	Fit Club
3	Increase physical activity	Barriers to Healthy Eating	Run Club
4	Improve food choices and overall diet	Stress and Sleep	Cycling
5	Improve responses to stressful situations	Anger	Gym Induction
6	Improve reactions to situations which cause anger	Happiness	TBC
7	Improve response to situations which would cause sadness	Self-Help – CBT, Behaviour Activation, Gratitude Practice	Boxing
8	Improve behaviours relating to physical, mental, or social health	Self-help – Problem Solving Treatment	Walking Football
9	Improve behaviours relating to physical, mental, or social health	Social Action Project	Tennis
10	No target behaviours during this week	Health Improvement Plan	Badminton
11	No target behaviours during this week	Social Action Project	Basketball
12	Improve behaviours relating to physical, mental, or social health informed by review and focus group discussions	Health Improvement Plan and Social Action Project	Walking football

Workshops were not described as ‘classroom’ activities because of the triggering emotions some may have at the thought of a school classroom. Participants were given the option to complete a workbook throughout the 12-week intervention which was named ‘the personal improvement plan (PIP)’. Participants were also asked to plan a ‘social action project’. This was the opportunity for members of the group to plan how a charitable effort within the community. The intention of this was to build social connection within the group while also experiencing the positive emotions from helping others. Physical activity components were considered tasters to various exercises/activities across the city of Newcastle Upon Tyne. The first three weeks were held at St. James Park, to reinforce the feeling of belonging to a boyhood club, then the remainder of the weekly sessions were in venues which hosted sports and can be seen in Table 4-5. The rationale behind this decision was to introduce men to activities which they may have never tried before in venues they may never had been to. This can help to address previous beliefs that venue locations were inaccessible, costly or intimidating. Each week, the coach would video record a summary of the workshop and post the recording to a WhatsApp group for those who missed the session.

Recruitment to the intervention was completed through social media platforms (Facebook and Twitter) using NUFs accounts. Any individual who requested to participate in the intervention was offered a telephone call where the lead investigator would conduct a screening questionnaire and provide further information. The questionnaire assessed self-reported height and weight and screened for illnesses which may prevent participation in exercise. Men were asked if they prefer to attend one of two days for both baseline and post-intervention measurements where physiological and psychological measures were taken.

It was important to consider the measurement protocol for participants enrolled on to the 12<sup>th</sup> Man Intervention. It was decided that outcome measures would be conducted within the medical room at St. James Park the week before and the week after the 12-week intervention. A full description of the pilot feasibility study of the 12<sup>th</sup> Man Intervention is outlined in Chapter 5.

Once a prototype intervention was developed, a written description was presented to key stakeholders. These individuals were academic professionals in health-related sciences; members of the local council who were responsible for community engagement; coaches from NUF who specialised in working with populations from the local community; and potential participants who had previously registered interest in men’s health programmes. It was decided

here that the intervention could be feasibly delivered in practice and that recruitment to the intervention should begin.

#### *4.3.5 Step 5: Developing an implementation plan*

NUF were the delivery partners as they had a successful track record of working with hard-to-reach groups within the local community. They used the local passion for football to deliver interventions which engaged individuals on a range of lifestyle topics, including health. They worked with over 60,000 individuals in the North East of England and had reputable, trained coaches who could deliver the intervention.

Two lifestyle coaches from NUF were trained to support the author of this thesis in the delivery of the intervention and on how to provide support during measurement protocols. Lifestyle coaches were experienced in delivering health interventions to similar populations (mainly through a Walking Football programme). During their onboard training, the intervention content was demonstrated, and their roles were explained – i.e., to provide support in the facilitation of tasks and to encourage group cohesion between the participants. Examples were given on how this could be achieved which included interacting with individuals who may be shy or anxious in group situations. Lifestyle coaches were also instructed on how to support participants when attending measurement protocols.

Measurement protocols were held at St. James Park. Participants were welcomed from the reception desk and taken to the dressing rooms. Here, lifestyle coaches thoroughly explained the measurement and intervention protocol and asked participants for written consent. They were then asked to complete the questionnaires, which were on an iPad, asked to remove heavy items of clothing and their height, weight and waist circumference were taken. They were then invited to the medical room of the football stadium where a trained phlebotomist took a venous blood sample.

#### *4.3.6 Step 6: Piloting of the 12<sup>th</sup> Man Intervention*

The intervention was piloted with nineteen study participants in cohort 1 and nineteen study participants in cohort 2. Cohort 1 were invited to the full measurement protocol at St. James Park, and cohort 2 were assigned to a waiting list. However, all participants were invited to post-intervention focus groups to discuss the acceptability and feasibility of the intervention. Findings from the pilot feasibility study are reported in detail within Chapter 5.

#### 4.4 Discussion

Lifestyle interventions targeting physical activity, diet or other healthy behaviours have demonstrated to be successful to initiate and sustain health behaviour change (Galani and Schneider, 2007; Blank *et al.*, 2007; Dale, Brassington and King, 2014). However, there are few lifestyle interventions developed specifically for men, which could, in part account for the low representation of men in traditional primary care interventions or programmes (Ross *et al.*, 2008) and could be contributing to the differences in life expectancy between men and women (WHO, 2020). This chapter describes the systematic development of a multibehavioural lifestyle intervention for men aged between 30 and 65 that aims to change lifestyle behaviours (e.g., physical activity, alcohol consumption, sleep, stress, anger and happiness) which improve mental, physical, and/or social health outcomes of participants. The 12<sup>th</sup> Man Intervention utilises the power of local football to engage men, typically thought of as hard-to-reach, in an intervention underpinned by behavioural theories, and delivered by trained, experienced community coaches.

Systematic development of health interventions is recommended by the MRC Framework for the Development and Evaluation of Complex Interventions (Shahsavari *et al.*, 2020), and there are robust examples that demonstrate how replicability of study design can be made easier through clear reporting (Hallsworth *et al.*, 2021; Moore *et al.*, 2022). Of the four interventions reviewed in Step 1 of the intervention mapping process, two interventions reported the systematic development and optimisation of the programme design (Gray *et al.*, 2013a; Gill *et al.*, 2016). However, one of these interventions, (i.e., Hockey FFIT) is an amalgamation of both FFIT and HealtheSteps<sup>TM</sup>. It could therefore be argued that FFIT is the only programme reviewed during step 1 that developed the intervention systematically following the MRC framework.

The development and optimisation of the FFIT intervention by Gray *et al.* (2013a) involved a two-phase approach. These phases closely align to the intervention mapping steps followed to develop the 12<sup>th</sup> Man Intervention. During phase 1, authors of the FFIT intervention conducted a scoping review of the relevant literature which parallels the approach undertaken for the purpose of the research reported in this thesis (step 1). Phase 2 of the FFIT intervention involved programme optimisation which included a process evaluation, programme redevelopment, and mapping of BCTs, similar to step 3 of the development process in the context of the 12<sup>th</sup> Man Intervention. Authors also conducted a feasibility trial during phase 2 which investigated recruitment, retention, and potential weight loss. During this feasibility trial, an assessment of

the palatability of intervention was conducted through post intervention questionnaires and focus group discussions where participants provided opinions on improvements or additions. Step 6 of the 12<sup>th</sup> Man Intervention development described a pilot feasibility study where recruitment and retention are assessed, as well as secondary outcomes for physiological and psychological markers of health. It's useful to draw parallels between the systematic development of the 12<sup>th</sup> Man Intervention and the FFIT intervention because it strengthens evidence in the potential effectiveness of the 12<sup>th</sup> Man Intervention in changing the health behaviours of hard-to-reach men. Evidence is scaffolded from the health implications of the FFIT intervention which demonstrated significant long term improvements to physical health (Hunt *et al.*, 2014b).

The FFIT intervention and the 12<sup>th</sup> Man Intervention are the only multibehavioural complex men's health interventions that followed a systematic development process, and 12<sup>th</sup> Man is the only intervention which aims to improve the mental, physical, and social health of men. This chapter offers a significant contribution to the literature as it adds to an already very small pool of systematically developed men's health intervention. This can offer practical platforms for the development of further health interventions which target similar populations.

Despite close parallels in the development of the 12<sup>th</sup> Man Intervention and the FITT intervention, the intervention mapping process described in this chapter goes beyond that of the process conducted in the FFIT intervention. Steps 2 and 3 of the intervention mapping process to develop the 12<sup>th</sup> Man Intervention involved identifying theoretical domains from a secondary analysis of focus group data; the identification of change objectives; and subsequently selecting BCTs likely to facilitate behavioural change (i.e., impact change objectives). The process undertaken was similar to phase 2, step 3 of the FFIT intervention development (Gray *et al.*, 2013a). However, in the context of the 12<sup>th</sup> Man Intervention, this phase was extended by describing the context, population and parameters of effectiveness, as suggested by Kok *et al.* (2016). This was important to include as it increased the likelihood of intervention replicability. If researchers or coaches were to implement the intervention, a good understanding of the context and population in which BCTs were delivered is important for increasing the likelihood of behaviour change. Similarly, the parameters of effectiveness, as described by Kok *et al.* (2016), were considered important to explicitly outline how BCTs can be delivered and what would be required to ensure they are likely to change behaviour. Another novel component in the development of the 12<sup>th</sup> Man Intervention was the use of evidence to inform the selection

of BCTs associated with effectiveness (i.e., changes in the target behaviours and most likely to improve change objectives).

The intentions of this chapter are to demonstrate the systematic development of this intervention. A strength to this approach is to further understand the acceptability of the intervention and associated research or evaluation protocol with participants and coaches; the feasibility of delivering the study in practice; and to consider adjustments which could improve both the feasibility and acceptability of the intervention during a larger Randomised Controlled Trial (RCT). Feasibility studies are recommended by the MRC (Skivington *et al.*, 2021) to assess the evaluation design or the intervention content. This helps to further understand uncertainty towards recruitment, data collection, retention, outcomes and analysis, optimal delivery content, acceptability, adherence, likely costs, and the capacity to deliver the intervention. Following feasibility studies, the MRC recommend the delivery of a pilot RCT where primary and secondary outcomes between a control and intervention group can be compared. The findings of a pilot RCT inform the sample size required for an RCT. An RCT could determine whether the intervention could improve health outcomes in a group, typically thought of as hard-to-reach, and arguably vulnerable to a range of mental, physical, and social ill health.

#### *4.4.1 Strengths and limitations*

A strength of the research presented within this chapter is that it contributes further knowledge to a relatively small literature pool of systematically designed men's health interventions. Gill *et al.* (2016) and Gray *et al.* (2013a) are the only studies identified that describe the systematic development of men's health interventions, and the former is an extension of the latter's protocol. Specifically, the intervention developed as part of this PhD thesis can offer practical guidance for future researchers or developers of interventions on how to systematically develop similar interventions in the future. An additional strength of this research is the extension of intervention mapping beyond that of Gray *et al.* (2013a). This extension is the inclusion of considerations towards population, context and parameters of effectiveness, as described by Kok *et al.* (2016), which gives further confidence in the potential for replication of the intervention protocol. When the protocol is replicated during pilot feasibility stages, there is increased evidence in acceptability and feasibility because of the systematic development in the intervention. If uncertainties towards recruitment, retention, adherence, acceptability, costs, etc. are reassured during a pilot feasibility study, there is a greater likelihood that a RCT will successfully scrutinise the effectiveness of the intervention. This would be less likely had it not

been for the systematic development of the intervention, which is another strength of this chapter.

A potential limitation of the research presented in this chapter include the approach adopted to gather insights from the literature during step 1 of intervention mapping. A review which followed the methodology of a scoping review was chosen rather than a systematic review, which means there is potential for literature being missed. Furthermore, systematic reviews can add insights into the effectiveness of men's health interventions which use sport as a vehicle for delivery. However, effectiveness of interventions would not have offered useful insights in this case. Instead, it was important to identify active ingredients of successful interventions that could be used as part of the intervention mapping process.

## **Conclusions**

The 12<sup>th</sup> Man Intervention is the first to use a systematic intervention development process to design a multibehavioural lifestyle behaviour change intervention that aims to improve mental and physical health and wellbeing of men, typically thought of as hard-to-reach. This process increases the likelihood of replicability and works to facilitate a robust evaluation. Subsequent chapters will describe how this systematically developed intervention is evaluated during a pilot feasibility and acceptability study (Chapter 5).



## **Chapter 5 Assessing the acceptability and feasibility of the 12th Man programme through a pilot feasibility study**

## 5.1 Introduction

In an attempt to address the disproportion in life expectancy between men and women in the UK (Wang *et al.*, 2020), innovative lifestyle interventions have used sport as a vehicle to improve adherence and overall health outcomes (Hunt *et al.*, 2014b). The FFIT intervention harnessed men's interest in local Football to engage them in an intervention and motivate them to change their lifestyle behaviours. The 12<sup>th</sup> Man Intervention utilises similar methodology, but in an attempt to improve holistic health outcomes. A full description of the 12<sup>th</sup> Man Intervention can be found in Chapter 4. Prior to understanding the effectiveness of the 12<sup>th</sup> Man Intervention through an RCT, the feasibility of delivery and acceptability of intervention within the population group should first be understood. One benefit to understanding feasibility and acceptability can help to address non adherence.

Non adherence to lifestyle or medical interventions can waste health care resources, reduce quality of life or even cause complications of disease (WHO, 2003). According to the World Health Organisation (WHO), adherence can be defined as “the extent to which a person's behaviour – taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider.” (WHO, 2003). Non-adherence to intervention protocol varies from not attending intervention protocol, not following the protocol procedure, and permanent discontinuation of the protocol procedure (Jin *et al.*, 2008). Despite efforts to further understand reason for non-adherence (Dodd, White and Williamson, 2012), there has been little improvement to adherence to medical and lifestyle interventions. It's estimated that 50% to 60% of patients with chronic conditions who are advised to take medications actually adhere to prescriptions, despite the medical evidence indicating medical therapy can improve quality of life or prevent death (Bosworth *et al.*, 2011; Avorn *et al.*, 1998; Benner *et al.*, 2002; Feldman *et al.*, 1998; Flack, Novikov and Ferrario, 1996). This amounts to approximately 125,000 deaths per year in the United States (McCarthy, 1998), and an annual adjusted disease-specific economic cost of between \$949 to \$44,190 per person (Cutler *et al.*, 2018). Non-adherence to lifestyle interventions is common across various clinical populations including those diagnosed with coronary heart disease (Ali *et al.*, 2017), those with obesity (Burgess, Hassmén and Pumpa, 2017), and those with the metabolic syndrome (Fappa *et al.*, 2008).

Given the substantial costs to non-adherence in medical and lifestyle interventions, it is considered good practice to reduce the likelihood of non-adherence by determining acceptability and feasibility in the population of interest through pilot feasibility studies. This

is particularly important when interventions are described as complex. A complex intervention often involves a number of components; targets a range of behaviours; or is delivered by individuals with a range of skills or expertise (Skivington *et al.*, 2021), and as such has multiple layers of complexity that can impact on acceptance by individuals they are designed for. By testing study procedures, validating measurement tools, providing estimation of recruitment rate and sample size, pilot studies help to design further confirmatory studies. (Arain *et al.*, 2010). Feasibility studies are often conducted prior to confirmatory studies to identify and understand uncertainties which could impact recruitment, willingness to use an intervention, retention, adherence, and completion of outcome measures, that could prove costly if not explored ahead of an RCT (Arain *et al.*, 2010). Both feasibility and pilot studies are essential components when planning larger scale evaluations, including RCTs, that enable optimisation of interventions and evaluative processes (Thabane *et al.*, 2016).

According to recent MRC guidance, feasibility is one of four phases of a framework for developing complex interventions (Skivington *et al.*, 2021). However, progression through phases should be fluid and revisited routinely so that core elements are understood (i.e., the phases are not designed to be linear). These phases include, developing and refining programme theory, engaging stakeholders, identifying key uncertainties, refining the intervention, and understanding the economic considerations. This thesis has described the systematic development process of the 12<sup>th</sup> Man Intervention. Chapter 3 described the barriers and enablers of lifestyle intervention participation in hard-to-reach men. Chapter 4 described the secondary analysis of data from Chapter 3, alongside insights from a review, to systematically develop the 12<sup>th</sup> Man Intervention. However, important considerations for intervention design include identifying and incorporating optimal content, intervention delivery and mode of delivery, acceptability, adherence, likelihood of cost effectiveness, or capacity of providers to deliver the intervention (Skivington *et al.*, 2021) and are still to be explored.

The primary aim of this chapter is to describe the conduct and findings of a feasibility study of the 12<sup>th</sup> Man Intervention. The 12<sup>th</sup> Man Intervention was developed as a 12-week multibehavioural complex lifestyle intervention for men aged 30 to 65 years that aimed to improve physical and mental health outcomes. To achieve the primary aims of this chapter, the following objectives were determined:

- (i) To assess the feasibility of recruitment
- (ii) To assess the feasibility of intervention delivery and measurement protocol
- (iii) To assess the acceptability of the 12<sup>th</sup> Man Intervention with eligible participants

- (iv) To assess attendance, adherence, and completion of the 12<sup>th</sup> Man Intervention
- (v) To qualitatively explore acceptability and identify any barriers and enabling factors to completion of the intervention to inform optimisation.

The secondary aims were to estimate variability and the potential outcomes in weight, blood pressure, waist circumference, metabolic biomarkers of health (e.g., glucose, TNF, IL-6, CRP, Cholesterol, Insulin and NEFA), and psychological measures of health (e.g., self-efficacy, self-esteem, behavioural regulations, and health action process approach). This aim is beneficial to explore as it can indicate potential changes to outcomes. However, it is important to highlight the limitations to using statistical analysis and hypothesis testing in a feasibility or pilot studies.

Forming conclusions from the significance of results through hypothesis tests in pilot studies is not appropriate because no formal power calculations have been carried out (Lancaster, Dodd and Williamson, 2004). A power calculation ensures that enough participants are recruited to the intervention so that any differences in outcomes are reliable and statistical significance is detected (Moher *et al.*, 2010). Without a sample size informed by a power calculation, there is a risk of results being unreliable, likely because of an imbalance in pre-randomisation co-variates which would need adjustment in the analysis (Lancaster, Dodd and Williamson, 2004).

## **5.2 Methods**

### *5.2.1 Design*

This study recruited an intervention (Cohort 1) and a waiting list control group (Cohort 2), both of which completed the 12<sup>th</sup> Man Intervention. Both groups attended the same measurement window at baseline and 12-weeks post baseline. Cohort 1 completed the intervention between baseline and 12-weeks post baseline, whereas cohort 2 did not receive the intervention until after the 12-weeks post baseline measures.

A mixed methods approach was considered appropriate for exploring the research aims using and explanatory sequential design. Using an explanatory sequential design gave a benefit of first collecting quantitative data which could be further explored using qualitative methodology. Qualitative methodology gave the flexibility to understand the meaning to beliefs about the 12<sup>th</sup> Man Intervention. This was important when identifying components of the intervention which would be considered feasible and acceptable. Understanding feasibility and acceptability would be important for optimising the intervention for future research trials. Quantitative research would inform the researchers on the likelihood of effectiveness of the intervention, using

metrics which gave indication on health behaviours improving. This was important for researchers as it would first identify which behaviours were and were not likely to improve. This has the benefit of informing which intervention components, and potential BCT, should be adapted for optimal outcomes in health. Secondly, it gave confidence in the likelihood of intervention effectiveness, therefore informing whether a larger, more expensive, pilot randomised controlled trial should be conducted.

Participants from both intervention and control groups were invited to post intervention focus groups, after they had received the intervention, at the home stadium of NUFC, St. James Park. Similar to Chapter 3, focus groups were considered the more appropriate method for exploring the research aims. The focus group study was conducted with reference to the COREQ (Tong, Sainsbury and Craig, 2007) which is presented in Appendix E. The secondary outcome measurement protocols were taken in the changing rooms and medical rooms of the football stadium. Ethical approval was granted by Newcastle University Ethics Committee (1606/6906/2018).

### *5.2.2 Participants and settings*

An opportunistic sampling approach was used and aimed to recruit a sample size of 40 participants as this was deemed appropriate by published guidance for the conduct of pilot studies (Lancaster, Dodd and Williamson, 2004). Participants either self-selected or were assigned to the waiting list control or the intervention group. In an attempt to reduce sampling size bias, recruitment to the intervention used recruitment channels including through social media platforms of NUF (Twitter, 14,453 followers, May 2018, and Facebook, 108,229 followers, May 2018), as well as emailing a database of those who had previously registered interest in NUFs health and wellbeing programmes. Participants were recruited on a first come first served basis. Those who registered interest in participating in the 12<sup>th</sup> Man Intervention were contacted by the lead researcher who determined eligibility by telephone. Participants aged between 30 and 65 years and identified as male were invited to a baseline assessment visit. Participants were subsequently assigned to cohort 1 (intervention) or cohort 2 (waiting list control). To ensure there were sufficient participants for cohort 2, eleven additional participants were recruited.

### *5.2.3 Intervention*

A full description of the intervention has previously been described in Chapter 4, however, briefly, the 12th Man Intervention involved 12-weekly sessions, each including a one-hour

workshop (educational workshops on exercise, diet, sleep, stress, anger, happiness, and coping mechanisms) and one-hour physical activity session and was delivered by the author of this thesis (OJB). Delivery was supported by two NUF employees who had expertise in delivery of physical activity interventions within community settings. Throughout delivery, all coaches (author of thesis and NUF colleagues) wore NUFC branded tracksuits. Coaches were aged between 25 and 28 years, and identified as white heterosexual males. Often, coaching staff would be supported by two student volunteers from Newcastle University who were aged between 20 and 21 years of age and identified as white heterosexual males and females. The systematically developed and theory-informed intervention was designed to increase the likelihood of participants changing several lifestyle behaviours (e.g., physical activity, exercise, diet, sleep, stress, anger and happiness) to help achieve their physical, mental and social health goals. The first three weeks of the intervention were delivered at St. James Park. Participants were added to a WhatsApp group and a Facebook group where they could share information, encourage motivation, and be kept up to date with news and events shared by group members. Participants were given a booklet to complete during intervention delivery (named a PIP). They were also asked to work towards/plan a Social Action Project which involved working as a group to support a community or charitable project.

#### *5.2.4 Primary outcome data collection*

Feasibility was determined based on adherence and attendance to the intervention which was assessed using recruitment (i.e., 40 participants recruited within a 4-week timeline); retention (i.e., if 60% completed 6 of the 12 workshops); completion (i.e., whether a target completion rate of 60% was achieved); and completeness of outcome data received (i.e., if 60% of participants provided outcome data). This success criteria for feasibility was developed by understanding the adherence and attendance to other health interventions with similar populations. For example, one systematic review highlighted the mean adherence to weight loss interventions was 60.5% (95% confidence interval [CI] 53.6–67.2) (Lemstra *et al.*, 2016). Drop out (or completion and completeness of outcome data) varies within the literature with some interventions within similar populations lost 12% (Hunt *et al.*, 2014b), 7% (Sharp *et al.*, 2020b) and 42% (Sealey *et al.*, 2013) of participants between measurement intervals. Experiences and insights from the research and delivery team were also explored to determine feasibility.

Following the completion of the intervention, participants were invited to one of four focus group discussions conducted in person between February and July 2019 in a meeting room located at a St. James Park. Here, acceptability of the intervention was explored by conducting

focus group discussions where the willingness for participants to engage with, and adhere to, the intervention was discussed, as well as any barriers and facilitators experienced. Additionally, key components of the intervention were also explored to provide specific insights into which aspects of the intervention participants used, found helpful, or disengaged with to help inform optimisation of the intervention.

Focus groups have the benefit of allowing participants to have natural flowing conversations where questions around a topic guide can be explored. Participants in each focus group knew each other well. They had completed the 12-week intervention together. This meant they trusted each other, and trust gave comfort in being more honest in answers to questions. Honest answers to questions were considered important for the lead researcher as this helped when informing the optimisation of the 12<sup>th</sup> Man Intervention. Had an alternative method of data collection being selected, for example interviews, each individual participant may not have felt as comfortable in a room without the peers. A lack of comfort in interviews may have meant that honesty would not prevail, and the richness of data would not be achieved.

Only those participants who completed the intervention were invited to focus group discussions. Focus groups were conducted by a qualitative researcher who was not known to the participants. This researcher was female and had no previous contact with participants. The lack of relationship with participants was believed to be important as it gives participants the opportunity to describe their feelings, opinions and experiences of the 12<sup>th</sup> Man Intervention honestly. Had the lead researcher of this thesis conducted the focus groups, there could have been a risk of bias or contamination of truth. The reason being that the lead author of this thesis had delivered all the 12<sup>th</sup> Man workshops to participants and therefore had developed relationships with these participants who would subsequently participate in this focus group study. It was considered important that the researcher who facilitated focus group discussions should have no previous relationship with participants.

An interview topic guide (see Appendix F) was developed to facilitate discussion about the following topics: areas of enjoyment in the intervention; favourable and unfavourable modules; opinions of taking part in research; disadvantages of research participation; health behaviours that have been adopted; and scope for future intervention development. The rationale for developing a topic guide around these areas were because data could inform the optimisation of the 12<sup>th</sup> Man Intervention. The topic guide was developed by the lead researcher, members of the supervisory team, and the researcher who conducted focus group studies.

### *5.2.5 Secondary outcome data collection*

All participants who were enrolled into this study were invited to pre-intervention measurement sessions and those who completed the intervention were invited to post-intervention measurement sessions. Secondary outcome data was collected one-week pre and one-week post intervention. During both sessions participants were invited to the main entrance of St. James's Park. Here, the lead researcher welcomed them and invited them into the changing room areas of the football stadium. This was a benefit that would not normally be available for the general population. The belief here was that providing participants with access to the stadium which would usually be unavailable would motivate them to return to post-intervention measurement sessions. During secondary outcome data collection sessions participants were asked for consent to withdraw blood through a venous sample. Not all participants consented, and some participants were not able to provide blood due to failures in attempts by the team of researchers.

The team of researchers were a group of qualified phlebotomists from Newcastle University, as well as members of staff from NUF. Their role was to provide comfort, support and information to participants throughout the measurement sessions, as well as to collect the secondary outcomes.

Secondary outcome data included height, weight (Seca 220 stadiometer/Seca 889 scale; Seca, Hamburg, Germany), blood pressure, and waist circumference were collected from study participants to explore preliminary impact of the intervention. Fasted (> 6 hours) venous blood samples were drawn where whole blood was analysed for Glucose using the Biosen C-line analyser (EKF Diagnostics, UK). Samples were centrifuged and plasma and serum were stored at -80°C at Newcastle University BioBank. Prior to analysis, samples were thawed. The Randox Daytona plus (Randox Laboratories Ltd., County Antrim) is a clinical chemistry analyser that runs endpoint, kinetic and ISE assays for Tumour Necrosis Factor- $\alpha$  (TNF- $\alpha$ ), C-reactive protein (CRP) and Cholesterol. IL-6, Insulin, and Non-esterified fatty acids (NEFA) analysis was performed using ELISA assays (RSR Ltd., Cardiff, U.K.) on the DS2 automated platform (Dynex Technologies). Analysis of Cortisol and DHEAS were attempted but failed.

Questionnaire data was collected using an iPad and through Survey Monkey. This was an online data collection tool which allowed participants to upload their answer to the questions immediately to an online, secure, portal. The lead researcher was then able to access the data from these questionnaires later for analysis.



Items from Self-Efficacy, Self-Esteem, and Health Action Process Approach questionnaires were adapted from standardised measures to ensure an increased likelihood of completion. All questions asked are provided within Appendix D.

Using adapted tools/questions from the Health Action Planning Approach (Sniehotta, Scholz and Schwarzer, 2005), action planning for exercise and diet and coping planning was explored. All responses ranged from 1 (*not at all true*) to 4 (*exactly true*). Action planning for exercise was assessed using 5 items where “I already have concrete plans...” was followed by “...when to exercise”, “...where to exercise”. Action planning for nutrition was assessed using 5 items where “I already have concrete plans...” was followed by “...how to change my nutritional habits.”. Coping planning was assessed with 4 items where “I already have concrete plans...” was followed by “...what to do if something intervenes.” “...what to do if I miss an exercise session.”.

Behavioural Regulation and self-determination was assessed using an adapted version of the Behavioural Regulations in Exercise Questionnaire (BREQ-2) (Deci and Ryan, 2013) which comprises of five subscales, each assessing the stages of motivation. Participants were asked to indicate on a Likert scale how true to them statements were. To assess amotivation, 2 items were selected “I don’t see why I have to exercise.”, and “I can’t see why I should bother exercising”. For external regulation, 1 item was selected “I take part in exercise because my friends/family/partner say I should”. Introjected regulation was assessed with 2 items, “I feel guilty when I don’t exercise” and “I feel ashamed when I miss an exercise session”. Identified regulation was assessed with 2 items “I value the benefits of exercise”, and “It is important to me to exercise regularly”. Intrinsic motivation was assessed with 2 items “I exercise because it’s fun.” and “I enjoy my exercise sessions”.

Self-efficacy for nutrition, motivational self-efficacy, precautional self-efficacy, coping self-efficacy and recovery self-efficacy was assessed using questions adapted from Sniehotta *et al.* (2002) and responses were scored on a 4 point Likert scale, 1 = not true at all, 2 = barely true, 3 = mostly true, and 4 = exactly true. Self-efficacy for nutrition was assessed using 5 items. Motivational self-efficacy was assessed using 3 items. Precautional self-efficacy was assessed using 4 items. Coping self-efficacy was assessed using 8 items. Recovery Self-Efficacy was assessed using 3 items.

General self-efficacy was assessed using the General Self-Efficacy tool which is a 10 item scale (Schwarzer and Jerusalem, 1995). For each of the 10 items, four choice responses were

scaled and summed, 1 = “barely true at all”, 2 = “hardly true”, 3 = “moderately true”, and 4 = “exactly true”.

The Rosenberg Self-Esteem Scale Rosenberg (1965) measured global self-esteem through 10 items. Responses were rated on a 5-point Likert scale from 1 = not very true of me to 5 = very true of me. An example of questions asked is “On the whole, I am satisfied with myself.”

The EQ-5D-5L was implemented as a simple, generic measure of health (Herdman *et al.*, 2011). Within the EQ-5D-5L, participants were asked to mark on a visual analogue scale from 1 to 100 “how is your health today”.

#### 5.2.6 Data analysis

All focus group discussions were audio recorded and transcribed verbatim. Similar to the methodology used in Chapter 3, audio files were uploaded from the Dictaphone to a computer and sent to transcription company. The transcription company subsequently transcribed the data, making the process quicker for the lead researcher, and the transcripts were shared with the data analysis team. The data analysis team made-up of the lead researcher, a member of the supervisory team (LA), and the researcher who led the focus group discussions within this chapter. It was important to include the researcher who facilitated the focus group discussions within the data analysis as they were already well accustomed to the data from focus group discussions. Clarke, Braun and Hayfield (2015) outline how important data familiarisation is in the earlier stages of thematic analysis, and it would be fair to say that the researcher who conducted the focus groups would be the most familiar with the data.

Following the first focus group, and the subsequent transcription of the audio files, the researchers met to discuss findings and agree a coding framework before the remaining focus group discussions were conducted. The remaining transcripts were independently thematically analysed (Clarke, Braun and Hayfield, 2015) by the same researchers. Findings (i.e., themes/subthemes) were discussed, and agreed. Unlike the focus groups conducted in Chapter 3, it was not possible to achieve data saturation. This was because there were limited participants available for the focus group discussions. There were only a finite number of participants who completed the 12<sup>th</sup> Man Intervention and therefore a limit on the total number of focus groups possible to conduct.

Data on total numbers and percentages of participants who registered interest in in taking part was recorded, as well as attendance at weekly sessions, completion of baseline and post baseline measurements, completion of the intervention and drop out.

The secondary outcomes collected through questionnaire data were coded and summarised by reporting means, standard deviations, and confidence intervals (where appropriate). Completeness of questionnaire data is described as an outcome, and the significant differences between the means of intervention and waiting list control groups.

A power calculation was not deemed appropriate as this was a feasibility study, however data for all secondary outcomes were collected to determine interval estimates of the change and to determine the feasibility of testing components in a larger evaluation. If the intervention demonstrated to be feasible and acceptable, interval estimates will provide an indication of whether the intervention is likely to lead to meaningful changes in behaviours and outcomes of behaviours in a future larger scale study.

Analyses were performed using R statistical software (R Foundation for Statistical Computing, Vienna, Austria). Data analysis and script can be found in Appendix G. Between-group differences in outcomes at postintervention were assessed by analysis of covariance (ANCOVA), with baseline values as covariates. The adjusted mean differences with 95% CIs are presented. Statistical significance was set at a two-tailed  $P < 0.05$ . Data were analysed per protocol (i.e., missing data were not imputed).

## **5.3 Results**

### *5.3.1 Feasibility*

Forty participants registered their interest in participation within 10 days of advertising the opportunity to take part in the 12th Man Intervention. A detailed description of the recruitment process is outlined in Figure 5.1.

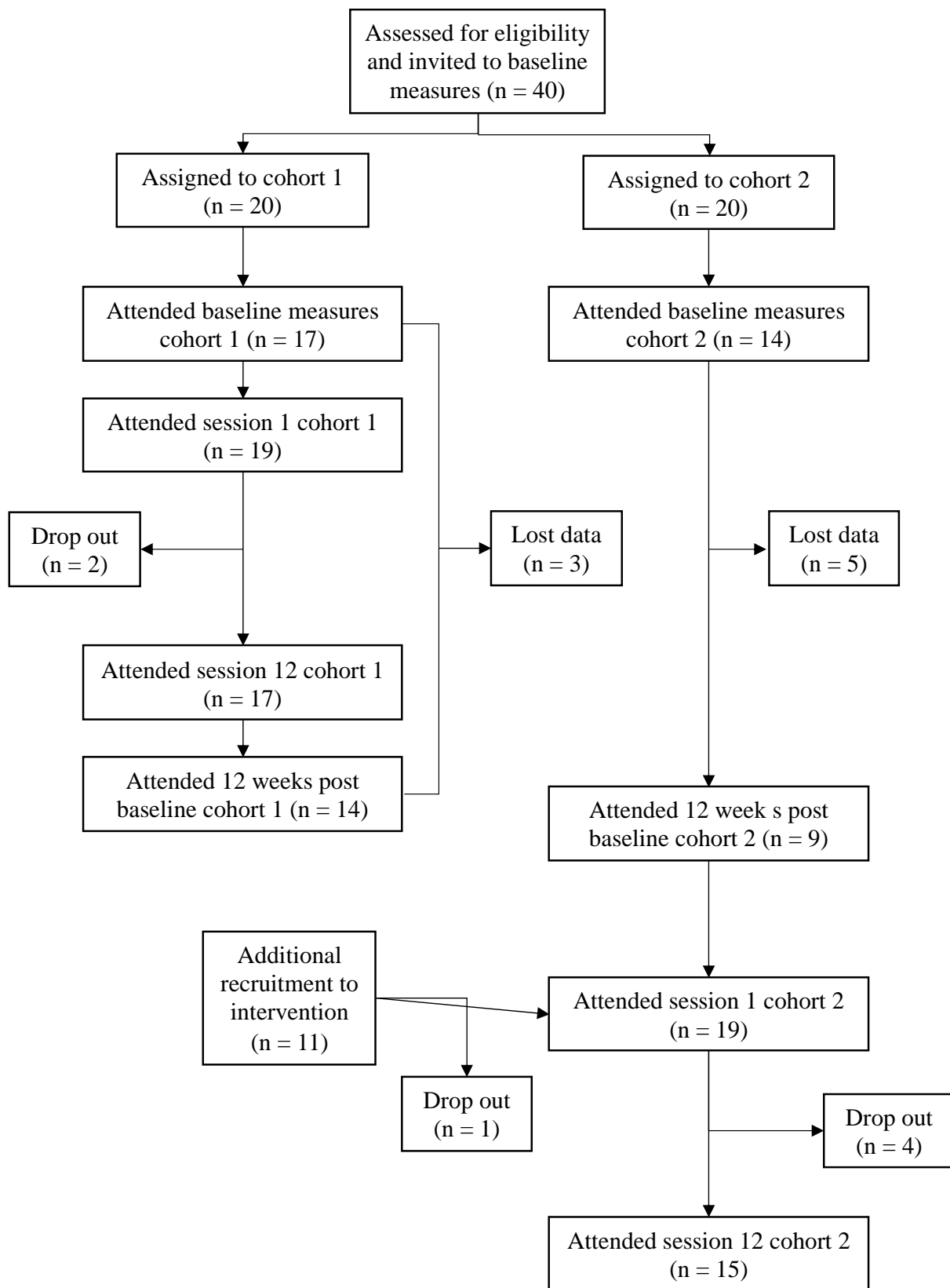


Figure 5.1 - Description of recruitment process for the 12th Man pilot feasibility intervention.

Of those forty who expressed an interest, twenty were assigned to cohort one (intervention group) and twenty were assigned to cohort 2 (waiting list control group). Table 5-1 presents the demographics of the two cohorts. Nineteen participants from cohort 1 and cohort 2 attended session 1 of the intervention at St James Park. 2 participants dropped out of cohort 1 and 4 participants dropped out of cohort 2. Of the thirty-two participants who completed the full intervention, the average attendance for the twelve sessions was 71.6% (8.52 sessions out of 12). Figure 5.2 describes the average weekly attendance from cohort 1 and cohort 2.

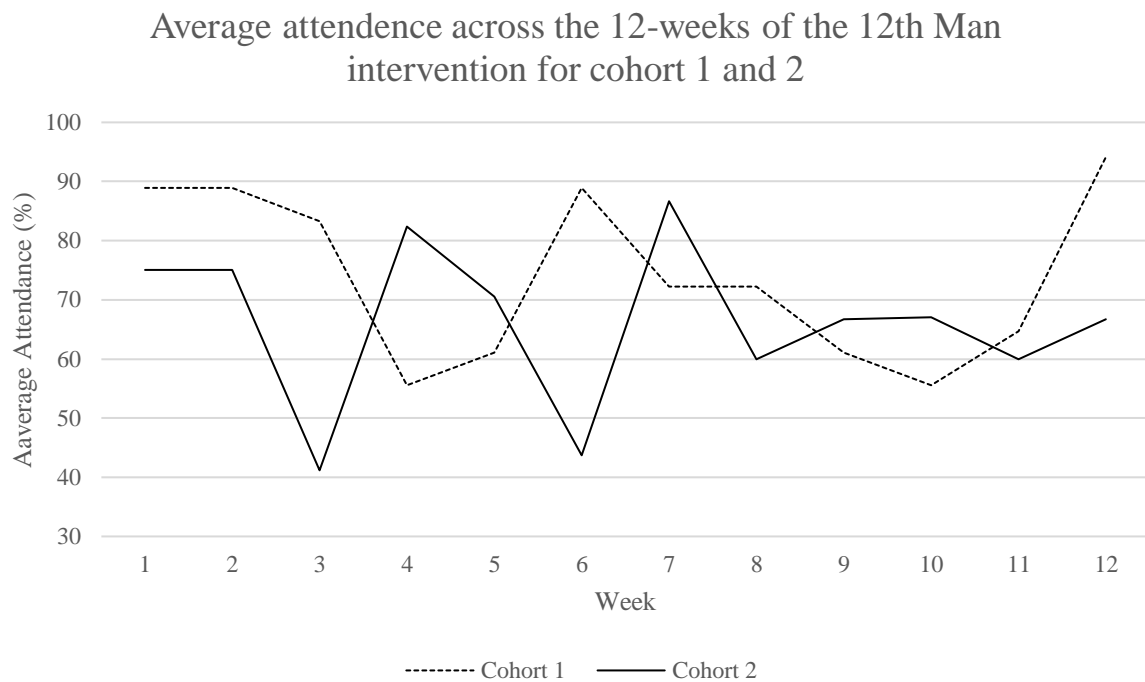


Figure 5.2 - The average weekly attendance of both cohort 1 and cohort 2 on the 12th Man Intervention.

Seventeen participants from cohort 1 attended baseline measurements and fourteen participants attended post intervention measurements. Fourteen participants from cohort 2 attended baseline measurements and 9 attended follow-up measurements. All seventeen participants from cohort 1 attended the baseline measurement sessions fasted, however 3 participants did not fast for longer than 6 hours (average fasting time = 8.4 hours, SD = 5.2 hours). Eleven of the fourteen participants from cohort 2 attended baseline measurements fasted (average fasting time = 6.6 hours, SD = 2.0 hours). Fourteen participants from cohort 1 attended follow-up measurements, 6 of which did not remain fasted for the required 6 hours (average fasting time = 8.3 hours, SD = 5.4 hours). Nine participants from cohort 2 attended follow-up measurements with 8 attending fasted (average fasting time = 4.9 hours, SD = 2.1 hours).

Table 5-1 - Data to inform the primary outcomes for feasibility for the 12th Man Intervention.

	<b>Cohort 1</b>	<b>Cohort 2</b>	<b>Total</b>
Number of participants who attended session 1	19	19	38
Number of participants who attended session 12	17 (89.4%)	15 (78.9%)	32 (84.2%)
Drop out from intervention (total/percentage)	2 (10.5%)	4 (21.1%)	6 (15.8%)
Weekly attendance (mean $\pm$ SD)	73.1 $\pm$ 22.2 %	60.6 $\pm$ 25.9 %	66.9 $\pm$ 24.5 %
Participants who attended 6 or more sessions (total/percentage)	15 (88.2%)	13 (86.6%)	28 (87.5%)
Participants who attended 9 or more sessions (total/percentage)	12 (70.6%)	8 (53.4%)	20 (62.5%)
Age (mean $\pm$ SD)	50 $\pm$ 9.4	47 $\pm$ 10.9	47 $\pm$ 10.3
Baseline measurement attendance (total/percentage)	17 (89.4%)	14 (73.6%)	31 (81.5%)
Post baseline measurement attendance (total/percentage)	14 (73.6%)	9 (47.3%)	23 (60.5%)
Percentage of participants who completed 12-week follow-up outcome data	82%	64%	74%
Number of participants who attended all 12-weekly sessions (total/percentage)	3 (17.6%)	1 (6.7%)	4 (12.5%)

There were logistical issues in the taking of blood samples at a non-research site which included the process, transportation, storage, and analysis of samples. Some participants had poor venous access resulting in missed blood sampling and missing analysis. Blood samples were collected and immediately stored on ice before transfer to a research laboratory. The stability of metabolites of interest may have been compromised during transfer following sampling and analysis.

Further feasibility considerations relate to the reliability of venues. A major component of the intervention was to attend venues which were across the city of Newcastle Upon Tyne, including local sports facilities. Without prior visits to some venues, there were unexpected difficulties, including finding space for workshop activities.

### *5.3.2 Acceptability*

Four focus group discussions were conducted in a meeting room at the St. James Park between February 2019 and June 2019. The duration of group discussions ranged from 56 to 96 minutes (median time 79 minutes IQR = 15 minutes) and involved a total of 21 participants from both cohort 1 (10 participants) and 2 (11 participants) (median age 51 years, IQR = 15 years). Focus groups were conducted by one researcher who was a female PhD student (aged 25 years old) and had never met any of the participants previously.

Focus group discussions were audio recorded and transcribed verbatim. Thematic analysis generated 6 themes and 8 sub-themes. These are presented in Table 5-2 with supporting direct quotes.

Table 5-2 - Themes, sub-themes and supporting direct quotes from men who participated in the 12th Man Intervention and postintervention focus group discussions.

Theme	Subtheme	Supporting direct quotes
Theme 1: Football facilitates engagement in health interventions and research		<p>“...the fact that one badge does that, but I think it just does it for a lot people, though. It involves them in their... with the club.” (Participant 29, aged 32, cohort 1).</p> <p>“The Newcastle United Foundation. That’s it. It’s the club, it’s the city, it’s the people, and so it does spark your interest straight away.” (Participant 4, aged 35 cohort 1).</p> <p>‘Personally, I think that without the whole package, it would fail.’ (Participant 8, aged 54 cohort 2)</p>
Theme 2: Sharing commonalities and experiences with others increased feelings of comfort, safety, and motivation	Physical similarities provided comfort	<p>“For me, it was encouraging to be able to get back into some sort of fitness regime with likeminded people, rather than... just turn up at a gym and then put up with a whole bunch of grunTERS who are, like, ten years ahead of you.” (Participant 6, aged 61 cohort 1).</p>
	Commonalities with others encouraged conversations that are difficult with friends or family.	<p>‘There has definitely been a level of comfort in being open, you know. You’re quite happy to talk about things that have upset you, or are going wrong, or why things are happening, that you might not have done at home or with your mates down the pub, you know. Yes, it’s a safe environment. It felt that way.’ (Participant 14, aged 41, cohort 1).</p>
Theme 3: Specific personality attributes are important for 12 <sup>th</sup> Man Intervention coaches	The gender of the coach did not impact the quality of the intervention delivery.	<p>“She was just part of the, like, banter, and part of the joke.” (Participant 29, aged 32, cohort 1).</p>
	Qualities were wider ranging and included being non-judgemental and approachable	<p>‘Being encouraging and not being judgemental, I think.’ (Participant 15, aged 52, cohort 2).</p>



		‘...you can’t have a guy who is over-dominant. I think that would be really bad, in my opinion.’ (Participant 23, aged 55, cohort 2)
Theme 4: The variety of workshop topics facilitates continuous engagement.		“That was the good thing, yes – different weeks, different sessions, different things to try.” (Participant 4, aged 35, cohort 1).
		‘the one we did, like, about the sleep. That was quite good.’ (Participant 29, aged 32, cohort 1).
		‘You know, I’d pay to join a group like this and continue going, because I enjoyed it so much.’ (Participant 15, aged 30, cohort 2).
		‘that sinking, low feeling. Like, “Aw, I’ve really enjoyed it, I’ve enjoyed the group, and now it’s finished.’ (Participant 29, aged 32, cohort 1).
Theme 5: Participation in the 12 <sup>th</sup> Man Intervention led to changes in behaviour and self-regulatory capacity	Positive influences on lifestyle behaviours	‘Yes, myself, physical exercise, and dietary, definitely, yes.’ (Participant 23, aged 55, cohort 2).
		‘...food-wise, I think twice before, like, what I eat.’ (Participant 6, aged 61, cohort 1).
	Positive changes in mental health outcomes	‘...if I’m stressed, I’ve got more outlets that I can, sort of [use]. I can go to boxing and blow off some steam.’ (Participant 15, aged 30, cohort 2)  ‘I still [might get a bit] frustrated, but I don’t react the same as I used to...’ (Participant 17, aged 31, cohort 2).
Theme 6: Continued access to intervention components facilitated change beyond the timeline of the study	Weekly video recaps and prompts enabled ongoing support	‘If anybody missed it because of work commitments, etc. you did have that feedback video, just to recap on everything, if you hadn’t attended, you know, for whatever reason. So, you didn’t really miss out...’ (Participant 4, aged 35, cohort 1).
		‘But I thought the book was fantastic for being able to put your stuff in there.’ (Participant 29, aged 32. Cohort 1).

Social media platforms and remote support-maintained engagement	'I think we've done alright with the support network that we've got... [coach 1] and [coach 2] are still on the WhatsApp group, and they are still on the Facebook, so they are quite easy to get a hold of.' (Participant 15, aged 30, cohort 2)
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*Theme 1: Football facilitates engagement in health interventions and research*

During the recruitment process it was clear that men felt the involvement of the football club was important for participation. One man described how the football club was ‘... the first hook...’ (Participant 11, aged 38, cohort 1). This clearly made a difference to the men’s motivation as they began to make changes to their health behaviour.

*‘Well, for me, it was just a bit... it was, like, motivation. When we’re running around here [football club], it’s like... I’m going to say to my misses, “oh, I’m off to Newcastle United. We’re running up the steps.”*

*(Participant 3, aged 57, cohort 1).*

This hook not only helped encourage the men to register their interest and initiate their involvement in the 12<sup>th</sup> Man Intervention, but it encouraged them to return to the programme. One man described how the power of the football club allowed him to focus his attention during the sessions:

*‘And I knew that if it had “Newcastle United” on the front of it, I was liable to turn up and do what I was told, within reason, and pay attention, and switch my phone off, and just give myself that time off’.* (Participant 8, aged

*54, cohort 2)*

Men found that the involvement of the football club was a motivator for participation in the research. During measurement protocols, men were invited into the medical room of St. James Park where they were asked for a blood sample via venepuncture. One man described how:

*‘I think, in a weird way, as well, when it’s football-related, and you’re going into the room to get it done, you think, “Michael Owen has lay on there” [laughter]’.* (Participant 36, aged 61, cohort 1)

Others explained how they were even proud to be part of a research study which involved NUFC. One man told how he “... took photos by the pitch... and I stuck them on Facebook and said “Well, I’ve just had my medical at St. James’ Park, and now I go home”...” (Participant 4, aged 35, cohort 1). However, asking participants to take part in a research study at the University would not have prevented participation.

*‘Oh, right, I need to come to the university lab... I don’t think anybody would have an issue.’* (Participant 29, aged 32, cohort 1).

*'It wouldn't have made a big difference to me, going to the University, if it was specifically for getting measurements.'* (Participant 17, aged 45, cohort 2).

It was also clear from the data that participation in a research study did not adversely affect the involvement in the 12<sup>th</sup> Man Intervention. One participant explained how:

*'We were told from the start that it was for the research... that it was for that purpose. And it didn't make any difference to me.'* (Participant 4, aged 35, cohort 1).

However, when researchers investigated the assignment to a comparator group in future research studies, men had opinions. One participant explained how "...a 12<sup>th</sup> Man light, then I would have been happy to do that..." (Participant 30, aged 39, cohort 2), however this participant also explained that the "...promise of doing the programme properly in the [future]..." would incentivise him to participate.

Other participants in the focus group were not so inclined to be recruited to a comparator group. One expressed his concern:

*'I wouldn't... I don't think I would want that because... nothing against the University. It's nothing like that. But I've taken away a lot from the 12<sup>th</sup> Man'.* (Participant 29, aged 32, cohort 1)

Another participant explained his concern regarding providing match tickets to participants as an incentive for adherence to intervention protocol:

*'You're asking for trouble if you turn around and say. "Right, if you sign this, we'll give you some match tickets." You'll have every Tom, Dick and Harry who couldn't really care about it.'* (Participant 4, aged 35, cohort 1).

When the men were asked if other health care providers had been successful in engaging them in making healthy changes, it became evident that they were not. There were various examples of health care providers failing to engage this group of men:

***'Investigator: Yes. So, do you think, if it was delivered in a GP surgery, you'd be less or more inclined to do it?'***

*'I wouldn't do it.'* (Participant 15, aged 30, cohort 2)

*Group: [Laughs]*

*'If I'm being honest, I wouldn't do it.'* (Participant 15, aged 30, cohort 2)

This refusal to engage in health promoting interventions through the General Practitioners service may be further explained by another participant:

*'It might feel like it was a bit more prescribed, through a GP, rather than our choice of coming to the football club and getting involved in that way.'*  
(Participant 17, aged 31, cohort 1).

*'I think I said on day one, "If this had been the doctor..." if my family GP had said, "Oh, we need you to turn up for a type 2 diabetes regime," I would have said, "Bollocks," [laughter] or some words to that effect.'*  
(Participant 8, aged 54, cohort 2)

Engagement in health interventions would be equally unsuccessful in alternative modalities, including council run initiatives, as well as GP surgeries.

*'... If you were going into, you know, just a civic centre for whatever reason – I'll use that just because you used it as a guide – I don't think people who have come. I don't think people would have turned up and I don't think people would have stayed.'* (Participant 39, aged 45, cohort 2).

*'And I would have thought, "I'm too busy. I can't do that every Tuesday for the next whatever number of months. It's impossible." If the council had asked me, or if my MP had asked me, or if the prime minister had asked me... but if it's Newcastle United, it's different.'* (Participant 8, aged 54, cohort 2).

*Theme 2: Sharing commonalities and experiences with others increased feelings of comfort, safety, and motivation*

Men found the group atmosphere during the interventions to be appropriate for the content of the workshops. Participants believed that the common physical attributes shared by others in the group was important for the programme success. Some discussed how they found it '...encouraging to be able to get back into some sort of fitness regime, with likeminded people'

(Participant 6, aged 61, cohort 1). The observation of participants having similar physical and mental attributes was also made by others:

*'Because everybody was of around the same age or in the same age group... and also of, like, a similar mentality for... you're talking to people who understand what you are saying.'* (Participant 37, aged 51, cohort 1).

It was clearly important to men to be in a group with others who shared common experiences and body shapes. One man explained how his original apprehension was quashed upon the beginning of the 12-weeks.

*'Because what I expected were tons of fitties and all the rest of it, and everybody was the same – normal people with flesh and blood. And that, for me, made a hell of a difference.'* (Participant 23, aged 55, cohort 2).

The group members' physical and mental attributes allowed men to feel comfortable and this comforting atmosphere was nurtured further allowing men to discuss sensitive issues. One man described how he '...felt safe as well, because you just feel relaxed.' (Participant 23, aged 55, cohort 2) Another explained how this relaxed and comforting atmosphere encouraged the group to discuss similar issues:

*'When you think you're by yourself then you think, "well, I'm the only one with this problem." And then you get eleven other strangers in and a lot of them have got the same problems, you know'* (Participant 36, aged 61, cohort 1).

*'you know, you can analyse yourself, but, actually, in that group atmosphere that we're in, hearing somebody else's problem, or issue, or something that they had contained within their life... and you thought, "You know, I'm like that as well."'* (Participant 33, aged 58, cohort 1).

The comforting atmosphere was supported by the camaraderie between the men. One participant summarised this camaraderie and how it proved successful to encourage the group atmosphere.

*'Once we got into it, as you say, that camaraderie certainly was there with this group. You know, everybody gelled, and it was as though everybody was not only trying to help each other, but that shared experience.'*  
(Participant 33, aged 58, cohort 1).

The group atmosphere that was created during the 12<sup>th</sup> Man Intervention was clearly unlike any other social connections that the men had in their life. One explained how this is a different connection to the one experienced in his own friendship groups:

*‘...the next best person I would have to talk to would be one of my supervisors at work who is twenty years younger than me and doesn’t [under]stand what I’m talking about. And I think that, sort of, for me, that had the lot, with people of the same ilk, really.’ (Participant 37, aged 51, cohort 1)*

The topic of conversations that were discussed during some 12<sup>th</sup> Man weekly workshops covered issues which would not even be discussed with partners or wives:

*‘Sometimes, men don’t even speak to their wives, and then you’re put in this open forum with eleven/twelve other guys and... well, it’s not an expectation, but as the weeks go on, people find that it’s okay to, kind of, talk about things that they wouldn’t generally talk about – which I thought was really good.’ (Participant 35, aged 45, cohort 1).*

### *Theme 3: Specific personality attributes are important for 12<sup>th</sup> Man Intervention coaches*

12<sup>th</sup> Man participants described a set of qualities they believed to be essential to intervention delivery. The first was to be supportive and encouraging. Men discussed how the coaches were ‘... just very supportive and encouraging’ (participant 6, aged 61, cohort 1) A coach who displayed non-judgemental body language was equally important:

*‘And also, you can tell... sometimes it’s written... it’s not what they say, it’s what is written all over their face when they are... which is why the non-judgemental bit is really important.’ (Participant 15, aged 52, cohort 2)*

Participants also felt that the coach should be approachable and relatable.

*‘They were just, like, one of the lads, you know. They were just, like, one of the group – rather than an instructor, they were just one of the group.’  
(Participant 4, aged 35, cohort 1).*

The participants felt that coaches were approachable at any time with one describing whether this was ‘... in the group or outside of the group – you know, “contact me anytime you want.”’ (Participant 4, aged 35, cohort 1).

Other essential qualities highlighted by the participants which they believed the coach should possess include the ability to be caring. They described how ‘from day one, they’d care...’ (Participant 29, aged 32, cohort 1) and that this continued throughout the programme.

*‘And all the way through, it was always encouraging... I took a great deal of comfort from that.’ (Participant 8, aged 54, cohort 2)*

Coaches should also be empathetic, a quality which one participant describes:

*‘I think that the stereotypical gender qualities that Ollie and Sam displayed were more stereotypically female, in that they showed empathy, sympathy and good communication.’ (Participant 8, aged 54, cohort 2)*

It was also important for the coaches to be facilitative throughout the workshop activities. Participants found that encouraging group tasks were important to this and that the coach should not be preachy.

*‘It wasn’t preachy. It was inclusive. You were encouraged to actively participate – and by God, people did...’ (Participant 30, aged 39, cohort 2)*

They discussed how “...the start was facilitative, and it wasn’t preachy” (Participant 24, aged 63, cohort 1). Participants regularly referred to how important it was that workshop activities “... wasn’t just him lecturing at us...” (Participant 17, aged 31, cohort 2)

An appearance of professionalism had to be maintained by the coaches. Participants described how having “...a professional person in there, which normally costs a lot of money. I think that also, sort of, was a good benefit for me” (Participant 11, aged 38, cohort 1). This was a shared belief between various participants within focus groups with some describing the coaches as “... they’re like proper professionals as well, though” (Participant 12, aged 43, cohort 2).

It was of the researchers’ Interest to understand if the gender of the coach was an integral component for the success of the 12<sup>th</sup> Man Intervention. Participants described how this was not the case, as long as the coach had humour. During some of the weekly workshop’s females were present, often as students observing the sessions. When describing these individuals’ participants explained:

*‘She got the jokes. There were a few jokes going around, and she got them. (Participant 6, aged 61, cohort 1).*



*'They had a laugh, just like Ollie and everybody.'* (Participant 12, aged 43, cohort 2)

*'But they also had it relaxed as well, so we could enjoy it, take it in, and have a bit of a laugh with them as well, you know.'* (Participant 4, aged 35, cohort 1)

#### *Theme 4: The variety of workshop topics facilitates continuous engagement*

When the participants described the 12<sup>th</sup> Man programme, it was clear that they had many favourable opinions. Men enjoyed learning about holistic health, not focusing just on individual aspects of health. One participant described how he enjoyed "... all aspects of men's health..." (Participant 17, aged 31, cohort 2), another discussed how the variety of opportunities was what kept his focus and attention:

*'I could see how my lifestyle was perpetually busy – perpetually snatching meals at the wrong times, lacking sleep, binging on rest, binging on drink, binging on work, binging on activity. And it was a chance to put a bit of framework and order on it. That was the thing. And the fact that it wasn't just a fitness course – because, you know, it was something that was about exploring different kinds of activities, and not just confined to your physical health – I think, was kind of important.'* (Participant 8, aged 54, cohort 2).

Some described how this was different to what they had originally thought they would benefit from:

*'The exercise was the reason, initially, for people to come and to try something new, but it was the second hour that was the most important hour [workshop] for me, like – 100%. It helped me to no end'.* (Participant 37, aged 51, cohort 1).

The sharing of opinions within these health workshops were clearly beneficial for others and something which was not expected during registration:

*'...there seemed to be lots of good ideas and lots of things that I hadn't thought of before, and I thought, "Aye, this should be an interesting thing to do." It wasn't just exercise. It was just... it seemed like it was going to be really packed.'* (Participant 11, aged 38, cohort 1).

*'For me, it was the mental health side of things – just learning how to cope with general mental health in everyday life, because it's such an important factor these days, in men, because it's one of the biggest killers of men today. So, I think the way it was structured and how we... we hit every single, sort of, point. So, anger and everything... everything reverts, at some point, down to your mental state of mind, so I think it was just... it was fantastic.'* (Participant 15, aged 30, cohort 2).

When men were asked which workshops they enjoyed more specifically, they referred to the stress and sleep being highly beneficial to their health.

*'the one we did on mindfulness was the best one for me. ...Yes. And that, sort of, changed me, that did. That one changed me.'* (Participant 37, aged 51, cohort 1).

Men also discussed how the anger workshop was useful to them too with one participant explaining how after they "...made a conscious effort not to keep getting frustrated and angry about things after that, and it really helped. It has really worked." (Participant 17, aged 43, cohort 2).

Alongside the workshop activities, men explained how the variety of exercise sessions which they attempted were clearly enjoyable. They enjoyed "...different weeks, different sessions, different things to try." (Participant 4, aged 35, cohort 1). This variety clearly avoided any kind of boredom which may have otherwise been experienced:

*'...and we all knew that it wasn't just going to be monotonous running or monotonous treadmills. It was... every week was different...'* (Participant 29, aged 32, cohort 1).

Men were disappointed that the programme had stopped and suggested that they would pay for a similar service in the future:

*'I would happily pay. The thing is, after I've been through it, I'd pay for the services, sort of thing.'* (Participant 15, aged 30, cohort 2).

*'With people who are likeminded as you, and not, with you know, buff, sporting people. You're with people in the same situation as you, from different backgrounds. Yes, pay that £30 every twelve weeks and just roll it on.'* (Participant 4, aged 35, cohort 1).

*Theme 5: Participation in the 12<sup>th</sup> Man Intervention led to changes in behaviour and self-regulatory capacity*

Lifestyle behaviours appeared to be influenced because of the 12<sup>th</sup> Man. Some adopted exercise habits and found their attitude to adhering to exercise routines improved:

*'I definitely don't make as many excuses for things now.' (Participant 14, aged 41, cohort 1).*

It could be assumed that these exercise habits were the results of the social support of the group. One man explained how others motivated them to be more active:

*'...everybody was putting pictures up of going out for runs... that, sort of, kicked my backside into gear [laughs], sort of thing, and then I started jumping on my bike.' (Participant 15, aged 30, cohort 2).*

Men's attitudes to food and diet improved. One participant explained how he "...missed out on McDonald's breakfasts. I can't really tell you the last time I had a full McDonald's breakfast." (Participant 6, aged 61, cohort 1).

The next subtheme which emerged was that men began to improve their mental health. Stress and tolerance to situations with their lives improved:

*'...one of the big things that we covered in the course, about leaving stuff behind, going to bed, relax, de-stress, get some proper sleep. That's one of the big things that I've taken away from it.' (Participant 29, aged 32, cohort 1).*

Men also began to control their anger and avoid aggressive behaviours.

*'... made a conscious effort not to keep getting frustrated and angry about things after that, and it has really helped. It has really worked.' (Participant 17, aged 31, cohort 2).*

*Theme 6: Continued access to intervention components facilitated change beyond the timeline of the study*

Video recaps were thought of as useful for the men who missed a workshop. "... I liked his little videos that he sent you, and his little reminders, you know" (Participant 14, ,aged 41,

cohort 1). Some participants explained how they would use the videos after the programme had finished:

*'But when Ollie was doing the videos, it was reiterating what we'd done on the class the night before. And then you've got it. It's there. I've kept all the videos.'* (Participant 36, aged 61, cohort 1).

Alongside the weekly recap videos, the workbooks which participants were given were clearly useful for some. Participants described the resource as being "...simple without being patronising" (Participant 8, aged 54, cohort 2) and the personal element of the workbook was clearly favourable:

*'... it was personal and it was tailored to you. You filled in your information and things that you took from each session that you could refer back to at a later date. It wasn't generic, it was tailored to you.'* (Participant 17, aged 31, cohort 2)

Men who took part in focus groups also believed the social media aspect of the course to be beneficial outside of the weekly sessions. Specifically, the WhatsApp conversation which was established by the lead coach was a clear advantage for numerous members:

*'I can't stress enough the WhatsApp side of things. It's like a little community that we've got going, and even though the 12<sup>th</sup> Man has finished now, we're still all keeping in contact when we can.'* (Participant 15, aged 30, cohort 2).

### 5.3.3 Secondary outcomes

Table 5-3 presents the physiological markers for health and the summary of qualitative questionnaires. Although the intervention was not randomised and the sample size was not calculated to determine effectiveness, conclusions should not be drawn or inferred on a greater population, but the significant differences between the means may indicate that future interventions have potential impacts to improve health.

Table 5-3 - Physiological and psychological markers of health in participants both pre and post intervention from the intervention and waiting list control group of the 12<sup>th</sup> Man Intervention.

		Intervention group		Waiting list control					
		Baseline (n = 17)	12- weeks post (n = 14)	Baseline (n = 14)	12- weeks post (n = 9)	P-value	Adjusted mean difference	Upper CI	Lower CI
Physiological markers	Weight (kg)	106.86 (29.21)	108.79 (30.42)	98.31 (16.15)	101.06 (17.43)	0.20	-2.01	1.17	-5.19
	BMI (kg/m <sup>2</sup> )	33.90 (7.70)	34.39 (7.70)	31.54 (5.31)	31.57 (5.54)	0.22	-0.64	0.41	-1.69
	Waist (cm)	116.31 (18.89)	110.89 (15.57)	108.28 (14.28)	106.37 (14.72)	0.53	-1.33	3.04	-5.71
	BP Systolic (mm/Hg)	145.73 (11.81)	147.66 (11.89)	141.69 (16.27)	143.06 (10.80)	0.21	4.42	15.36	-6.53
	BP Diastolic (mm/Hg)	90.26 (9.11)	89.03 (8.00)	86.59 (9.30)	86.09 (7.89)	0.24	4.29	11.67	-3.09
	Glucose (mmol/L)	4.32 (0.32)	4.04 (0.35)	5.06 (2.06)	4.76 (1.85)	0.82	0.05	0.49	-0.39
	TNF (pg/ml)	18.35 (2.27)	17.34 (1.26)	19.45 (3.55)	18.55 (1.80)	0.20	-1.12	0.69	-2.93
	IL-6 (pg/ml)	6.43 (5.52)	5.41 (3.83)	6.51 (3.80)	4.58 (3.06)	0.28	-1.90	1.74	-5.54
	CRP (mg/l)	3.08 (1.96)	2.04 (1.27)	2.44 (2.88)	3.07 (3.38)	0.33	-1.46	1.67	-4.58
	Cholesterol (mmol/l)	5.32 (0.58)	5.70 (0.77)	4.86 (1.40)	5.00 (1.30)	0.20	0.54	1.40	-0.32

	Insulin (pmol/L)	81.32 (37.63)	83.44 (36.17)	60.84 (17.41)	55.78 (20.26)	0.43	11.02	40.50	-18.47
	NEFA (mmol/L)	0.71 (0.30)	0.95 (0.42)	0.73 (0.37)	0.39 (0.24)	0.00 *	0.60	0.95	0.24
Self-Efficacy	Self-efficacy nutrition	13.33 (2.66)	13.89 (5.62)	14.62 (1.76)	8.31 (7.08)	0.03 *	5.48	10.41	0.54
	Motivational self-efficacy	9.44 (2.04)	9.50 (3.68)	10.62 (1.45)	6.62 (5.52)	0.07	3.25	6.84	-0.34
	Pre-actional self-efficacy	11.83 (3.00)	11.22 (5.11)	12.38 (2.63)	7.15 (6.22)	0.07	3.93	8.16	-0.30
	Coping self-efficacy	23.17 (5.29)	22.11 (9.11)	23.31 (4.55)	12.54 (11.06)	0.01 *	9.56	17.12	2.01
	Recovery self-efficacy	9.33 (1.85)	8.56 (3.63)	8.77 (1.30)	5.85 (3.80)	0.07	2.60	5.44	-0.24
General Self Efficacy		31.06 (5.32)	29.33 (11.58)	31.15 (5.11)	21.69 (18.14)	0.14	7.74	18.08	-2.60
Rosenberg Self Esteem Scale		15.29 (4.65)	14.44 (6.31)	15.31 (5.98)	10.38 (10.10)	0.17	4.02	9.83	-1.80
BREQ-2	Introjection	98.28 (47.62)	85.83 (56.67)	118.38 (43.67)	68.08 (63.06)	0.46	16.86	-63.00	-29.30
	Identified	131.11 (47.11)	137.61 (57.96)	157.69 (34.80)	95.85 (83.95)	0.13	42.90	97.96	-13.38
	Intrinsic	108.17 (46.93)	115.39 (56.12)	121.54 (46.04)	77.39 (76.43)	0.09	41.25	90.06	-8.07
	Amotivation	18.28 (23.42)	15.28 (19.66)	20.77 (30.44)	23.54 (38.72)	0.47	-7.26	12.69	-26.74

	External	22.17 (26.58)	14.47 (13.14)	28.15 (28.51)	36.25 (32.81)	0.04 *	-21.57	-1.36	-41.77
	Action planning nutrition	9.41 (1.66)	13.59 (2.79)	9.63 (1.78)	11.21 (2.75)	0.02 *	2.44	4.50	0.39
HAPA	Action planning exercise	9.29 (4.27)	14.88 (7.29)	12.71 (3.38)	9.21 (7.51)	0.02 *	7.02	12.98	1.05
	Coping planning	6.88 (3.26)	10.59 (5.37)	8.71 (3.56)	6.57 (5.57)	0.05 *	4.29	0.04	8.54

Data presented as mean  $\pm$  S.D. \* = statistically significant difference between the means of the intervention and waiting list control groups.

Significant differences in change from baseline to 12-week post baseline between group means were seen for NEFA (adjusted mean difference of 0.60mmol/L, 0.24mmol/L - 0.95mmol/L,  $p = 0.00$ ) with a reduction in 12-week post baseline means  $\pm$  SD compared to baseline means  $\pm$  SD found in the control group (0.39mmol/L  $\pm$  0.24mmol/L vs. 0.73mmol/L  $\pm$  0.32mmol/L), and an increase in 12-week post baseline group means  $\pm$  SD compared to baseline means  $\pm$  SD found in the intervention group (0.95mmol/L  $\pm$  0.42mmol/L vs. 0.71mmol/L  $\pm$  0.30mmol/L). This suggests an improvement from baseline NEFA for the control group 12-weeks post baseline, and a deterioration in NEFA in the intervention group 12-weeks post baseline.

Significant differences in change from baseline to 12-week post baseline between group means were seen for self-efficacy for nutrition (adjusted mean difference of 5.48, 0.54 – 10.41,  $p = 0.03$ ) with a decrease in group means  $\pm$  SD 12-week post baseline compared to baseline for the control group (8.31  $\pm$  7.08 vs. 14.62  $\pm$  1.76), and a maintenance of group means  $\pm$  SD between baseline and 12-week post baseline for intervention group (13.33  $\pm$  2.66 vs. 13.89  $\pm$  5.62). This suggests a deterioration in self-efficacy for nutrition in the control group 12-weeks post baseline and a maintenance of self-efficacy for nutrition in the intervention group.

Significant differences in change from baseline to 12-week post baseline between group means were seen for coping self-efficacy (adjusted mean difference 9.56, 2.01 – 17.12,  $p = 0.01$ ) with a decrease in group means  $\pm$  SD 12-week post baseline compared to baseline for the control group (12.54  $\pm$  11.06 vs. 23.31  $\pm$  4.55), and a maintenance of group means  $\pm$  SD between baseline and 12-week post baseline for intervention group (23.17  $\pm$  5.29 vs. 22.11  $\pm$  9.11). Similar to self-efficacy for nutrition, this suggests a deterioration in coping self-efficacy in the control group 12-weeks post baseline and a maintenance of coping self-efficacy in the intervention group.

A significant difference in change from baseline to 12-week post baseline between group means were also found for external regulation (adjusted mean difference -21.57, -41.77 – -1.36,  $p = 0.04$ ) with a reduction in group means  $\pm$  SD for the intervention group 12-week post baseline compared to baseline (14.47  $\pm$  13.14 vs. 22.17  $\pm$  26.58) and an increase in group means 12-week post baseline compared to baseline for the control group (36.25  $\pm$  32.81 vs. 28.15  $\pm$  28.52). This suggests an increase in external regulation for the control group 12-week post baseline, and a decrease in external regulation for the intervention group 12-week post baseline.

There was a significant difference in change between group means from baseline to 12-week post baseline for action planning nutrition (adjusted mean difference 2.44, 0.39 – 4.50,  $p = 0.02$ )



with an increase in group means  $\pm$  SD for the intervention group 12-week post baseline compared to baseline ( $13.59 \pm 2.79$  vs.  $9.41 \pm 1.66$ ). A slight change between baseline and 12-week post baseline group means  $\pm$  SD can be seen in the control group ( $9.63 \pm 1.78$  vs.  $11.21 \pm 2.75$ ).

There was also a significant change between group means from baseline to 12-week post baseline for action planning exercise (adjusted mean difference 7.02, 1.05 – 12.98,  $p = 0.02$ ) with an increase in group means  $\pm$  SD for the intervention group 12-week post baseline compared to baseline ( $14.88 \pm 7.29$  vs.  $9.29 \pm 4.27$ ) and a decrease in 12-week post baseline compared to baseline in the control group ( $9.21 \pm 7.52$  vs.  $12.71 \pm 3.38$ ). This suggests an increase in action planning for exercise in the intervention group and a deterioration in action planning for exercise in the control group.

A significant difference in change from baseline to 12-week post baseline between group means was found for coping planning (adjusted mean difference 4.29, 8.54 – 0.04,  $p = 0.05$ ) with an increase in group means 12-week post intervention compared to baseline in the intervention group ( $10.59 \pm 5.37$  vs.  $6.88 \pm 3.26$ ) and a decrease in 12-week post baseline group means compared to baseline group means in the control group ( $6.57 \pm 5.57$  vs.  $8.71 \pm 3.56$ ). This suggests an increase in coping planning for the intervention group 12-week post baseline and a decrease in coping planning for the control group 12-week post

## **Discussion**

The aims of this study were to determine the feasibility of delivering the 12<sup>th</sup> Man Intervention and to establish the acceptability of the intervention to study participants. To achieve these aims, feasibility was assessed by the rate of participant recruitment to the intervention, the number of participants who complete the full intervention, the number of participants who attend pre and post intervention measurement protocols, and the feasibility of delivering the intervention and the measurement procedures. Acceptability was assessed by the willingness for participants to engage with, and adhere to, the intervention. Focus group discussions enabled a further understanding of the barriers and enabling factors to participation in the 12<sup>th</sup> Man Intervention.

This study demonstrated that recruitment to the target sample size of 40 was achieved within 10 days. One review investigating the recruitment and retention of participants to RCTs in Health Technology Assessment Programmes found that the median recruitment of participants to studies is 0.92 (IQR 0.43 – 2.79) participants per centre, per month (Walters *et al.*, 2017).

It's widely known that recruitment to RCTs can have barriers which make achieving sample size difficult (McDonald *et al.*, 2006). One study identified that less than one-third of primary care trials recruited to the original timescale (Bower, Wilson and Mathers, 2007), and another demonstrated over half (55%) recruited desired sample size (Sully, Julious and Nicholl, 2013). Although the population within these reviews can't offer a direct comparison to findings in this chapter, it does demonstrate the difficulty health interventions can have with recruitment. This difficulty can lead to costly extensions. Issues similar to these were not experienced in recruitment for the 12<sup>th</sup> Man pilot feasibility study.

Retention of participants across the intervention can indicate likelihood of adherence to intervention protocol and the feasibility of scaling to a larger trial. Description of adherence within the literature is vague and authors of RCTs often under-report adherence, or do not give sufficient detail on how adherence was defined (Dodd, White and Williamson, 2012). However, it was determined that this intervention would be feasible to deliver if 60% of participants adhered to 50% of the intervention and provided full outcome data. This decision was based on the mean adherence during weight loss interventions. Following a systematic review, Lemstra *et al.* (2016) reported mean adherence as 60.5% (95% confidence interval [CI] 53.6–67.2) in weight loss interventions. Adherence was defined as the completion of weight loss programme. The dropout rates of interventions with similar populations vary widely. Some interventions have low drop out between baseline and post baseline measurements. Hunt *et al.* (2014b) and Sharp *et al.* (2020b) had a drop out of 12% and 7% respectively. However, other interventions show a far greater drop out with Sealey *et al.* (2013) losing 42% of participants between measurement periods. In this intervention, a total of 18.7% of participants dropped out of the intervention between recruitment and the end of the intervention. Around three quarters (74%) of participants provided 12-week post baseline outcome data, a loss of 16%. When compared to interventions with similar populations, retention of participants to the 12<sup>th</sup> Man Intervention was considered good and contributes to confidence in the feasibility of the intervention.

Understanding the total number of participants to provide outcome data is important for adherence but equally, so is attendance data. Average attendance of all participants across the 12-weekly sessions was  $66.9 \pm 24.5\%$ . The only intervention with a similar population which provides attendance data comes from Hunt *et al.* (2014b). Over seventy-five percent (78.9%) of participants attended at least 6 sessions in the FFIT intervention whereas 87.5% of participants who completed the 12<sup>th</sup> Man Intervention attended more than 6 sessions and 62.5% attended more than 9 sessions.

After considering the recruitment, adherence and attendance of participants to the 12<sup>th</sup> Man Intervention, and when comparing data to similar interventions, it would be fair to conclude the primary aim of understand feasibility within this study was achieved. The implications of these findings give confidence in the recruitment and retention to an RCT in which the effectiveness of the 12<sup>th</sup> Man Intervention can be evaluated. This is an important finding as non-adherence to interventions leads to a loss of power in intention to treat analysis (White, 2005).

Understanding why a successful recruitment strategy and high adherence was experienced across the intervention is important for replicability. One explanation may be the involvement of the local football club. Similar interventions which utilised the passion for local football demonstrated similar success in recruitment. Wyke *et al.* (2015) recruited 1,231 participants for baseline screening to the FFIT intervention in 15 weeks. An explanation for the success in recruitment to interventions delivered by football clubs may be described by the first theme identified within the data of focus group discussions. One participant explained how the football club was the “the first hook” and others explained how this hook kept them coming back “And I knew that if it had “Newcastle United” on the front of it, I was liable to turn up and do what I was told, within reason, and pay attention, and switch my phone off, and just give myself that time off”. The involvement of NUFC is clearly an enabling factor for high retention of participants.

Prior to focus group findings, the strong appeal of joining a health intervention delivered through a Premier League Football club could have been predicted, given interventions delivered in similar modalities with similar populations present the same findings (Gray *et al.*, 2013a). However, what was of particular interest to the researchers was whether participants, following receipt of the intervention, would still be inclined to participate if the football club was not the delivery partner. Participants in focus groups described how local councils would fail to engage them “... If you were going into, you know, just a civic centre for whatever reason... I don’t think people [would] have come. I don’t think people would have turned up and I don’t think people would have stayed.”. Equally, local general practices would be unsuccessful in recruiting them to the same intervention “...If this had been the doctor... if my family GP had said, “Oh, we need you to turn up for a type 2 diabetes regime,” I would have said, “Bollocks,” [laughter] or some words to that effect.”. This is particularly interesting as it indicates that the involvement of the football club was an enabling factor to intervention participation, a key aim of this intervention. This is important when considering the replication of the intervention design.

Another aim of this study was to understand the feasibility of delivering the intervention and conducting the measurement protocol to collect outcome data. Participants were asked to attend baseline and 12-week post baseline measurements fasted at St. James Park. Not all participants attended measurement protocols fasted. Measurement sessions were held in the afternoon which could have made it difficult for participants to fast and this should be considered in future interventions. There were also logistical issues in the collection and storage of blood samples which need to be addressed in future. One issue being the coagulation of samples following collection and separation of serum and plasma from whole blood. The cause of this issue was that samples were withdrawn from participants at St. James Park then transported to university laboratories, therefore extending the time during which blood samples can coagulate. It could be suggested that future interventions could avoid this by transporting and storing samples appropriately. Another logistical issue relates to the failed blood samples which was the consequence of refusal or failed attempts. The frequency and reason for failed blood sampling was not recorded here but should be in future feasibility interventions. Alternative sampling approaches could be considered during repeated interventions. For example, dried blood spot sampling has the advantage of being a non-invasive method while being stable and transportable in ambient temperatures (Trifonova *et al.*, 2019). This may be an important consideration for future intervention developers should the secondary outcomes of this chapter be explored.

The acceptability of conducting measurement protocols outside of the football ground was investigated further in focus group discussions. Opinions on the likely attendance if measurements were conducted at the university were split. Some participants described how they didn't foresee any issues, others described how "It wouldn't have made a big difference to me, going to the university, if it was specifically for getting measurements.". However, this was not the consensus with all participants and some highlighted how the experience of being beside the football pitch made them feel part of the team "...I stuck them [photos] on Facebook and said "Well, I've just had my medical at St. James' Park"...". Therefore, adjusting the measurement protocol in future interventions should be cautiously considered as it may have an impact upon recruitment.

A key aim of this chapter was to identify the barriers and enabling factors for intervention participation. Social support was clearly a strong influence for participation and continued involvement in the 12<sup>th</sup> Man Intervention. Sharing similar interests with individuals who were physically relatable was rewarding. One participant described how "you're talking to people

who understand what you are saying” whereas another outlined pre-conceptions as “what I expected were tons of fitties and all the rest of it, and everybody was the same – normal people with flesh and blood.” This compliments the findings of participants who supported in the optimisation of the FFIT intervention. Here, one participant described their experience as “It’s not just the guys with the same type of interest, but the age grouping was a good idea as well; and the fact that there wasn’t going to be any Greek gods in there, it was all going to be human beings, cherubs perhaps, so you’re not going to feel out of place.” (Gray *et al.*, 2013a). Sharing similar characteristics to others is a common enabler for weight loss interventions too, as concluded by one systematic review which found those interventions which included social support increased adherence by 29% (Lemstra *et al.*, 2016).

Social support was not confined to participants, but the support of the coach was also an enabling factor. It was of particular interest for the researchers to further understand the characteristics of the 12<sup>th</sup> Man coach so these could be replicated in future. Key characteristics included supportive, caring, non-judgemental, approachable, relatable, empathetic, and professional. This allowed them to become an accepted member of the group as described by one participant: “They were just, like, one of the group – rather than an instructor”. Instructors who are caring and demonstrate relatability to participants has been reported in other men’s weight loss interventions. Authors of the AussieFFIT process evaluation study reported participants who described coaches as “...he just showed genuine interest, so I thought that he showed he cared and it probably had an impact from that perspective.” (Kwasnicka *et al.*, 2022). Interestingly, taking part in an intervention with others who have similar characteristics and is delivered by a coach who is relatable aligns with a basic psychological need for motivation, according to the SDT. Briefly, Deci and Ryan (2000) describe how in order for motivation to occur, three basic psychological needs should be satisfied. These are: autonomy, or the feeling of free will and individuals are the originator of an idea; competence, or effective in carrying out the behaviour; and relatedness, people need to feel accepted by significant others. A coach who can demonstrate the qualities described by participants in this study may therefore satisfy the psychological need of relatedness and ultimately increases the likelihood of behaviour change. Equally, the COM-B model for designing interventions supports the importance of these coach and environmental qualities and components of the 12<sup>th</sup> Man Intervention. Based upon the constructs of US criminal law, the COM-B model suggests that changes to target behaviour are more likely to be achieved if the three factors are achieved. These are capability, motivation, and opportunity. Opportunity can be subdivided into the physical opportunity, whereby the environment provides a platform for change, and social opportunity, where the

cultural milieu determines how we think and feel about particular situations (Michie, Van Stralen and West, 2011). A coach, and the group members gave participants the social opportunity throughout the 12<sup>th</sup> Man Intervention, as evidenced by focus group findings.

When understanding the acceptability of the intervention, it was important to learn what recommendations participants would make to improve the intervention. Some recommended improving the workshop on diet with some participants suggesting making targeted diet goals a regular weekly feature. Others proposed interests in developing digital elements of the intervention, possibly with an app, which could help participants to achieve goals. Gender sensitised digital health interventions delivered to men have previously demonstrated improvements to health outcomes including BMI, percent body fat, waist circumference, blood pressure, physical activity, quality of life, alcohol risk, and portion size (Morgan *et al.*, 2009). The cost to develop the 12<sup>th</sup> Man into a digital format are beyond the scope of this thesis but could be explored in future.

Another recommendation by participants was to improve the workshop focusing on the social action project which was delivered during week nine and week eleven. Briefly, this workshop was designed to increase social cohesion within group members by asking participants to complete a task. The task was a charitable endeavour where group members would work together to support another group or individual within the community. However, in practice, this often failed to come to fruition. Participants were keen to explore the task but were often disappointed when they could not complete it.

A final recommendation as highlighted from the focus group data, related to the length of the intervention and the weekly workshops. The consensus was that the length of the intervention protocol was not a significant commitment. Others believed that weekly physical activity sessions should last longer with more time to exercise. Authors have previously demonstrated that habit formation can vary between 18 and 254 days, but on average, habits are formed within 66 days (Lally *et al.*, 2010). It was decided that the intervention should last 84 days as a 12-week intervention is a common method of delivery during complex health interventions targeting men (Hulton *et al.*, 2016; Van Nassau *et al.*, 2016; Morgan *et al.*, 2009; Gray *et al.*, 2013a). A review investigating physical activity interventions in adult males reported 11 of the 35 interventions reviewed followed a 12-week protocol (Bottorff *et al.*, 2015). A further 17 interventions used a protocol longer than 12-weeks. Longer interventions incur more costs which would be absorbed by the delivery partners of the 12<sup>th</sup> Man. Considering the time taken to form a new habit, the common delivery method within the literature, and the financial

implications of longer interventions, 12-weeks should be considered a suitable for future interventions.

The secondary outcomes of this chapter aimed to further investigate preliminary data for physical and psychological health. Analysis identified improvements to some markers for physical health and psychological health following the intervention in the intervention group, but caution should be applied when extrapolating effectiveness of the intervention on a wider population group. The first caution should consider the impact the population size has upon findings. This study did not recruit to provide sufficient statistical power. However, preliminary findings indicate possible change in sources of motivation. Findings in this chapter suggested participants in the intervention group decreased their source of motivation from external sources, whereas the control group increased their sources of motivation to external sources. Motivation can be autonomous, or personally endorsed where someone has a sense of choice, freedom or volition; or controlled, where people feel pressures or coerced by external influences (Hagger and Chatzisarantis, 2008). If the 12<sup>th</sup> Man were to be tested through a future RCT, measuring changes in motivation may indicate a decrease in self-reported external motivation but an increase in internal motivation. Prior research indicates that this shift to internal motivation could increase chances of exercise behaviour engagement and adherence over time (Vansteenkiste *et al.*, 2004; Hagger and Chatzisarantis, 2008), healthy eating behaviours (Pelletier *et al.*, 2004) and an improved psychological wellbeing (Wilson and Rodgers, 2007). However, this could only be confirmed in further RCT trials and is not a suggested to be a finding from this chapter.

The second caution to extrapolating data and subsequently implying intervention effectiveness is to consider the potential drivers for differences in means for some markers of health. For example, there were statistically significant differences between the group means 12-week post intervention compared to baseline for NEFA because of an improvement to NEFA in the control group and a deterioration in NEFA in the intervention group. There is not a physiological reason as to why this change may have occurred. Self-efficacy for nutrition and coping self-efficacy, however, saw a maintenance in group means from baseline to 12-week post baseline in the intervention group and decrease in group means between measurements for the control group. It could be suggested that being assigned to a control group worsened self-efficacy for nutrition and coping self-efficacy. Similarly, there were statistically significant improvements in the intervention group means for action planning for nutrition, action planning for exercise and coping planning 12-weeks post intervention and a maintenance or decrease in control group

means 12-weeks post intervention. A possible explanation for the changes between the group means could be that the control group were less likely to make plans for behaviour change due to not receiving the intervention. According to Prochaska and Velicer (1997), one distinct stage of behaviour change is the preparation stage. Here, people have the intentions to change behaviours within the next 6 months. They are acutely aware of the risks of not changing behaviour and are more aware of the benefits of health behaviour change. Despite not having a plan of action, those who are in the preparation stage of change are different from those who are in a pre-contemplation stage whereby those individuals tend to avoid any engagement in health behaviour change. Participants who received the 12<sup>th</sup> Man Intervention may have progressed through the stages of behaviour change and therefore began to make plans for changing diet and exercise behaviours.

#### *5.3.4 Strengths and limitations*

The demonstration of acceptability and feasibility of the 12<sup>th</sup> Man Intervention is not just a strength of this chapter but highlights the strength of this thesis. It could be argued that feasibility and acceptability would not be established in the 12<sup>th</sup> Man Intervention had it not been for the systematic development and intervention mapping conducted during Chapter 4. Another strength of the researched presented within this chapter is that the findings provide confidence in terms of replicability, without compromising recruitment, retention, acceptability, feasibility etc. in subsequent pilot RCTs.

A potential limitation of the research presented in this chapter is that participants were not randomised to either the intervention or comparator group. Instead, participants were recruited through an opportunistic method. The feasibility issues associated with this recruitment method is that findings cannot be used to confidently inform the impact randomisation may have within a RCT. However, it is not uncommon for feasibility studies to recruit following a similar method to this chapter's approach (Hallingberg *et al.*, 2018). It was decided that an opportunistic recruitment method gives greater chance of recruiting sufficient participants so the intervention can be thoroughly scrutinised by implementing it in practice. This approach was investigated further during focus group interventions and participants indicated that randomisation would not be an issue in future intervention participation, if they still received the intervention.

A further weakness of this chapter is that participants who did not complete the 12-month intervention were not invited to focus group studies or post-intervention secondary data



collection sessions. Had participants, who were non-completers of the intervention, been invited to post-intervention focus groups, greater insights into drop out would be understood. This would be beneficial in the redevelopment of the 12<sup>th</sup> Man Intervention which may improve adherence and attendance in future trials. Similarly, if secondary outcome data been collected and analysed from those who dropped out of the intervention, there may have been interesting comparisons made between those who had completed the intervention. Participants were not invited to post-intervention outcome data sessions (both focus groups and secondary outcome data collection sessions) because they were not contacted after indicating that they could no longer participate. It was not clearly defined within the participant information that participation to post-intervention focus groups were necessary, despite not completing the intervention.

#### **5.4 Conclusion**

The primary outcomes of this intervention suitably inform, and provide confidence in, the feasibility and acceptability of replicating the protocol in a larger RCT. Recruitment to the intervention was acceptable, as was participant adherence and attendance. The feasibility of conducting measurement protocols had some difficulties but was achievable. The intervention could be adjusted following findings from the focus group study, but delivery of the 12<sup>th</sup> Man Intervention in an RCT could be possible and secondary outcomes give preliminary confidence in the impact that 12<sup>th</sup> Man can have on the health of men in the North East of England. Findings from this chapter inform subsequent chapters where the redevelopment of the 12<sup>th</sup> Man Intervention can be considered, as described in Chapter 6. Protocols for the implementation of this intervention in a pilot RCT are also described in Chapter 6.

## **Chapter 6 Optimisation of the 12th Man Intervention and pilot RCT protocol**

## 6.1 Introduction

Complex health interventions are used across health and social care practices as they can be sensitive and flexible to context and culture. They use two or more information sources or research methods to answer a research question which increases the validity of research findings (Shahsavari *et al.*, 2020). The MRC proposes a framework for developing and evaluating complex health interventions and outlines four phases (Skivington *et al.*, 2021). The four phases and progression between phases may require repetition of phases as well as the satisfaction of core elements to determine uncertainty. These include the consideration of context, developing and refining programme theory, engaging stakeholders, identifying key uncertainties, refining the intervention, and economic considerations. These are particularly poignant when progressing from feasibility to evaluation and implementation.

An example of how the MRC framework can be applied in practice comes from the FFIT intervention (Gray *et al.*, 2013a). Here, authors describe two phases, the first of which is a developmental phase, followed by a programme optimisation phase which included a three-step process. The first step was a process evaluation, where the intervention was delivered through a feasibility trial and participants and coaches gave feedback through questionnaires, focus groups, and interviews. Step 2 took the findings from questionnaires, focus groups and interviews to redevelop and optimise the intervention. Step 3 involved mapping the content of FFIT onto specific BCTs.

During step 2 of the optimisation of FFIT, authors identified areas of improvement which, where possible, were incorporated into the intervention. One example of this is the modification of the group size per intervention cohort. Focus groups highlighted that larger groups made it difficult to raise sensitive issues. As a result, authors recommended a coach: participant ratio of 1:15. They also recommended that coaches take a weekly register, to encourage familiarity, and raised the BMI inclusion criteria so participants continued to feel comfortable with one another. Other examples for improvements within this study include the classroom components, the physical activity components, and post programme support. Again, authors address these areas with practical suggestions during redevelopment.

FFIT is a good example of how intervention developers can use guidance from the MRC framework. For example, intervention developers engaged stakeholders and intervention users which subsequently informed intervention redevelopment. This is a core recommendation from the MRC framework and is described as *intervention refinement* (Skivington *et al.*, 2021). Other examples of intervention developers following guidance from the MRC framework include

consulting theory when refining interventions, along with rationalising any changes explicitly during intervention development. This resulted in the FFIT pilot being scaled to a larger RCT with confidence in positive health implications for participants.

This thesis has described the systematic development of the 12<sup>th</sup> Man which has followed recommendations from the MRC framework (Skivington *et al.*, 2021). Chapter 3 described the perceived barriers and facilitators of lifestyle intervention participation in men. Chapter 4 describes how insights from secondary data analysis from Chapter 3, and data from the review to apply intervention mapping and systematically develop the intervention. Chapter 5 scrutinised the feasibility and acceptability of this intervention during a pilot feasibility study. Twenty-one participants who attended an average of 67% of the 12<sup>th</sup> Man Intervention were invited, and attended, post-intervention focus groups. Analysis of the data from the focus groups are detailed in Chapter 5 and are summarised in Table 5-2. This chapter describes the process of redevelopment from the 12<sup>th</sup> Man Intervention and an implementation plan for a pilot RCT.

## **6.2 Redevelopment of the 12th Man Intervention**

### *6.2.1 Improvements to the 12<sup>th</sup> Man as recommended during post-intervention focus groups*

During the analysis of data in Chapter 5, there were recommendations which were identified by participants. However, there was insufficient evidence to form a theme in the reporting of the data. Despite this, these recommendations are still valid and should still be considered when optimising the intervention. These recommendations are the need for post-programme support, improvements to diet education, and improvements to the social action project and are summarised with supporting data in Table 6-1.

Table 6-1 - Summary of areas of improvement with supporting data as identified in Chapter 5 and the 12<sup>th</sup> Man pilot feasibility intervention.

Area for improvement identified in post-intervention focus groups	Supporting data
Need for post-programme support	<p>‘that sinking, low feeling. Like, “Aw, I’ve really enjoyed it, I’ve enjoyed the group, and now it’s finished.’ (Participant 29, aged 32).</p> <p>‘I would happily pay. The thing is, after I’ve been through it, I’d pay for the services, sort of thing.’ (Participant 4, aged 31).</p> <p>‘...You’re with people in the same situation as you, from different backgrounds. Yes, pay that £30 every twelve weeks and just roll it on.’ (Participant 5, age 35).</p>
Improvements to diet education	<p>‘You could have something like a recipe to try, an activity to try on your own, and just maybe an extra page in the book, per week, to do that, so that you’ve got something to even discuss yourself and to bring up in the sessions.’ (Participant 4, aged 35).</p>
Improvements to social action project	<p>‘...it didn’t really take off the way we all wanted it to.’ (Participant 29, aged 32).</p> <p>‘We should have done something with the food bank’ (Participant 3, aged 57).</p>

Following the identification of recommended improvements from secondary data analysis of post-intervention focus group discussions, techniques described in steps 3 of Chapter 4 were applied. During this step, Michie *et al.* (2013) recommends that target behaviours should initially be identified; target behaviours should then be mapped to the TDF domains; domains should select theory-linked BCTs; discussions about application of these in practice should then be given; and considerations towards the population, context and parameters within the intervention should be described. The same process followed in step 3 of Chapter 4 was replicated for the behaviours identified from areas of improvements which are detailed in Table 6-1. This process is described in Table 6-2.

Table 6-2 - A list of key intervention improvements identified in the redevelopment process of the 12th Man Intervention and how The Theoretical Domains Framework (TDF) domains and constructs, relative theory, population, context, and parameters of effectiveness and Behaviour Change Technique (BCT) can be applied.

<b>Intervention week</b>	<b>Target behaviours and how these were informed</b>	<b>TDF domain and construct and relative theory</b>	<b>BCT selected and example in practice</b>	<b>Population, context, and parameters of effectiveness</b>
Pre intervention	Improve social connection between individuals within the group informed by focus group discussions	<b>Domain:</b> Social influences <b>Construct:</b> Social support <b>Theory:</b> SCT and SDT	3.3 Social Support (Emotional) - during initial screening, participants are required to complete a personality inventory. They are then match with another participant who has a similar personality type.	Population: Men who lack social support in their life. Context: Men are encouraged to support each other during and after the 12-week intervention. Parameters: encouraging honesty, openness, trust, and acceptance in difficulties to behaviour change.
1	Improve social connection between individuals within the group informed by focus group discussions	<b>Domain:</b> Social influences <b>Construct:</b> Social support <b>Theory:</b> SCT and SDT	3.3 Social Support (Emotional) - Participant pairs are introduced to each other and encouraged to share contact details. It is explained that they will support one another throughout the intervention, like how a number 9 supports a number 10 on a football pitch.	Population: Men who lack social support in their life. Context: Men are encouraged to support each other during and after the 12-week intervention. Parameters: encouraging honesty, openness, trust, and acceptance in difficulties to behaviour change.
3	Improve diet choices informed by focus group discussions	<b>Domain:</b> Social Influences <b>Construct:</b> Social support <b>Theory:</b> SCT and SDT	6.2 Social Comparison – When men have created their essential shopping lists, they are asked, in groups, to create as many meals as possible. A	Population: Men who have poor healthy diet knowledge. Context: Men within a group setting looking to learn from others in the group.

			<p>competition is created between teams and points are awarded to the healthiest meals, the number of meals with basic ingredients, and imaginative meals.</p> <p>Each week, men are tasked with a challenge. This is to use 4 pre-determined ingredients to create a meal which will be compared between peers the following week.</p>	<p>Parameters: Men are all in the same position therefore there are positive expectations from all in the group.</p>
10	<p>Improve social connection between individuals within the group informed by focus group discussions</p>	<p><b>Domain:</b> Social influences</p> <p><b>Construct:</b> Social support</p> <p><b>Theory:</b> SCT and SDT</p>	<p>3.3 Social Support (Emotional) - This week is dedicated to building social support strategies. Using football as a case study, the role individuals can play in providing esteem, informational and tangible support during periods of success and failure are explained to participants. The instructor asks participants to describe the emotional response when others are supportive in their life. Participants may struggle to identify individuals who can offer support during difficult life events. This is when the importance of peer support</p>	<p>Population: Men who lack social support in their life.</p> <p>Context: Men are encouraged to support each other during and after the 12-week intervention.</p> <p>Parameters: encouraging honesty, openness, trust, and acceptance in difficulties to behaviour change.</p>

11	Improve social connection between individuals within the group informed by focus group discussions	<b>Domain:</b> Social influences <b>Construct:</b> Social support <b>Theory:</b> SCT and SDT	<p>from the number 9 and number 10 is again reiterated.</p> <p>3.3 Social Support (Emotional) - During the social action project, men are expected to set targets and deadlines, beyond the intervention, in which tasks will be completed.</p>	<p>Population: Men who lack social support in their life.</p> <p>Context: Men are encouraged to support each other during and after the 12-week intervention.</p> <p>Parameters: encouraging honesty, openness, trust, and acceptance in difficulties to behaviour change.</p>
		<b>Domain:</b> Goals <b>Construct:</b> Action planning <b>Theory:</b> SCT and SDT	<p>1.4 Action Planning – Men will decide on a specific project that they will work on as a collective. They will decide on a group roles and responsibilities. They will set goals which have specific deadlines in which they need to be achieved.</p>	<p>Population: Men who want to achieve a charitable endeavour.</p> <p>Context: Men within a group setting of others who want to support a charity.</p> <p>Parameters: Parameter: When setting goals, understanding the context, frequency, duration, and time is reinforced.</p>

Self-Determination Theory = SDT. Social Cognitive Theory = SCT.



The changes to the intervention described in Table 6-2 are considered explicit as there are specific directions for intervention delivery coaches in how they can achieve behaviour change. However, there are implicit changes to the intervention which aim to further facilitate changes to the target behaviours. These implicit changes include reordering workshops in the structure of the intervention. Combined, these changes formed the optimised 12<sup>th</sup> Man Intervention for a pilot RCT, and the updated structure is detailed in Table 6-3. *Self-help – problem solving treatment* was moved from week 8 to 9. The week on *Health Improvement Plan* was moved from week 10 to week 8 and only one week was dedicated to the *Social Action Project*. *Strengthening Your Team* was added to the updated version of the 12<sup>th</sup> Man. A full description of the intervention workshops, with directions for coaching staff, are described in Appendix C.

Table 6-3 - Suggested changes to workshop structure and content post feasibility testing.

Week	12 <sup>th</sup> Man version 1	12 <sup>th</sup> Man version 2
8	Self-help – Problem Solving Treatment	Health Improvement Plan
9	Social Action Project	Self-help – Problem Solving Treatment
10	Health Improvement Plan	Strengthening Your Team

These changes were considered more likely to facilitate changes to the target behaviour *create friendships between individuals within the groups*. Reducing workshop *Social Action Project* to one occurrence made room in the schedule for the workshop *Strengthening Your Team*. Moving *Health Improvement Plan* sooner in the schedule create a room for the *Strengthening Your Team* towards the end of the course when men had been exposed to one another for a longer time therefore increasing the chances of friendships. With an increased chance of friendships, and a workshop which focussed on social support (*Strengthening Your Team*), there is a theoretical increased likelihood of friendships between individuals.

#### 6.2.2 Adjustments to the 12<sup>th</sup> Man Intervention which were not identified in post-intervention focus groups

The optimisation of the 12<sup>th</sup> Man Intervention went beyond secondary analysis of the data collected in post-intervention focus groups. The intervention instructors were consulted with

throughout delivery of the 12<sup>th</sup> Man Intervention during the pilot feasibility study. As the instructors worked for the delivery partners, alongside the author of this thesis, conversations were easily conducted, and insights were gathered. Structured interviews or focus groups were decided to not be necessary in the collection of these insights. Avoiding structured and more formal interviews with instructors and instead opting for conversations to occur naturally throughout the pilot feasibility process gives a more robust approach to intervention development as insights are more honest and accurate. Adding formality to insights gathering could have created uncomfortable atmospheres for intervention instructors preventing accurate data collection. However, this disadvantages the methodology of data collection as it limits the scrutiny of raw data by additional parties or researchers. Despite this, the advantages of gathering accurate and honest insights were considered to outweigh the disadvantages of building a methodology which allows for scrutiny.

Insights gathered from instructor discussions were fed back to inform intervention optimisation. The author of the thesis met regularly with the supervision team during and after the delivery of the pilot feasibility intervention to discuss progress and barriers within the intervention. The author of this thesis used their knowledge and experience to creatively design solutions to barriers. A detailed description of these adjustments is described in Table 6-4.

Table 6-4 - Amendments made to the 12th Man Intervention informed by feedback from instructors and the author of this thesis.

Adjustment	Justification
<b>Week 1:</b> Discuss and describe “men’s health” and explain the need for interventions specifically for the participant.	It is important to give an explanation behind the intervention in week 1 which, simply, is because men don’t live as long as women. A further discussion can be had as to why this might be true. This may lead to suggestions around the consequences of unhealthy lifestyle habits. <i>Information about health consequences</i> is a BCT outlined in the taxonomy.
<b>Week 2:</b> Encourage participants to visualise overcoming barriers to exercise participation.	Visualisation is a key behaviour change technique and could help participants to begin to overcome their barriers to physical activity participation.
<b>Week 6:</b> Instructor prompts are given to help further explore the emotions or opinions of participating in a workshop which discusses happiness.	There was a need for clearer detail on the session plan for the instructors to make comprehension easier.
<b>Week 6:</b> Halfway through the intervention, the instructor will ask for feedback on what is working well for participants and what is not working well.	Feedback from participants is important as it can help to address any concerns or issues early in the intervention. It also gives participants motivation to continue as it highlights that the instructors care about their opinion of the intervention.
<b>Week 7:</b> A clearer explanation of the participant task is given.	During the pilot feasibility study, instructors found this workshop confusing to deliver and struggled to deliver effectively.
<b>Week 8:</b> Opportunity to re-evaluate and adjust goals and goal setting.	Goals which were set in week 1 may not be applicable by week 8. For example, one participant may have aimed to lose 5kg by the end of the course and this was achieved by week 8. Re-assessing goals is a good practice.

### 6.2.3 Suggested improvements which were not considered appropriate for redevelopment

Data gathered from secondary data analysis of the post-intervention focus groups identified areas for improvement which were not considered appropriate by the author of this thesis. These included: paying for additional sessions; creating a digital component of the 12<sup>th</sup> Man; and extending the weekly workshops beyond 1 hour.

The delivery partner for the 12<sup>th</sup> Man was NUF, a registered charity in the North East of England which received funding to deliver the 12<sup>th</sup> Man Intervention. To ask participants for remuneration would be against the contract agreed with funders. There are also ethical and methodological considerations which justify the rejection of remuneration as a suggestion. Ethically, the 12<sup>th</sup> Man Intervention is designed for men who are interested in improving their wellbeing. It's widely known that financial wellbeing and poverty are determinants of poor mental health and mental ill health (Allen *et al.*, 2014). It would be contradictory to require participants to financially subsidise a wellbeing intervention. Additionally, during the feasibility pilot of the intervention, high recruitment, attendance, and adherence was observed. Asking participants to pay for the intervention could have significant consequences on the recruitment, retention, and adherence to intervention protocol.

It was also suggested that the 12<sup>th</sup> Man Intervention could be digitalised. This, again, was rejected by the author of this thesis. The costs associated with this suggestion were beyond those assigned for the development of the 12<sup>th</sup> Man Intervention. Evidence also suggests that that web based health interventions for men can improve health outcomes, but this evidence is weak. Morgan *et al.* (2009) demonstrated in the SHED-IT intervention that those participants who were given access to an online diet and physical activity platform (Calorie King) were able to lose weight and maintain weight loss at 6 months. However, the control group did too and there was no significant difference between group weight loss at 3 and 6 months. Attrition rates, on the other hand, were positive as 15% and 17% of participants dropped out of the intervention at 3 and 6-month measurements, respectively. Another men's health intervention which provided participants with digital support was the ManUp challenge (Duncan *et al.*, 2014). Here, participants in the IT-intervention were given automatic digital feedback on physical activity and dietary performance as well as the opportunity to interact with other participants through the website. This fostered social support and aligned with the SCT. Despite this, no significant differences in physical activity and dietary behaviours were observed over the intervention period. Attrition to this intervention was poor as 301 participants were recruited to the intervention, of which 148 completed the 9-month assessment period, an attrition rate of

49%. Evidence from previous web-based or digital support men's health interventions and subsequent impacts on health outcomes were not strong enough to support creating a digital element of the 12<sup>th</sup> Man intervention.

Finally, the suggestion to extend workshops and physical activity sessions to over 1 hour for both was also rejected by the author of this thesis. The justification for this was to accommodate for those who were not physically fit enough to exercise longer than one hour. Many of the physical activity sessions required participants to exercise intensely. Extending physical activity sessions for longer than 1 hour may have created a risk in either illness or embarrassment which might prevent participants from returning to subsequent weekly workshops. Given this, the timing of sessions should not be adjusted.

### **6.3 Proposal for the 12th Man Pilot RCT intervention**

Following the optimisation of the 12<sup>th</sup> Man Intervention, the next logical step was to progress to a pilot RCT in which primary and secondary outcomes could be explored to inform the progression to a full RCT. Unfortunately, the COVID-19 pandemic prevented the progression of the pilot RCT intervention however, an outline of the project plan for a pilot RCT is presented in this thesis.

#### *6.3.1 Background*

The 12<sup>th</sup> Man Intervention was developed using the MRC Framework for developing complex interventions (Skivington *et al.*, 2021). According to Skivington *et al.* (2021), feasibility is a crucial phase for understanding the evaluation design of the intervention itself. Chapter 5 of this thesis outlines the pilot feasibility and acceptability intervention which addressed primary outcomes. These were: the feasibility of recruitment; the feasibility of intervention delivery and measurement protocol; the acceptability of the 12<sup>th</sup> Man Intervention with participants; the adherence to, and completion of, the 12<sup>th</sup> Man Intervention; and to understand the barriers and enabling factors to completion of the programme. The primary objectives within this study were achieved. However, the acceptability of randomly assigning participants to an intervention or control group is unknown, as is the acceptability of the redeveloped 12<sup>th</sup> Man Intervention. The redevelopment of the 12<sup>th</sup> Man Intervention is described in detail earlier within this chapter, but the remainder of the chapter will describe how the primary and secondary aims of pilot RCT can be explored.

To further understand the acceptability and feasibility of the 12<sup>th</sup> Man Intervention during a pilot RCT protocol, the primary aims would be:

- (i) To assess, recruitment and retention rates to the intervention and follow-up study visits.
- (ii) To assess willingness to be randomised.
- (iii) To assess whether the intervention can be delivered faithfully so that any changes observed can be attributed to the intervention.

Secondary outcomes for a pilot RCT would be:

- (i) To estimate the variability of objectively assessed body weight, blood pressure and blood biomarkers which indicate overall physical health by generating interval estimates of the mean difference between groups for each outcome measure.
- (ii) To assess the subjective measurements of physical activity, behaviour change, behavioural regulations, quality of life, general self-efficacy, and self-esteem.

Estimates of variability include the SD, range, and interquartile range for each of the study outcomes. The estimates of SD would be used to generate 95% CI for mean scores in each group and difference between group means.

### 6.3.2 *Participants and settings*

Similar to the inclusion criteria proposed in the 12<sup>th</sup> Man pilot feasibility intervention (Chapter 5), the inclusion criteria would have been:

- Men
- Aged 30 – 65 years
- Willing to be randomised to the intervention or comparator group

Participants would be recruited through various media and social media outlets around Newcastle Upon Tyne. NUF and NUFC would advertise the programme through their Facebook and Twitter social media sites. These approaches have been informed by the recruiting success experienced during Chapter 5. A target of 90 participants will be recruited with half being assigned to an intervention or a comparator group. Thirty-five participants per group is recommended to detect outcomes within pilot studies (Teare *et al.*, 2014). Given there was an intervention drop out of 15% during the pilot feasibility intervention, a target of 90 participants would anticipate intervention drop out and still adhere to recommendations for pilot interventions. Figure 6.1 details the proposed recruitment process for participants.

Participants will be randomised and allocated to the 12<sup>th</sup> Man Intervention or the comparator group. Following consent and baseline measurements, participants will be matched for age and weight. A member of the research team will obtain consent who will be blind to details of randomisation sequencing and concealment. Participants will be allocated to one of two strata with a ratio of 1:1 and randomised independently within strata using random permuted blocks. Blinding participants would not be possible as participants would be aware of the intervention they were assigned to (either face-to-face or online).

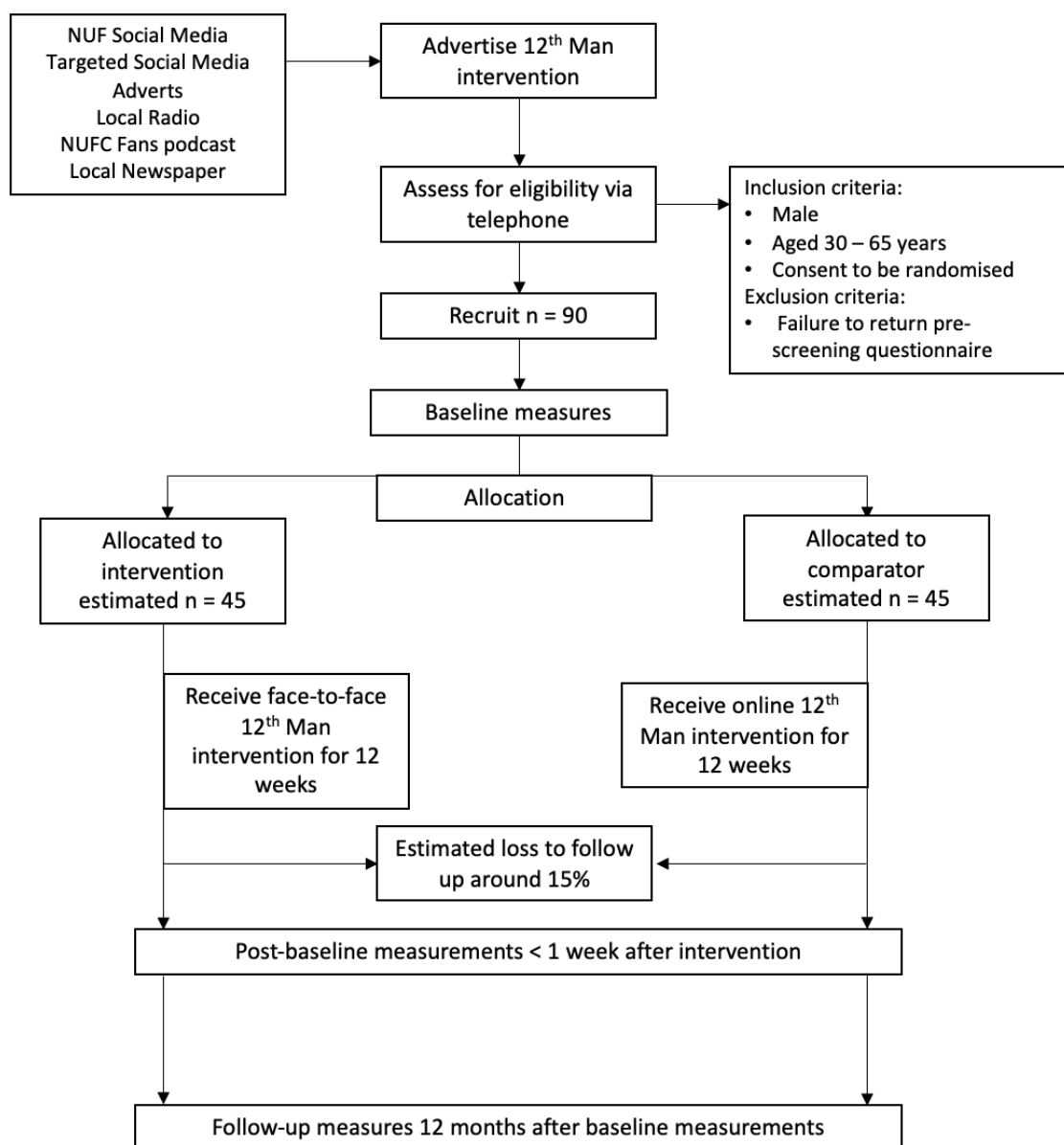


Figure 6.1 - The participant flow through the 12th Man Intervention during a Pilot RCT



### *6.3.3 Primary outcome data collection*

Primary outcomes would be collected throughout the intervention protocol. They will be collected by the author of this thesis and the community football coaches during weekly workshops. Questionnaires would be used to assess opinions relating to randomisation. Observations would be used to assess fidelity of intervention protocol. Primary outcomes of feasibility and acceptability would be assessed by the rate of participant recruitment to intervention, the number of participants who complete the full intervention, the number of participants who attend pre and post intervention measurement protocols, and the feasibility of delivering the intervention and the measurement procedures.

Acceptability would be assessed by the willingness for participants to engage with, and adhere to, the intervention. Focus group of participants who completed the intervention would allow barriers and enabling factors to be explored. Those who do not complete the intervention would be asked to provide feedback and indicate reason for drop out.

### *6.3.4 Secondary outcome data collection*

All data would be collected at baseline, post-intervention ( $\leq 1$  week following completion of the 12th Man Intervention) and 12 months post-baseline. Measurements will be taken by researchers and fieldworkers who will be trained by the author of this thesis to standard operating procedures. To maximise likelihood of data collection, facilities and locations owned by NUFC would be used during baseline and post-intervention measurements. The rationale for this is based upon findings from the pilot feasibility intervention (Chapter 5). During post-intervention focus group discussions, it was clear that football, and the involvement of NUFC, was a motivator for attendance before, during and after the intervention. It was hoped that locations which provide exclusive access to a premier league football club would incentivise participants to attend.

### *6.3.5 Intervention –face-to-face 12<sup>th</sup> Man Intervention*

The face-to-face 12<sup>th</sup> Man Intervention is described previously in this thesis, with the additions of the redevelopment described in this chapter. A detailed description of the coaching manual is provided in Appendix C. Those assigned to the face-to-face intervention would be invited to attend in person workshops and physical activity opportunities on a weekly basis, led by a trained instructor. Participants would be assigned to one of two cohorts running across nine months. Twenty-two and 23 participants would be assigned to each cohort, accounting for a 10

– 15% drop out between registration and 12-month post-baseline measurements. This drop out would be similar to that experienced during the feasibility and acceptability study described in Chapter 5. With consent, participants on each cohort would be added to a WhatsApp group where friendships can form. This would also provide an opportunity for the author of this thesis to give weekly video summaries for those who were absent from that week. Following the completion of the 12-weekly sessions, participants would be invited to a 6-month reunion.

#### *6.3.6 Intervention – Online comparator group*

In order to scrutinise effectiveness of an intervention, it is good practice in RCTs to recruit control groups who do not receive the same treatment as the intervention group so group means can be compared (Skivington *et al.*, 2021). Control groups can come in various forms including waiting list control groups, no treatment control groups or active treatment control groups. Waiting list control groups would receive the treatment after a period of waiting, during which time the intervention group would receive the treatment. Both groups would provide outcome measures at the same time, however the intervention group would receive the intervention between the outcome measures. Following outcome measures, the waiting list control group would receive the intervention. No treatment control groups receive no treatment at all, but still provide outcome measures at the same time as the intervention groups. Active treatment control groups provide outcome measures at the same time as the intervention group, and they receive a treatment at the same time as the intervention group, but the treatment is different to the intervention group.

There are clear benefits and risks to different types of control groups for the 12<sup>th</sup> Man Intervention pilot RCT. No treatment control group would have the benefit of offering a true baseline to compare changes observed within a treatment group to, as they are not receiving and will not receive a treatment at all, however they could be very difficult to recruit. This difficulty was not assessed in the pilot feasibility study of the 12<sup>th</sup> Man Intervention described within this thesis, mainly because of the ethical considerations. The 12<sup>th</sup> Man Intervention was delivered through the NUF, a charity who aim to improve the lives of those within the community. Recruiting a group of people, from the community, who wanted to improve their health, and not offering them treatment, would be ethically wrong and would contradict the charity aims. Similarly, preliminary secondary outcome data collected in the pilot feasibility study suggests detriments to self-efficacy for nutrition, coping self-efficacy, action planning for exercise and coping planning. A control group which does not receive an intervention may worsen health outcomes for participants.

A waiting list control group has already proven to be a successful method of recruiting a control group as outlined in the feasibility intervention for the 12<sup>th</sup> Man Intervention in Chapter 5. It was concluded that a waiting list control group is feasible to recruit and retain to outcome measurements. However, there is a risk that those who are recruited to a waiting list control may change their typical life behaviours during the waiting period in the expectation to receive treatment at a later date. This may skew results and not offer a true baseline.

Finally, an active treatment control group offers a good opportunity to scrutinise the effectiveness of the 12<sup>th</sup> Man Intervention, while offering a control group some form of intervention. This has the benefit of being ethically and morally right for a group of people wanting to create behaviour change as they are still receiving a treatment. An example of alternative treatment to the 12<sup>th</sup> Man Intervention is an online version of the Intervention.

Despite there being weak evidence to suggest that online men's health interventions demonstrate improvements to health outcomes (Morgan *et al.*, 2009), the hypothesis that a digital alternative to the 12<sup>th</sup> Man face to face Intervention making significant improvements to health outcomes has not been tested. This hypothesis also suggests that removing the key components of social support from the 12<sup>th</sup> Man Intervention, as identified in Chapter 5, would impact the retention and subsequently behaviour change of participants in the comparator group.

Those who are assigned to the 12<sup>th</sup> Man online comparator would receive an adapted version of the 12<sup>th</sup> Man Intervention. The content of the weekly sessions would be delivered to participants in video format and through an email. These videos would be generic and filmed in advance. Following the same recruitment process as the face-to-face group, participants would be assigned to one of two cohorts running across nine months. Twenty-two and 23 participants would be assigned to each cohort, again accounting for drop out. Participants would be invited to a WhatsApp group with other men from the 12<sup>th</sup> Man Online group. The lead instructor would use this social group to update participants with the physical activity opportunities available to them within their local area. Participants would receive the same printed resources as those in the intervention group.

#### *6.3.7 Proposed primary outcomes of a pilot RCT*

Following data analysis of the primary and secondary aims of the pilot RCT, the proposed outcomes would be that the intervention, and experimental design, are considered feasible and acceptable to deliver. Uncertainty towards recruitment, data collection, retention, outcomes and

analysis, optimal delivery content, acceptability, adherence, likely costs, and the capacity to deliver the intervention would be sufficiently satisfied. This would justify the rationale for investment in a RCT. It could be anticipated that the proposed secondary outcomes of this intervention would inform the sample size for an RCT. The primary outcome measures during an RCT would be similar to the secondary outcome measures of the pilot RCT which may indicate the effectiveness of the 12<sup>th</sup> Man Intervention on the health profiles of hard-to-reach men.

#### **6.4 Coronavirus (COVID-19), the pandemic and the postponement of the pilot RCT**

In March of 2020 the UK government ordered all non-essential work to be carried out from home. National advice for all Britons was to only go outside to buy food, to exercise once a day, or to go to work if they cannot work from home. The plans for the recruitment to the 12<sup>th</sup> Man Pilot RCT were postponed. National restrictions for socialising and recruitment to scientific trials was not lifted until late summer of 2020. The delay to recruitment for the 12<sup>th</sup> Man Pilot RCT forced the decision to delay the intervention indefinitely. There would be insufficient time to complete the full intervention protocol outlined above before the deadline for this thesis.

##### *6.4.1 Strengths and limitations*

The strengths of this chapter are that the intervention mapping process developed in Chapter 4 have been replicated in this chapter following findings from the pilot feasibility and acceptability study in Chapter 5. This gives a practical example of how intervention mapping can be applied across the systematic development of interventions, which is a recommendation of the MRC framework (Skivington *et al.*, 2021). Another strength is that the implementation plan for the 12<sup>th</sup> Man Intervention can be used in future trials. The clear description of intervention protocol makes implementation accessible for researchers.

However, a weakness of this chapter is that the 12<sup>th</sup> Man Intervention could not be tested for acceptability and feasibility in a pilot RCT. This was a consequence of the COVID-19 pandemic. However, without insight to recruitment, retention, adherence, and attendance in a pilot RCT, effectiveness of the intervention on physiological and psychological health should not be evaluated during an RCT. If the 12<sup>th</sup> Man Intervention was to be tested in an RCT, there is not currently confidence that sufficient participants will be recruited to the intervention or will adhere to protocol. There is also little evidence to support the feasibility of the 12<sup>th</sup> Man Intervention in a large RCT.

## **Chapter 7 General discussion and conclusions**

## 7.1 Main findings

The overall aim of the research conducted and presented in this thesis was to systematically develop a men's health intervention which aimed to improve the health and wellbeing of hard-to-reach groups of men in the North East of England and could be delivered through a delivery partner, NUF. The outcomes were recruitment, retention, attendance, and adherence to the intervention, which was assessed through a pilot feasibility and acceptability intervention. The main aims and findings from each research chapter are described below. Following this, the overall findings from this thesis and their context within the literature will be discussed.

### 7.1.1 Chapter 3

- The aims were to: 1) explore the perceived barriers and facilitators to uptake of interventions designed to target physical and mental health in hard-to-reach men; 2) identify health issues considered important to address; 3) obtain participant views on how to best engage men in community-based interventions; and 4) use the findings to inform the development of a multibehavioural complex community-based intervention (called 'The 12<sup>th</sup> Man').
  - Six focus group discussions generated 7 themes from thematic analysis: 'Lifestyle behaviours for both mental health and physical health', 'Work pressures are barriers to engaging with lifestyle behaviour change', 'Previous injuries prevent engagement in physical activity and exercise', 'Impact of personal and peer group relationships on lifestyle behaviour change', 'Relationship between body image and self-confidence on mastery of skills for physical activity and exercise', 'Building motivation and personalised goal setting', and 'Credible individuals increase uptake and continued engagement with lifestyle behaviour change'.

### 7.1.2 Chapter 5

- The aim of this experimental chapter was to further understand the acceptability of the 12<sup>th</sup> Man Intervention as assessed by the feasibility of recruitment; the feasibility of intervention delivery and measurement protocol; the acceptability of the 12<sup>th</sup> Man Intervention within participants; the adherence to, and completion of the, the 12<sup>th</sup> Man Intervention; the barriers and enabling factors for completion to the programme. Secondary outcomes aimed to understand estimates for variability in weight, blood

pressure, waist circumference, metabolic biomarkers of health, and psychological measures of health.

- Recruitment, adherence, attendance, and feasibility to deliver the intervention were all considered to be acceptable for progression to a subsequent pilot RCT trial. Participants reported how participating at a football club and sharing similar characteristics with participants encouraged participation. They also described characteristics which a successful coach should possess. They described components of the intervention which were more favourable than others and suggested how the intervention could be improved. Secondary outcome analysis identified preliminary improvements to self-efficacy, external regulation, and health action planning. However, caution should be taken when interpreting these secondary outcomes.

## **7.2 A presentation of the key health intervention components which can be implemented by future men's health interventions**

The first step to systematically designing the 12<sup>th</sup> Man Intervention was to highlight the key components of other men's health interventions. This has not been previously demonstrated and therefore provides a novel contribution to the literature. The identification of theories and techniques likely to increase the chance of behaviour change have been described previously (Caperchione *et al.*, 2017; Gill *et al.*, 2016; Gray *et al.*, 2013a; Pringle *et al.*, 2013; Sealey *et al.*, 2013), as has the importance of considering gender when designing interventions (Bottorff *et al.*, 2015; Evans *et al.*, 2011; George *et al.*, 2012; Gray *et al.*, 2013a; Hunt *et al.*, 2014b; Lewis, Reeves and Roberts, 2017; Pringle *et al.*, 2013; Sealey *et al.*, 2013; Zwolinsky *et al.*, 2013). There have also been descriptions of components which are not BCTs, nor considerations of gender, but are considered key when aiming to engage groups of hard-to-reach men (Gray *et al.*, 2013b). However, no authors have collated these and presented them as a set of criteria which should be integrated within a men's health intervention. This summary can therefore be used for the development of interventions for the same target group in the future.

Chapter 3 described findings which further support the likely effectiveness of key intervention components identified in the first step. For example, family pressures; health and physical limitations; a perceived lack of enjoyment; and motivation and time were barriers to participation have all been identified previously in similar populations (Burgess, Hassmén and Pumpa, 2017; McIntosh, Hunter and Royce, 2016). Future intervention development should

acknowledge and address these barriers when aiming to change lifestyle behaviours in men. Interestingly, Chapter 3 identified the barrier *lack of self-confidence* in participants relating to the mastery of skills or physical activity participation, possibly the result of fear of embarrassment. Interventions may not have previously considered this as a barrier which would reduce the possibility of participants adopting healthy lifestyle behaviours.

This thesis highlighted key facilitators to participation in men's health interventions which adds to the current recommendations described in the results of step 1 of Chapter 4 from other authors. Collating both the data from this thesis in Chapter 3, and the summaries from results in step 1 of Chapter 4 is valuable to health intervention developers who aim to change the behaviours of men.

It can become time consuming to collate key intervention components which have demonstrated success in the targeted populations when designing interventions therefore the information provided in this thesis is beneficial for scientists and practitioners. Sport, specifically football, is evidently a successful tool to engage groups of hard-to-reach men (Caperchione *et al.*, 2017; Dixon *et al.*, 2019; Hunt *et al.*, 2014b; Pringle *et al.*, 2016; Van Nassau *et al.*, 2016; Zwolinsky *et al.*, 2013). Within the UK, there are currently over 92 club community organisations (CCOs). CCOs are the charitable partners who represent professional football clubs within the community. These organisations, and health practitioners who support them, can use the key factors outlined in this thesis to increase the likelihood of creating behaviour change, for a range of health behaviours, in groups of hard-to-reach men. The more interventions which address the health inequalities within a group who do not engage in primary care interventions, the increased likelihood of reducing these inequalities.

### **7.3 Systematic development of a health intervention**

Despite saving intervention developers time by presenting a range of key components when targeting men, the process in which key components can be integrated into health interventions, and the systematic design of interventions, is complex. During the development phase of this thesis, it was difficult to find extensive literature on a step-by-step process for designing health interventions. There is clear guidance and recommendations from the MRC on developing complex health interventions (Skivington *et al.*, 2021), however these recommendations are broad and don't focus on specific phases. For example, the MRC recommendations describe phase 1 as planning interventions from initial concept through to delivery but gives no examples as to how this may be done. Similarly, O'Cathain *et al.* (2019) describe detailed guidance on actions which should be taken during intervention development, but do not give examples as to



how this would be done, or how behaviour change is integrated within interventions. For example, the authors suggest that behaviour change theories should be considered, or that experts in behaviour change should form the development team to support in the integration of techniques, but authors don't describe how this can be done.

Step by step guidance to intervention development have been published (Hallsworth *et al.*, 2021), but considering target population, context and parameters of effectiveness proposed by Kok *et al.* (2016) could supplement guidance. If the target population, context, and parameters of effectiveness are described, there may be an increased likelihood of intervention replication. These considerations have been made in the step-by-step guidance outlined within this thesis.

The step-by-step guidance developed in this thesis and detailed in Chapter 4 is a novel contribution to the literature in this field. This guidance was used to develop the 12<sup>th</sup> Man Intervention in Chapter 4, and re-development of the intervention in Chapter 6. Step 3 of Chapter 4 is useful for taking key components identified in the literature or from exploratory qualitative research, and mapping TDF domains and subsequently BCTs most likely to create change, into an intervention. From novices to experienced scientists and practitioners, this chapter could be highly valuable when developing interventions. This is a strength of this thesis.

#### **7.4 Addressing the health of an at-risk group**

This thesis contributes to the growing evidence that suggests football, and sport, is a powerful vehicle for intervention delivery when targeting hard-to-reach men. The recruitment, retention, attendance, and adherence data collected in this thesis is similar to that of other community sporting health interventions (Hunt *et al.*, 2014b; Sharp *et al.*, 2020a; Sealey *et al.*, 2013). This is important as it offers an alternative to the traditional, primary care based, delivery models where recruiting men has proven difficult (Bower, Wilson and Mathers, 2007; Sully, Julious and Nicholl, 2013). Despite the increasing evidence for the importance of complex health interventions at addressing men's health inequalities, the FFIT and the 12<sup>th</sup> Man are the only interventions which appear to have been developed systematically. Again, this is another strength of this thesis.

During the literature review of this thesis, the causes for life expectancy differences between the sexes were explored. There are biological and environmental considerations which put men at risk of ill health, but these risks are exaggerated when men do not engage in health promotion activities or interventions. If this is not addressed discrepancies in health between the sexes will continue. Football, in the North East of England, is clearly one method of addressing

engagement issues with this at-risk group in an area which has some of the worst health profiles in the country (Disparities, 2023).

### **7.5 Findings which align to masculinity**

According to Connell (2020), men are aware of traditional code of masculinities known as Hegemonic Masculinities. This code promotes rationality autonomy, control, self-reliance, competitiveness, physical strength, emotional stoicism, risk taking, and predatory heterosexual behaviours (Connell, 2020). Not all these behaviours were observed with participants from the 12<sup>th</sup> Man Intervention, but for some were. For example, participants routinely highlighted, through focus group discussions, the importance of social support during the intervention and how having others with similar physical attributes can be reassuring when taking part in a health invention. This may be because men felt others had similar physical strengths to them which would be beneficial when exercising during weekly interventions. During the weekly exercise activities, competitiveness was regularly observed. As another example, walking football was a popular sport for those participants in the 12<sup>th</sup> Man Invention. This may be because it gave men the ability or option to demonstrate competitiveness.

Despite alignment to some behaviours outlined within the theory Hegemonic Masculinity, participants contradicted some codes outlined by Connell (2020). In Chapter 1 of this thesis, beliefs which align to hegemonic masculinity are described. Specifically, the denial of weakness or vulnerability; emotional stoicism; displaying emotional and physical control; appearing strong and robust; dismissing any kind of help; a constant interest in sex; and demonstrating aggression and physical dominance (Courtenay, 2000b). Participants within the 12<sup>th</sup> Man Intervention would regularly discuss topics such as mental health, stress, anxiety, depression, or even suicidal thoughts which contradicts the beliefs held by those who align with hegemonic masculinity. Perhaps the safe, non-judgemental environment created within the weekly workshops was the ingredient needed to remove the barrier of emotional stoicism for men within the 12<sup>th</sup> Man Intervention. This environment was not created by accident, but was the result of group members demonstrating honesty, vulnerability, weakness and emotion which gave the permission to group members that they could do so too, without the fear of judgement. This challenges the societal stigma that men do not talk about mental health. Maybe, men are not given the opportunity to talk about mental health.

### **7.6 Experimental limitations**

There are limitations within this thesis that should be considered when interpreting findings. Firstly, focus groups described in Chapter 3 were conducted mainly at St. James Park, with the

exception of 1, which was conducted within the workplace. It was concluded that findings from the data in this group were not different from that of the others conducted at St. James Park, but there is a risk that the workplace created a bias in the opinions of men during this focus group. Equally, those who attended St. James Park likely did so because of the attraction to the football club. This may have created homogenous opinions on topics relating to football. However, one unreported finding from this study and Chapter 3 was that recruitment to focus groups was not an issue, likely because of the involvement of the football club, which demonstrates confidence in the likelihood of recruiting to a pilot RCT. Another experimental limitation within this study is the absence of health-related data which was not collected during recruitment. The decision to not collect this data was taken to avoid barriers which may prevent men from participation.

The recruitment and randomisation to the pilot RCT described in Chapter 5 could also be considered a limitation. An opportunistic recruitment method was selected, and participants were not randomised to the intervention group or waiting list control group, which is not uncommon within feasibility studies (Hallingberg *et al.*, 2018). This was considered appropriate as it increased the chance of participants completing the intervention. The more participants to complete the intervention, the better the scrutiny of the intervention and increased confidence of replication which was considered a benefit to this approach. However, extrapolating findings from this study to an RCT model and being confident on the likelihood of recruitment and randomisation is difficult. But this can be assessed during future interventions.

There were practical issues in the collection, storage, and analysis of samples in the pilot feasibility intervention detailed in Chapter 5. However, these issues can be avoided in subsequent interventions, which demonstrates the purpose of conducting pilot feasibility trials.

Further potential limitations of this thesis are the extrapolation of findings to wider geographical areas. It is fair to assume that Football in the North East of England is thought of passionately in men (Dixon *et al.*, 2019), often referred to as a religion and subsequently provides a good vehicle for recruitment and engagement to men's health interventions. However, it would be difficult to assume the same success could be replicated nationally or globally. There are good examples of how football interventions in Scotland have been replicated across the globe using different sports (Gill *et al.*, 2016; Gray *et al.*, 2013b; Kwasnicka *et al.*, 2022; Wyke *et al.*, 2019), but these interventions were focused on weight loss and not the improvement of overall health, including mental health. Stigmas to mental health are still prevalent across the globe and this could prevent the 12<sup>th</sup> Man from being a success outside of the North East of England.

Scaling the 12<sup>th</sup> Man beyond the North East of England, or specifically beyond the delivery partner NUF, could bring complexities which could also be considered limitations of this thesis. There was heavy reliance upon staff at NUF to support in the recruitment of participants, the organisation of venues, and the provision of delivery staff. It would take financial investments from other delivery partners to replicate the 12<sup>th</sup> Man Intervention elsewhere and if these partners are charities, such as NUF, this may not be possible. However, EuroFFIT (Van Nassau *et al.*, 2016) is a progression of FFIT (Gray *et al.*, 2013a) which was delivered across Europe through delivery partners similar to NUF. It was possible to address financial constraints here, but heavy financial investment was required in this example.

A final potential limitation was the coronavirus-19 pandemic that caused an obvious interruption to the progression of the research conducted as part of this thesis. Initial intentions were to deliver a pilot RCT following the redevelopment of the 12<sup>th</sup> Man Intervention, as detailed in Chapter 5. It could still be possible to deliver a pilot RCT but the confidence in successful recruitment may be limited after considering the delay since the initial feasibility intervention. Following national lockdown restrictions, the delivery partner NUF continued to deliver the 12<sup>th</sup> Man Intervention in the community to oblige with funding requirements. It could be argued that recruitment to subsequent 12<sup>th</sup> Man cohorts has saturated the participant pool. That may make recruitment to a pilot RCT or a fully powered RCT difficult. These are unknowns which are beyond the scope of this thesis, but it's unlikely that all men aged between 30 and 65 in the North East of England have completed the 12<sup>th</sup> Man Intervention and would therefore be ineligible for participation in future trials.

## **7.7 Recommendations for future interventions**

This thesis has outlined how to design a complex health intervention, following the framework outlined by the MRC, and given an example of this in practice through the 12<sup>th</sup> Man Intervention carried out on in the North East of England. The acceptability and feasibility intervention gives confidence in the recruitment, retention, and attendance to future interventions. However, as outlined in Chapter 6, this study also indicates improvements which could be made to the content of the 12<sup>th</sup> Man Intervention. The revised 12<sup>th</sup> Man Intervention is yet to be piloted where feasibility and acceptability can be scrutinised. The acceptability of recruitment to a RCT is still inconclusive and failure to recruit to such an intervention could have economic costs in a larger RCT. A pilot RCT would demonstrate the likelihood of recruiting and retaining participants to intervention protocol, as well as the feasibility of delivering the protocol. These findings would give confidence that enough participants would be recruited and retained to

demonstrate statistical power in an RCT intervention. Any findings from the data would therefore be statistically significant and give confidence on the health impacts the 12<sup>th</sup> Man may have on participants who complete the intervention. An economic evaluation can also indicate the value and costs of the 12<sup>th</sup> Man in comparison to other public health interventions. The benefit of this is to support an argument for sustained funding in the 12<sup>th</sup> Man Intervention, larger scaled delivery of the intervention and, ultimately, addressing the health inequalities that currently exist in groups of men.

The FFIT intervention demonstrates the impacts of a systematically designed complex health intervention on a group of hard-to-reach men. Significant weight loss and long term health improvements were demonstrated in an RCT which was subsequently published in *The Lancet* (Hunt *et al.*, 2014b). FFIT has since been adapted to be delivered across the globe and through various sporting modalities (Gill *et al.*, 2016; Kwasnicka *et al.*, 2020; Wyke *et al.*, 2019). The success of FFIT demonstrates the possibilities for the 12<sup>th</sup> Man Intervention.

It has been 4 years since the 12<sup>th</sup> Man was initially piloted within the North East of England community through the delivery partner NUF. Since then, NUF have continued to deliver the intervention within the community, recruiting hundreds of men within the North East. They have also received grant funding from local authorities to continue the delivery within the community. Although the intervention impact has not been assessed or evidenced, it would be fair to conclude that the 12<sup>th</sup> Man has played a positive influence on the lives of a group who may have otherwise been forgotten or missed.

## **7.8 Conclusions**

This thesis first concluded through focus groups that men considered many barriers to intervention participation ranging from work related barriers, through to social influences. They also indicate facilitators of intervention participation which included setting goals and interventions delivered by credible individuals. The findings from this initial study, alongside insights from the literature, contributed to the development of the 12<sup>th</sup> Man Intervention. Following the delivery of a pilot feasibility and acceptability study, the 12<sup>th</sup> Man was acceptable within the participants and feasible to deliver. A final conclusion was that a subsequent pilot RCT would have a high chance of participant recruitment and retention meaning primary and secondary outcomes could be suitably scrutinised.

## Chapter 8 References

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## **Chapter 9 Appendices**

Appendix A – COREQ: Chapter 3

Appendix B – Focus group topic guide for Chapter 3

Appendix C – The 12th Man coaching manual

Appendix D – Questionnaires from the 12th Man pilot feasibility study

Appendix E – COREQ: Chapter 5

Appendix F – Focus group topic guide for Chapter 5

Appendix G – R Script



## Appendix. A – COREQ: Chapter 3

Developed from:

Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

No. Item	Guide questions/description	Reported on Page #
Domain 1: Research team and reflexivity		
<i>Personal Characteristics</i>		
1. Inter viewer/facilitator	Which author/s conducted the interview or focus group?	2.2.3
2. Credentials	What were the researcher's credentials? E.g. PhD, MD	2.2.3
3. Occupation	What was their occupation at the time of the study?	2.2.3
4. Gender	Was the researcher male or female?	2.2.3
5. Experience and training	What experience or training did the researcher have?	2.2.3
<i>Relationship with participants</i>		
6. Relationship established	Was a relationship established prior to study commencement?	Not reported
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	Not reported
8. Interviewer characteristics	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	Not reported

Domain 2: study design		
<i>Theoretical framework</i>		

9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	2.2.2
<i>Participant selection</i>		
10. Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	2.2.2
11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	2.2.2
12. Sample size	How many participants were in the study?	2.3
13. Non-participation	How many people refused to participate or dropped out? Reasons?	Not reported
<i>Setting</i>		
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	2.2.2.
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	Not reported
16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	2.3
<i>Data collection</i>		
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	2.3
18. Repeat interviews	Were repeat inter views carried out? If yes, how many?	2.3
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	2.2.4
20. Field notes	Were field notes made during and/or after the interview or focus group?	Not reported
21. Duration	What was the duration of the inter views or focus group?	2.3
22. Data saturation	Was data saturation discussed?	2.2.4

23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	Not reported
Domain 3: analysis and findings		
<i>Data analysis</i>		
24. Number of data coders	How many data coders coded the data?	2.2.4
25. Description of the coding tree	Did authors provide a description of the coding tree?	Not reported
26. Derivation of themes	Were themes identified in advance or derived from the data?	2.3
27. Software	What software, if applicable, was used to manage the data?	2.2.4
28. Participant checking	Did participants provide feedback on the findings?	Not reported
<i>Reporting</i>		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	2.3
30. Data and findings consistent	Was there consistency between the data presented and the findings?	2.3
31. Clarity of major themes	Were major themes clearly presented in the findings?	2.3
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	2.3

## Appendix. B – Focus group topic guide for Chapter 3

1	<p>If you were to imagine the healthiest person you know, what is it that they do to make themselves healthy?</p> <p>How likely do you think it is that this person and others like them are stressed?</p>
2	<p>To what extent do you think making healthy lifestyle choices can reduce or prevent stress?</p>
3	<p>What sort of things increase your stress levels?</p> <p>What sort of things do you believe reduces your stress levels?</p> <p><b>Prompts:</b> break from work, time with friends/family, exercise, other</p>
4	<p>What do you think stops people from making positive lifestyle changes that last long term? What gets in the way?</p>
5	<p>Would you consider taking part in a course that aims to improve your health and wellbeing?</p> <p>If yes, what would be your reasons for wanting to do this?</p> <p><b>Prompts:</b> family, work</p> <p>If no, what doesn't appeal to you?</p>
6	<p>What could your local community do to help you live a healthier life?</p> <p><b>Prompts:</b> facilities, environment</p>
7	<p>What could the football club provide that could help you to make positive lifestyle changes?</p>
8	<p>How would you help other people like you to make positive lifestyle changes?</p>
9	<p>Has setting up your own exercise or sports club or team ever interested you?</p> <p>If yes, why has it interested you?</p> <p>If no, what doesn't appeal to you about this idea?</p> <p><b>Prompts:</b> knowledge about how to do it, resources to set it up, concerns about people attending</p>
10	<p>A barrier to people attending exercise programme is often working patterns. How would you create a course that is suitable for everyone's work patterns?</p> <p>What would you need?</p> <p>Who would you need help from?</p>

11	What sort of things do you do currently to try and improve your health and wellbeing? <b>Prompts:</b> leisure activities; set daily goals, exercise, diet)
12	Is there anything else we might need if we were to set up a course to help people make positive lifestyle changes?

## **Appendix. C – The 12th Man coaching manual**

This is a copy of the 12<sup>th</sup> Man coaching manual provided to coaches who would deliver the 12<sup>th</sup> Man Intervention. Within these appendices is both the first version of the 12<sup>th</sup> Man Intervention which was delivered as part of the pilot feasibility study in Chapter 5, and the additions and changes described in Chapter 6. The additions and changes to the manual are written in red throughout this appendix.

## **Aims and Objectives**

The 12<sup>th</sup> Man is a 12-week health and wellbeing programme designed for men aged between 30 and 65 who want to make healthier lifestyle choices. The programme is underpinned by various BCTs so that the participants have the greatest chance of creating real change. This programme is not a short-term fix to health issues.

## **The Name**

12<sup>th</sup> Man is intended to make participants feel like they are part of the football club. Large numbers of peer reviewed publications suggest that men respond well, maintain adherence, and attend programmes which make them feel integrated in their football club. This is even the case for groups who we refer to as ‘hard-to-reach’. Hard-to-reach is defined as a man who rarely seeks out health professionals such as the NHS and who does not consider themselves as unhealthy, even after exhibiting healthy lifestyle choices. Pride in men’s local football clubs is often inter-generationally bred which can be used to influence men into making healthier lifestyle choices.

## **The Age**

The age category for this programme is specifically selected. 30 and 65 are often two major events in a man’s life. At 30 a man begins to think about starting a family and the pressures of that come along side that can lead to mental distresses. At 65 men tend to retire after many years of work which can leave huge social gaps in their life. The age range also restricts older and younger men from joining this programme which might otherwise have exaggerated differences in fitness levels and made it difficult for groups of men to bond.

## **The Course Content**

The course is 12 sessions, each one separated by a week. It is important that the sessions occur at the same time each week. Previous attempts to deviate away from the regular time slots often reduces attendance heavily, possibly because of other commitments.

Each weekly session consists of a 45 minute to 60 minute “workshop”. The coach should be aware to use the work *workshop* as opposed the *classroom* or any other language which may remind men of school life. This is because men often have poor memories of school life and to replicate this on a health and wellbeing programme may create anxieties or apprehension.

Following on from the workshop activities is a physical activity of some description. The purpose of this session is to introduce the men to activities and exercises they have not previously attempted before. The physical activities should aim to introduce the participants into activities they have not tried before, not to exhaust the participants. Following on from sessions, men should have the confidence and the knowledge to access activities around the city.

The first three weeks of the course are at St. James Park. The purpose of this is to integrate the men into the club. It is widely thought throughout the literature that attendance and adherence to men's health courses based at football stadiums are due to the feeling of "belonging" to their "childhood club". The first three weeks helps to cement these feelings into the 12<sup>th</sup> Man programme.

### **The participant aims**

Participant of the 12<sup>th</sup> Man programme there are given two aims on the first week of the course. The first is to complete the workbook, also known as the health improvement plan. It is reiterated here that the booklet and course is based around BCTs and theories. If the tasks within the workbook are completed, there is a strong chance that individuals will make a health change. Men often refer to personal trainers as individuals who can help them make real lifestyle changes. The health improvement plan is described to men as being a personal trainer but designed by them. Therefore, all recipes, exercises and self-help techniques are bespoke to the participant as they designed it. The completion of the workbook is important; however, it does not need to be done by the end of the 12-weeks. Men may not feel ready to complete the workbook until after the 12-week programme. This has occurred previously and is not an issue.

The second aim for the participants on the programme is to work as a collective to complete a Social Action project. The project would be an opportunity for the men to work together as a whole or as individual teams to help others in their community. The rationale for this project is that if we do good things for others, we are likely to experience intrinsic happiness. If we are happier, we are more likely to make healthier changes.

### **Weekly sessions**

Each workshop has a theme based on health and wellbeing. Both physical and mental health is discussed but is packaged in a way which does not directly label workshops as this. For example, workshops cover sleep, stress, and happiness, but do not refer to these sessions as



mental health workshops. The reason for this is that men often have stigmas that are associated with mental health and would not relate to topics labelled as mental health. They will, however, discuss how they struggle to manage their sleep, stress, or anger.

The workshops are designed to be facilitate tasks. To repeat what has been mentioned before, the role of the coach is not always to provide answers. There will be times when participants will ask for help and support, during which, it is perfectly reasonable for the coach to provide this. However, there will be other times when the participants can help each other. If the correct atmosphere is created by the coach, the participants will feel comfortable enough to discuss issues that they all experience. A coach who is 20 years younger with no children and no barriers to exercise will struggle to understand the issues experienced by some of the participants. This is when participants will begin to help each other and solve the problems they all share.

A breakdown of the weekly sessions is given below:

<b>Week</b>	<b>Workshop</b>	<b>Physical Activity</b>	<b>Venue</b>
1	Introduction	Walking	St. James Park
2	Barriers to Exercise	Fit Club	St. James Park
3	Barriers to Healthy Eating	Run Club	St. James Park
4	Stress and Sleep	Cycling	Walker Activity Dome
5	Anger	Gym Induction	Walker Activity Dome
6	Happiness	TBC	TBC
7	Self-Help – CBT, Behaviour Activation, Gratitude Practice	Boxing	Advanced Fighting Centre
8	Health Improvement Plan	Walking Football	St. Johns
9	Self-help – Problem Solving Treatment	Tennis	Blaydon Tennis Club
10	<b>Strengthening Your Team</b>	Badminton	Tyneside Badminton Club
11	Social Action Project	Basketball	The Eagles Foundation

12	Health Improvement Plan and Social Action Project	TBC	TBC
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For each weekly session there is a lesson plan from which the coach should follow. The lesson plan describes actions for the coach and the participant, but also the BCTs used throughout the workshops. It is important for coaches to follow the lesson plans and that they include all off the BCTs. If these are not followed there is less of a chance of there being long term change in the participants.

## **1.1 Week 1 – Introduction**

### **Week 1 - Introduction**

### 1.1 Week 1 – Introduction

<b>Aims:</b>	Welcome men to the 12th Man programme and introduce them to the content and aims of the programme.			
<b>Objectives:</b>	1) Understand why 12th man has been designed and how it has been designed.	<b>Tick</b>		
	2) Meet others within the group. Meet introduce themselves to at least 1 other person within the group.			
<b>Timing</b>	<b>Learners will:</b>	<b>Teacher activities:</b>	<b>Resources:</b>	<b>BC techniques</b>
	Enter the room and sit in the chair with their individually designed T-Shirt with all the participants names on.	During registration to the programme, men should be asked to complete a personality questionnaire (TIPI). Those who have similar personality types and ages should be sat together.  Workbooks should also be placed on the tables.	T-shirts  Register  Pens  Workbooks	
5 mins				

### 1.1 Week 1 – Introduction

		<p>Welcome the men to 12th Man. Introduce the programme, this is designed through findings from previous research in men's health, behaviour change and in partnership with exercise professionals.</p> <p><b>Highlight:</b> The aim of the programme is to create long term changes, not short-term fixes. <b>Highlight:</b> Success means different things to different people.</p>	<p>Information about health consequences</p> <p>Information about emotional consequences</p> <p>salience of consequences</p>
15 mins	Move around the room and introduce to each other. Name, job, why are they here, what do they do in the spare time? Why they are in the room	<p>Introduce yourself. Who are we, what do we do, what do we specialise in, what's our favourite pastime. <b>Tell the men who they will introduce themselves too.</b> The purpose is for the men to be partnered with those who have similar personality types. <b>ASK:</b> What are they called, what do they do, why are they here, what do they enjoy doing in their spare time? Specifically, ask them to explain <b>why they are in the room.</b> <b>Tip:</b> Be aware of silences, when the conversation in the room</p>	<p>Credible source</p> <p>Social comparisons</p>

## 1.1 Week 1 – Introduction

		<p>begins to die off, draw the group together again (be aware, extroverts will typically talk for a while).</p> <p><b>Highlight:</b> When people are introducing themselves, be aware of when the coach can relate what has been said back to the course. E.g., “I am here for motivation” “Great, this course has been designed alongside motivation theories like SDT so this will help you.”</p>		
5 mins	Exchange numbers with your number 9 or number 10. This person will support you during your journey. If you need motivation or help with any health topic, this person can be one of your social contacts	Ask men to decide with the individual they have just been speaking with who is the number 9 and who is the number 10 (subject to time, ask them to name each other as famous number 9 or number 10's.). Explain that this person will be used for support throughout the programme and beyond. You will help each other with motivation and with any issues in the future regarding health.		Perceived Support
5 mins				

### 1.1 Week 1 – Introduction

	Discuss opinions of health. Attempt to define the word "health"	Ask the men to discuss what they think a healthy lifestyle is. On a flip chart paper write these down. Ask for a volunteer to do this. Explain that health is being physically, socially, and mentally well. People may be here to lose weight but for us to lose weight we need to enjoy things, have a good social life and be happy. <b>Highlight:</b> that if you are happier, you are more likely to make healthier decisions. This programme will address all aspects of health.		Information about health consequences  Information about emotional consequences
5 mins	Discuss opinions of “Men’s Health”. Understand what men’s health is and why it would be important for there to be a men’s health programme.	There are loads of definitions for men’s health. If people are interested, the UK definition is: “A male health issue is one arising from physiological, psychological, social, cultural or environmental factors that have a specific impact on boys or men and / or in which interventions are required to achieve improvements in health and wellbeing at either the individual or population level”.	Open discussion with the group around “why is men’s health important?”	Information about health consequences



## 1.1 Week 1 – Introduction

		In summary, we need men's health programmes because men don't live as long as women, men neglect their health and men never seek out health services. This can all be dangerous. Having a specific "Men's Health" programme allows us to discuss issues that only men face in relation to their health.		
5 mins	Understand the purpose of the 12-week programme. Look over the content of the 12-weeks and comment on anything.	Introduce the content of the course. We will be discussing all aspects of health during the 12-weeks. This involves keeping mentally as well as physically healthy. Explain the purpose of each session and what we aim to achieve. Then go on to explain the 2 aims of the men for the full programme. These are to complete the HIP and the SAP. Explain why they are asked to do these things.		
5 mins			Workbooks	

### 1.1 Week 1 – Introduction

	Look through the workbook and understand what will be involved in the programme.	Hand out the workbooks to help explain the HIP, SAP, and content of each week.	
10 mins	Look through the workbook and understand what will be involved in the programme. Ask any questions that they feel are relevant.	<p>Explain the purpose of each section. The front is for monitoring. Explain that we may all monitor ourselves differently, you don't have to use all these methods, but they have been shown to help people change their behaviour and live healthier. They do work. Look at choosing at least 1 method of monitoring.</p> <p><b>Highlight:</b> “When you fall off the wagon, which you all will (because everyone will have a Christmas, a holiday or experience grief), then this section can help you to get back on the wagon”.</p> <p>Explain that the middle sections will be completed each week and will help you develop your overall health improvement plan. Once complete, the whole booklet will form part of your health improvement plan. It can help</p>	<p>Instruction on how to perform a behaviour.</p> <p>Goal Setting</p> <p>Self-Monitoring</p> <p>Reduce Negative Emotions</p>

## 1.1 Week 1 – Introduction

		<p>you to keep on track over the long term and to get back on the wagon when you fall off. This is important. It is important to understand that we all fall off, we all get injuries or have events in our lives which make it difficult to choose healthy choices. It's understanding what to do in this situation which can help us in the long term. That's what the self-help workshops will help us to do. In the back of the books are top tips for you to read at your own leisure.</p> <p><b>Highlight:</b> The more people give in sessions, the more you individuals will gain. This is an opportunity for us to address problems, problem solve and help each other improve overall health.</p>		
5 mins		<p>Ask if everyone uses WhatsApp or Facebook and that these will be used to keep everyone up to date with sessions. Add everyone to</p>		

### 1.1 Week 1 – Introduction

		Facebook and WhatsApp groups.		
2 mins	Opportunity to ask questions.	Allow the group to ask any questions they have. Ask the group how they have felt the first session has gone?		

#### *Coaching pointers – Introduction*

Here the main outcome is to give the men the confidence in the course and the coach. The coach should introduce themselves and their expertise. They should then explain that the course is based on academic research and designed to help them achieve their own goals.

## **1.2 Week 2 – Barriers to Exercise**

### **Week 2 – Barriers to Exercise**

## 1.2 Week 2 – Barriers to Exercise

<b>Aims:</b>	By the end of the session all attendees will have identified the barriers that prevent them from exercising. They will have identified what exercises they most enjoy or want to try more of, and they will have created a plan on how to achieve this.			
<b>Objectives:</b>	1) Identify the barriers to completing exercise in their life/excuses	Tick		
	2) Create solutions to barriers that prevent them from exercising	Tick		
	3) Identify sports or exercises that excite the individual and that they want to do more of	Tick		
	4) Create a plan for how to try those exercises or activities more or create a plan of how to do more exercise	Tick		

### Timing

### Learners will:

### Coach instructions:

### Resources:

### BC techniques

2 mins	Describe why they are at the session. Begin to share experiences. Commonly shared experiences will begin to strengthen the group dynamic. Learners will understand that they are on a course with individuals similar to themselves. This will also allow the opportunity for learners to share good practices between themselves.	First introduce that this is an opportunity to share the reasons (excuses) why the learner does not exercise as much as they should. Learners will then be asked to share the common reasons for not exercising. They will then be asked to problem solve and understand how they can avoid these barriers in the future. Ask why they are at the session and what they would ideally		Social comparisons
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## 1.2 Week 2 – Barriers to Exercise

like to get out of the session and the end.

**HIGHLIGHT:** Our role as a coach is not to give you the secret recipe to a healthy lifestyle. If we knew this there would be no such things like obesity. We do not live your lives, we may not have children, we may not struggle to motivate ourselves or we may not work night shifts. However, there are people in the room who do have these similarities which is why it is important for you to share these and help each other find solutions.

**Tip:** Allow time for all participants to voice their opinions during this session.

## 1.2 Week 2 – Barriers to Exercise

10 mins	<p>Write down all the reasons why they find they don't exercise as much as they wish they could. Put them on sticky notes and place them on the board.</p> <p><b>PROMPT:</b> Family commitments. Weather. Time. Money. Motivation.</p>	<p>Ask learners to be honest and write down all the reasons for not exercising on sticky notes. <b>Highlight:</b> all those barriers which are repeated. This helps men to understand that they are not alone with their barriers. When the coach makes conclusive comments, ask if the group agrees to these conclusions. Make a point of making similarities so that a social support and common bond is found. Everyday life appears to make a difference. Ask (rhetorically) how often they watch TV.</p> <p><b>HIGHLIGHT:</b> When motivation is mentioned, this might be an opportunity to explain the SDT. People truly take part in exercise because they enjoy it and feel it is part of their morals and values. This course is designed to move people up the SDT continuum. For more, see coaches' manual on BCTs.</p> <p>Allow coaches to voice their opinions.</p>	<p>Sticky Notes</p> <p>Pens</p>	<p>Social support</p>
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## 1.2 Week 2 – Barriers to Exercise

10 mins	<p>Suggest ways in which to get around the barriers listed on the post it notes. Write down those barriers which they feel they may be able to adopt themselves in their everyday life.</p> <p>Use the workbook to write down how they can avoid barriers in the future.</p>	<p>After looking at the barriers ask if anyone has any ideas as to how we may be able to remove some of these?</p> <p>After asking them to write some tips that they have heard from others and write the ones they feel appropriate to them down in their workbooks.</p> <p>PROMPT: Planning. Finding time. Putting a coat on if it's raining. Being more active during the day (walking up the stairs, parking further away etc.) Encouraging support from family members. Mental visualisation of performance (e.g., mentally visualise getting out of bed on the coldest morning, putting trainers on and going for a walk)</p> <p>Highlight that men should allow time to look themselves. The better they look after themselves, the better they will be at supporting others.</p>	Workbooks	<p>Social support</p> <p>Problem Solving</p> <p>Mental Rehearsal of successful performance</p> <p>Conserve mental resource</p>
5 mins	Suggest activities or sports that they wish they could do more of or could try. List at least 2 of these activities in the "wish list" section of the workbooks.	Ask the group what exercises or sports they enjoy the most. What did they do when they were younger, they wish they could do now? Is there anything they have noticed recently	Workbooks	<p>Social support</p> <p>self-efficacy</p>

## 1.2 Week 2 – Barriers to Exercise

		that they want to do more of? Ask if everyone could list at least 2 activities they either wish they could do more of or would like to try.		
15 mins	Visualise what to do in the next time a barrier is faced. Find the facilities that host the activities that the learner has always wanted to do. Create a plan to achieve for the next week.	Research and create a plan. How are you going to find more time to do activities. How are you going to get over these barriers. Visualise that barrier and what you will do to conquer it. Research what facilities or clubs there are around where the learner lives that facilitate the activities they have highlighted.	Work books	goals and planning  Feedback and monitoring  Work books

### *Coaching pointers – Barriers to Exercise*

The barriers that usually prevent men from exercising include family, time, money, weather, work. Highlighting that an effective planning strategy can help to remove these barriers. Enjoyment of taking part in exercises should also be encouraged. This relates to the SDT and that behaviours are internally regulated when individuals have enjoyment and the want to do those behaviours themselves.

Like other workshops, coaches may feel comfortable enough to share personal stories and challenges. This can help to strengthen the bond between the men. Men should also be encouraged the share stories between themselves. This can help to the emotional support between the participants which is a key component of social support theories.

**Week 3 – The Journey to a Healthier Diet**

### Week 3 – The Journey to a Healthier Diet

<b>Aims:</b>	To equip men with the basic skills needed to make healthier diet choices.			
<b>Objectives:</b>	Understand the essential food items on a shopping list.	<b>Tick</b>		
	Understand how to use the essential items to create simple, quick meals.	<b>Tick</b>		
	Understand how to “build a healthier plate” and control portion sizes.	<b>Tick</b>		
	Begin the first of the weekly diet challenges.	<b>Tick</b>		

<b>Timings (mins)</b>	<b>Learners will</b>	<b>Teacher Activity</b>	<b>Resources</b>	<b>BC technique</b>	<b>Coaching notes</b>
5 mins	Understand that they will have to build upon the knowledge learnt in this lesson to make real changes.	Begin by explaining that this is an introduction to healthy eating. It is an opportunity for group members to share the lessons they have learnt over time. Learners should understand that they will have to take responsibility, build, and apply what they learn within the next hour.			
10 mins	Discuss the different sections. Answer the coaches’ questions.	Introduce the Eatwell plate. This is a tool developed by the NHS to simply explain the types of food we should have in our diet. Allow learners to look over all the sections. <b>Highlight:</b> the sizes of the portions may	Eatwell plate	Credible Source	

### Week 3 – The Journey to a Healthier Diet

		<p>relate to the foods in the shopping or on a plate of food. <b>Questions to ask:</b></p> <ul style="list-style-type: none"> <li>- Are all the sections the same size? Why not?</li> <li>- Where are the teats and snacks?</li> <li>- Highlight healthy fats and ask where we can get these from and what nutrient we get from healthy fats (unsaturated fats, good for heart health).</li> </ul>			
5 mins	Complete the basic shopping list which is relevant to individuals. Don't add in items which they would not like.	Explain that this is the start of the journey to making a healthy plate. The basic shopping lists. Print out Jamie Oliver's basic items for a shopping list. Ask the men to create their own in their workbooks. The aim here is to provide men with the ingredients to create healthy meals.	Basic Shopping list print out.  Workbook		
10 mins	Compete in the competition to make the greatest number of meals they can think of. Write down their top 4 from the rest of the group in their workbook. <b>Challenge:</b> Cook one of these meals by the following week.	Competition with others in the group. Split the group into 2/3 people per group. Ask the men to use the ingredients in their basic shopping list to make as many meals as possible. Points will be awarded for total number of meals, adventurous meals. Ask men to write down any of the meal ideals they hear in the group debate in the relevant sections in the workbook. Write at least 4. Their aim is to try these for the following	Pens and Paper  Workbook	Social comparisons  Action planning	

### Week 3 – The Journey to a Healthier Diet

		week. <b>Highlight:</b> Promote discussion between the group. Suggest healthier alternatives to those ideas that may be unhealthy. <b>Highlight:</b> different meals can be made with the same ingredients. Variety is the spice of life. Meals should also be as easy as possible.			
5 mins	Begin to understand how to use various parts of their hand as guides for building a plate. Use the relevant sections in the workbook to build a plate.	Next stage of the journey, building the plate. Once you have made a shopping list, bought the food, and cooked the food, you need to build the plate. Draw the learners' attention to the relevant sections of the workbook where the learners can begin to understand how to build a plate.	Workbook		
10 mins	Write down one day of food planning in the front of the workbooks. Understand that planning is an essential aspect of living a healthier diet.	<b>Highlight</b> to the learners the importance of preparing food. This includes Buying the correct ingredients from a shopping list. Cooking food in preparation for when time becomes a barrier. Taking food to work or in the car for when temptation becomes too much. Buying containers to transport food and re-heat in the future. Direct learners' attention to the correct section in the workbook for the planning of food diaries. This is in the front section of the workbook. Allow the learners a few minutes to write down 1 day of food planning in the front of the books.	Workbook	Restructuring of the physical environment	

### Week 3 – The Journey to a Healthier Diet

5 mins	Understand the task for the following week. This is to use the ingredients to create a meal for the following week.	Introduce the weekly challenge to the men. This will begin from now until the end of the course. The men will be challenged to use at least the 4 ingredients given in the bottom of the workbook in each week to cook a meal. They will then discuss this meal with the group the following week.	Workbook		
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#### *Coaching pointers – Barriers to Healthy Diet*

A good knowledge of the importance of a balanced diet should be known. Carbohydrates provide the body with energy. Fruits and vegetables contain vitamins and minerals which help with our body's functions. Plant materials are also difficult for the body to digest which means that the digestive system passes them quickly. This is where fibre comes from. Protein helps repair damaged muscles. Oily fish is important for our bodies and should be eaten 2-3 times a week. Fats should come from unsaturated sources which include nuts and seeds.

The main objective of this session is for the men to plan healthier alternatives to unhealthy foods in their life. The coach should suggest healthier alternatives to common snacks and takeaways.

**Week 4 – Sleep and Stress**



## Week 4 – Sleep and Stress

<b>Aims:</b>	All attendees will have increased their knowledge and understanding of the relationship between ‘good’ sleep and stress and will have identified and agreed to implementing at least one, but preferably two actions that will improve sleep and moderate stress.			
<b>Objectives:</b>	1) To understand what the word "stress" means	<b>Tick</b>		
	2) To understand what causes stress daily	<b>Tick</b>		
	3) Know at least 5 ways to help get a better night	<b>Tick</b>		
	4) Outline at least one way to relieve stress and create a plan of how to have a better night's sleep after the session.	<b>Tick</b>		

<b>Timings</b>	<b>Learners will</b>	<b>Teacher Activity</b>	<b>Resources</b>	<b>BC technique</b>
2 mins	Identify what stresses they have in their life as a group	<p>First sell the reason why we are doing this session. This session is based on well researched methods to help people improve their stress and consequently their sleep. If you follow the tips you learn in this session it will help you to deal with everyday stresses.</p> <p>Write down life stresses down on post it notes. Remain anonymous. Bring to the front and we will identify them. Potentially discuss how there could be positive and negative effects of stress. The idea here is to share</p>	<p>Post it notes</p> <p>Pens</p>	Social comparisons

## Week 4 – Sleep and Stress

		<p>common causes of stress so that individuals can begin to learn from each other. <b>If participants share common issues, paraphrase, and reflect on what they have said to ensure the coach has fully understood what has been said.</b></p> <p><b>Tip:</b> Again, highlight that the coach does not similar lives to those in the groups. We may not have children, mortgages, stressful jobs etc. but there may be others in the room who do and can share good practice</p>		
5 mins	<p>What does stress mean to you? Imagine the last time you had a stressful situation. Close your eyes, think about that situation. Can anyone feel anything? Describe the feelings of stress. Where is this on the iceberg? What causes these stressful feelings?</p> <p>LEARNING OBJECTIVE 1</p>	<p>Ask learners to close their eyes and imagine a stressful situation. Highlight physiological responses (feeling warm and bothered, heart beating faster, shortness of breath) feelings of anxiety. Outline the iceberg model. The actions are physiological responses, and these are caused because of our thoughts and feelings which are based on our attitudes and beliefs. So how can we stop thoughts and feels and ultimately the actions? We change our attitudes and beliefs to certain situations that cause the physiological signs of stress. E.g., give examples: Stuck in traffic. We cannot control the traffic, but we can control how we react to it. We can get stressed out or we can learn to live with it and relax.</p>	Pens, Paper	<ul style="list-style-type: none"> <li>• Re-attribution</li> <li>• Credible source</li> <li>• Reduce Negative emotions</li> </ul>

## Week 4 – Sleep and Stress

5 mins	Write down in books causes of stress in their lives	Introduce the stress container. Ask learners to write causes of stress inside the stress container. Everything in their life from forgetting keys to work to grief.	Work books	Self-monitoring of behaviour
5 mins	Discuss how we can relieve stress and write these in the workbooks in the stress container model. OBJECTIVE 2	What methods are there to relieve stress from our stress container? Encourage healthier options (exercise, eat, sleep, music, art, hobby)	Work books	Self-monitoring of behaviour
5 mins	What might cause poor sleep? List as many things as possible in a group. OBJECTIVE 3	<p>Explain that a common cause of stress is a lack of sleep which causes more stress which causes more lack of sleep.</p> <p>List all suggestions for poor sleep. Highlight stress, caffeine, work, and overwork (checking phone for work even when we are at home), work relationships, illnesses, disabilities, mental health...</p>	Sticky notes Pens	<ul style="list-style-type: none"> <li>• Social comparisons</li> <li>• Problem solving</li> </ul>
5 mins	How can we improve sleep? Write in workbooks OBJECTIVE 4	Try to relate this to the real-life examples that have already been given in the task above. Discuss methods to improve sleep: reduce caffeine, mindfulness before bed, no TV, or phones before sleep, have a good sleep routine, black out curtains, cooler room temperature, ear plugs, eye mask...	Workbooks	<ul style="list-style-type: none"> <li>• Goal setting</li> <li>• Action planning</li> </ul>
5 mins	Mindfulness meditation using the Headspace APP	Run through the mindfulness app or a YouTube video on a loud speaker.	Headspace App and Speaker	<ul style="list-style-type: none"> <li>•</li> </ul>

## Week 4 – Sleep and Stress

5 mins	Set goals for stress and sleep.	Try one of the tips given in the session once for next week. Give examples as to what these might be.	Work Books	<ul style="list-style-type: none"><li>• Goal setting</li><li>•</li></ul>
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### *Coaching pointers –Stress and Sleep*

Stress is a biological response to keeping humans safe. It is thought that stress is an evolutionary response. When the pre-historic man perceived danger (i.e., a stressor), his body would release adrenaline. This stress hormone would begin to increase heart rate, breathing rate and sweating rate. This may help to explain headaches – a higher heart rate increases blood pressure and therefore lead to higher pressure on the skull from the brain. Breathing increases to deliver more oxygen to the muscles in readiness for fight or flight. The body also begins to divert blood from the digestive system which may explain butterflies. The immune system is also compromised as there is no need to fight illnesses when in immediate danger.

All these processes were and can sometimes be important in keeping humans safe. But, if these are happening multiple times a day, it can lead to physical illnesses. It is important for the men to recognise the signs and symptoms so that they can reduce their stress.

Sleep is another biological evolutionary tool used to keep humans safe. Up until the 1800's there was no such thing as artificial light in the light bulb. Humans body clocks had evolved to be regulated by the sun. Later in the afternoon and into the evening melatonin is produced. Production of this hormone can be altered by artificial lights, especially the bright light from mobiles and televisions. Understanding why we sleep can help the men to limit poor sleep habits and improve their sleep.

**Week 5 - Anger**

## Week 5 - Anger

<b>Aims:</b>	By the end of the session all attendees will have identified things that often cause them anger. They will learn techniques to control their anger. They will take the next week to identify one cause of anger and what they did in that situation to control their anger.			
<b>Objectives:</b>	5) Identify the triggers of anger in their life	<b>Tick</b>	<input type="checkbox"/>	
	6) Understand methods of avoiding triggers of anger in the future	<b>Tick</b>	<input type="checkbox"/>	
	7) Create a plan for applying methods of avoiding anger in the future	<b>Tick</b>	<input type="checkbox"/>	

<b>Timings</b>	<b>Learners will</b>	<b>Teacher Activity</b>	<b>Resources</b>	<b>BC technique</b>
5 mins	Discuss if they believe they have a problem with Anger. Does Anger ever effect their lives negatively? Begin to understand that there are reasons why people get angry and that it can be ok to be <b>angry</b> but when anger turns into <b>aggression</b> , there is a problem.	Ask if anyone would like to share if they feel they have a problem with Anger. Do they ever have occasions when they feel their Anger is creating stress or is affecting their relationships? Ask if anyone experiences road rage. Ask if anyone gets annoyed at television programmes. Ask if anyone lives with someone who causes them anger. Is Anger always a bad thing? <b>Re-attribution:</b> Explain that anger is never the route cause. Anger is often a consequence because people feel hard done by or are genuinely annoyed.	Discussion	Re-attribution  Social Comparisons  Credible Source
5 mins	Discuss good forms of Anger and bad forms of anger. Key messages include Not everyone will heal to	Anger can be good; it is normal and part of being healthy emotionally. When is anger good? Feeling angry about something can	Discussion	Framing/Reframing

## Week 5 - Anger

	<p>your schedule (if someone is frustrated or angry with you, it may take them longer to forgive you than it would for you to forgive them).</p>	<p>help us identify problems or things that are hurting us. It can motivate us to change, achieve our goals or move on. It can help us stay safe and defend ourselves in dangerous situations. Identifying when we are angry can help. We feel angry when we are deceived or lied too. Unfairly treated. Threatened or attacked. When is anger bad? But it can also be bad and can hurt ourselves or others around us.</p> <p><b>Highlight:</b> This session will not fix any issues. 45minutes will not undo 50 years of bad habits but it is a start to improving.</p>		<p>Credible source</p> <p>Reduce Negative emotions</p> <p>Shaping Knowledge</p>
15 mins	<p>In groups of 3-5 draw the physical symptoms and emotional thoughts that are associated with each of the 3 drawings of anger. Think about if they might recognise these in themselves.</p>	<p>Task to explain anger. Draw outward/violent anger, inward anger and non-violent or passive aggression. Describe the physical appearance and the emotional thoughts. When the task is complete ask if people can identify these in themselves?</p> <p><b>Highlight:</b> The purpose of this task is to identify when we are angry in ourselves. This may even be giving ourselves a hard time. Give example, really annoyed and angry at yourself for smashing your phone. You're so stupid, clumsy and don't deserve anything.</p>	<p>Flip chart paper x 3</p> <p>Pens</p>	<p>Monitoring of emotional consequences</p>

## Week 5 - Anger

5 mins	Can anyone share their own coping strategies for dealing with anger? Discuss if they agree or disagree with what is being suggested. Learning objective 2. Key Messages: You have a choice to make when someone annoys you	Identify short term strategies to dealing with Anger. Does anyone have any methods they use? Use the 3-step rule: 1) look out for warning signs. 2) Buy yourself time to think. 3) try some calming techniques. <b>Tip:</b> Highlight calming techniques: 5,4,3,2,1. Box breathing. Finger breathing	Work books	Reduce negative emotions
15 mins	Revolving activity. 4 flip chart paper each with a heading from one of the 4 strategies to dealing with Anger. Each group is given 2 minutes to describe techniques under the heading. Learning objective 2	Identify long term strategies to deal with anger. 1) identify triggers (mood diary) 2) examine your thought patterns ("always" "never" "should".) 3) develop your communication skills (be assertive) and learn how to say NO. Learning how to say no to tasks and work isn't always a bad thing if you have a good justification as to why you shouldn't take on extra work. 4) look at your lifestyle. Begin revolving task. Key messages are: If you record triggers for a while, you may see a pattern emerging. If thoughts are definite (always, never, should) then replace them with soft words like sometimes, could and try to break negative thinking. Be assertive. This means standing up for yourself while respecting other people's opinions. Try thinking about the outcome you want to achieve. Be specific with feelings "I feel angry with you because...". Listen to other persons response. Be prepared for the conversation to go wrong and spot when this happens. Alcohol,	Flip chart paper x 4  Pens	Self-monitoring of behaviour  Action planning  Problem Solving



## Week 5 - Anger

		exercise, sleep, diet, stress, emotional resilience.		
5 mins	Homework task: set yourself the goal to recognise when you are angry and record what you did in that situation that was helpful and what was not so helpful.	Introduce the homework task. Complete this in the HIP.	Workbooks	Goal setting  Action planning

### *Coaching pointers – Anger*

This week highlights the difference between anger and aggression, how to recognise when individuals are experiencing either of these or what to do to reduce them. Anger is a normal emotion experienced by all humans, sometimes it is justified and sometimes it is useful. Aggression is the behaviour resulting from anger and can be detrimental to health.

There are three types of aggression:

1. **Outward Aggression** – Physically exerting violence or behaviours which can physically harm individuals.
2. **Inward Aggression** – directed at self. Causing self-destruction or removing basic human rights. Examples may include removing food as a punishment to yourself.
3. **Passive Aggression** – behaviour that involves active indirectly aggressive. Examples may include resistance to requests or demands from others, procrastination, stubbornness, or sarcasm.

Methods to reduce short term aggression are:

## Week 5 - Anger

1. Look out for warning signs.
2. Buy yourself time to think.
3. Try some calming techniques. **Tip:** Highlight calming techniques: 5,4,3,2,1. Box breathing. Finger breathing.

A lesson to highlight for this session and is applicable for all previous sessions are that the 45 minutes workshops during this programme will not undo years of bad habits. The participants need to put more effort into the learnings if they want to make changes. The workbook will help but further help may also be needed.

**Week 6 - Happiness**

## Week 6 – Happiness

<b>Aims:</b>	To understand that it is important to be happy. If we are happy in life, we are more likely to make better health choices.			
<b>Objectives:</b>	1) To share with the group personal experiences of happiness	<b>Tick</b>		
	2) To learn where happiness comes from and why it is important to be happy	<b>Tick</b>		
	3) To learn to give ourselves a break when times get tough	<b>Tick</b>		
		<b>Tick</b>		

Timings	Learners will	Teacher Activity	Resources	BC technique
5 mins	<p><b>Group discussion. Ask questions:</b></p> <ul style="list-style-type: none"> <li>What did people think about this session when they first found out they were going to learn about Happiness?</li> </ul>	<p><b><u>Session introduction</u></b></p> <p>Ask questions. Intention here to allow men to be open and honest.</p> <p>It can be highlighted here that if we can see the happier things in life, we are more likely to live a healthier life.</p> <p>E.g., if you have a bad day at work and feel really unhappy, are you more or less likely to exercise and eat healthily?</p>		

## Week 6 – Happiness

	<ul style="list-style-type: none"> <li>• Are they not bothered about it?</li> <li>• Do they think it's important?</li> </ul>			
5 mins		Share personal experience and opinions when the coach first witnessed this session. The coach should be open and honest with their opinions to gain trust from the participants.		
5 mins	<p><b>Learner should understand:</b></p> <ul style="list-style-type: none"> <li>• Everyone gets sad, it is important to keep us alive.</li> <li>• When we are sad, we should understand that this is temporary and not permanent</li> </ul>	<p><b><u>Introduce the lessons</u></b></p> <p><b>Lesson 1, <i>Everyone gets sad:</i></b></p> <p>It is important for us to experience sadness as it is important for us to have happiness. The symbol yin-yang is from Chinese philosophy which explains how everything in nature has opposite and contradictory forces.</p> <p>If we were constantly happy, we wouldn't understand what happiness is. It is important for us to experience sadness otherwise we wouldn't appreciate happiness.</p>		Reduce negative emotions

## Week 6 – Happiness

		<p>If we relate happiness to evolution, it helped to keep us safe. If we think of happiness as safety and sadness as danger, this can help to understand this theory. When we were sad, we were avoiding those situations. <b>E.g.</b>, If we didn't understand sadness and therefore danger, we would probably try to stroke the lion as opposed to run away from it.</p> <p>If we can understand that sadness is temporary it can help us to reduce negative emotions and therefore overcome unhealthy behaviours like stress or exercise avoidance.</p>		
5 mins		<p><b><u>Lesson 2, Practice Happiness.</u></b></p> <p>Happiness is like all other emotions, an electrical stimulus between neurons in the brain. The neuro signals involve chemical and electrical impulses. The more you stimulate these neurons, the quicker the signal becomes. If we have a positive outlook on life and look at the good things in life, we are more likely to use these signals in the brain and have a happier outlook on life.</p>		

## Week 6 – Happiness

		<p>Imagine juggling. At first you are useless and can't catch the ball. After a while of practicing your neurons develop stronger connections and you get better. This is the same with happiness. If you don't practice these neurons, you lose them and struggle to find happiness in life.</p>		
5 mins	<p><b>Learner should understand:</b></p> <ul style="list-style-type: none"> <li>Focusing on only negative things will lead to a negative lifestyle.</li> <li>In amongst all the negativities must be a shred of positivity which is the 10% of our vision or could be 40 out of the 11million pieces of information.</li> </ul>	<p><b><u>Lesson 3, 90% of our vision is peripheral</u></b></p> <p>We can only ever focus on 10% of our surroundings. The other 90% is peripheral and we don't really see this in detail. Can this relate to our attention too? Yes. The human brain receives over 11 million pieces of information per second and we only process 40 (although I have never counted so this could vary).</p> <p>The point of this is that if we are pessimistic and only focusing on the negative (i.e., the 10% or the 40 pieces of information) we could miss the positive.</p> <p>Be more aware of the surroundings and what is happening around us. It's the glass half</p>		

## Week 6 – Happiness

		full/half empty. Our perspective on life can make a big impact on our happiness		
5 mins	<p><b>Learner should understand:</b></p> <ul style="list-style-type: none"> <li>We should give ourselves a break, we cannot control everything, only ourselves. Therefore, if something makes us sad which is out of our control and is not important, we should try to address and change this.</li> </ul>	<p><b><u>Lesson 4, We cannot control everything.</u></b></p> <p>Among many stoic principles and beliefs is that we can't control everything. We are only really in control of our thoughts, feelings, and emotions. If we can't control things, should we let them bother us?</p> <p>Ask learners to begin to record the situations in their lives which make them feel sad or down. Write them in their workbooks and monitor these. See if they can begin to change the way they feel about these situations in the future.</p>		Monitoring of emotional consequences
5 mins	Share personal stories or experiences of happiness	Now, allow the group to share any personal stories of happiness. Is anyone interested in this? Has anyone ever read or heard anything that has changed their perspective on things?		Social comparison
10 mins	Write down on sticky notes all the positive and negative aspects of the course so far. This gives the learner the opportunity to express their opinions on the aspects of the	As this is halfway through the course, it is a good time to ask the men how they feel things are going. Provide everyone with sticky notes, on one write down all the positive aspects of the course and on the other all the negative aspects of the course. These can then		



## Week 6 – Happiness

	course which they feel are working and those which are not.	be attached to a wall or a surface. The coach should then go and summarise all the negative issues and attempt to rectify those that can be rectified. The coach should be aware that not all issues are able to be rectified but this gives the learners the opportunity to voice their opinions.		
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### *Coaching pointers – Happiness*

Happiness is a subject which is often by-passed in health. We often think of happiness as something which is innate and something we should be able to express. This is not always the case. Here, there are 4 key lessons learnt around happiness. Participants should also be given the opportunity for them to add to these lessons during the session. It is also actively encouraged for the coach to read more on this area with the suggested readings of XX. Reading these and the lesson plan should equip the coach with enough knowledge to deliver the sessions.

## Week 7 – Self-Help – CBT, Gratitude Practice and Behaviour Activation

### **Week 7 - Self Help – CBT, Gratitude Practice and Behaviour Activation**

## Week 7 – Self-Help – CBT, Gratitude Practice and Behaviour Activation

<b>Aims:</b>	To learn some methods of self-help which can be applied to the future.		
<b>Objectives:</b>	1) Understand that self-help can be used at home for cheap and can overcome barriers.	<b>Tick</b>	<input type="checkbox"/>
	2) Understand what CBT is and how it may be applied in real life.	<b>Tick</b>	<input type="checkbox"/>
	3) Understand gratitude practice and attempt to apply it	<b>Tick</b>	<input type="checkbox"/>

<b>Timings</b>	<b>Learners will</b>	<b>Teacher Activity</b>	<b>Resources</b>	<b>BC technique</b>
2 mins	Contribute to group discussions. Give ideas as to why self-help is important. Offer suggestions as to when self-help occurs. L.O1	<p><b><u>Why do we need to apply self-help?</u></b></p> <p>Begin a discussion. <b>Encourage:</b> to avoid barriers, to help when times get tough, to help improve ourselves without having to rely on expensive or long waiting list services</p>	Discussion	
2 mins	Understand that these methods are not exclusively for people who have mental health issues. They are used by athletes and high-profile business people to	<b><u>Introduce different methods.</u></b>	Discussion	<p>Credible source</p> <p>Shaping Knowledge</p>

## Week 7 – Self-Help – CBT, Gratitude Practice and Behaviour Activation

	keep their minds sharp and perform at their best. Understand that if you ever feel uncomfortable or need further assistance contact a health professional. Create a safe environment.	5 different self-help methods will be covered in the upcoming weeks. They might not suit all. They are often considered psychological therapies but that doesn't mean you need to have a mental health issue to apply them to everyday lives. <b>(Purpose of this is to explain scientific grounding)</b> Athletes and high-profile business people use these methods to help keep their minds sharp and keep them at their best.		
10 mins	Complete workbook exercise. Identify a problem in life. What are your thoughts during this time? Are they negative thoughts? How do you feel physically? How do you behave in this situation? How are all these linked? Have a group discussion how they may be linked. L.O2	<p><b><u>CBT</u></b></p> <p>This is a way to identify negative thought patterns that can affect the way we feel or how we behave.</p> <p><b>Task: 2 groups, flip chart paper.</b></p> <p>1) Identify a part of the life which frustrates you, you beat yourself up over, feel guilty about or something that really stresses you out.</p>	Workbook	<p>Framing/Reframing</p> <p>Reducing negative emotions</p> <p>Self-reward</p>

## Week 7 – Self-Help – CBT, Gratitude Practice and Behaviour Activation

		<p>2) Identify the thoughts you have during this time. How do you feel physically and how do you behave. E.g., Missed a gym session, feelings of guilt and self-hate, “you’re such a loser, you will never change”.</p> <p>3) Consequences: because of this you avoid the gym for a week and eat rubbish foods. E.g., Deadlines at work, feelings of nervousness, irritability, and anger, “I’ve got no time to do this, I won’t get it done, I will do a poor job and I might get sacked”. Because of this you procrastinate, beat yourself up and avoid the workload making it worse.</p> <p>4) Ask group to reframe their thinking for the examples given above. How can you alter the negative thoughts associated with the initial action and</p>		
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## Week 7 – Self-Help – CBT, Gratitude Practice and Behaviour Activation

		<p>what the consequences of this be? E.g., If you were to give yourself a break and forgive yourself for the missed gym session, you will probably have realised you could go after work or tomorrow.</p> <p><b>Highlight:</b> Giving yourself self-reward when you have achieved something. Praise yourself if there has been effort or progress in performing a behaviour.</p>		
10 mins	<p>Become acquainted with the diary in how to motivate yourself again. This could apply to exercise but can also help you feel better in the future if you ever felt down.</p>	<p><b><u>Behaviour Activation</u></b></p> <p>Using behaviour activation diary to get motivated again.</p> <p>Use the diary to write down a plan of activities for the next week. Try and set a balance of activities, include activities that are enjoyable along with those that are less enjoyable.</p>	Work book	<p>Action Planning</p> <p>Self-monitoring</p>

## Week 7 – Self-Help – CBT, Gratitude Practice and Behaviour Activation

		Use the scale 0 - 10 to score the sense of achievement you felt (A) and the amount of pleasure (P) you felt.		
5 mins	Look at the gratitude practice in the workbooks and attempt it within the next week. L,O3	<p><b><u>Gratitude Practice</u></b></p> <p>Introduce gratitude practice in the workbooks. This is a practice that has been used in many cultures for many years to boost people's wellbeing and happiness.</p> <p>Write down something that you are grateful for each day. By the end of the month, you have 30 things you are grateful for.</p>	Work book	<p>Social Support (emotional)</p> <p>Monitoring of emotional consequences</p> <p>Self-reward</p>

*Coaching pointers – Self Help – CBT, Gratitude Practice, Behaviour Activation.*

Something to highlight for all these sessions are that they will not be applicable for everyone. Learners may use some of the strategies and not others, which is perfectly fine. However, always be open minded when it comes to the strategies as they have been proven to help in the past.

### **Cognitive Behaviour Therapy – CBT**

## Week 7 – Self-Help – CBT, Gratitude Practice and Behaviour Activation

This is a common psychological therapy which is used successfully throughout mental health issues. However, this therapy is not restricted to those who just suffer from poor mental health. It can also be used to address negative ways of thinking and help to adjust these so that, they are positive. For example, you may have confidence issues are exercising and this method can help.

There are three components to CBT. Initial actions, thoughts and feelings and consequences. Everything event in life makes you have thoughts and feelings which ultimately affect your actions and therefor the consequences. If the thoughts and feelings are negative and detrimental to your progress, they can ultimately lead to damaging behaviour. If you can address these negative thoughts and feelings and re-adjust them to be positive, you can avoid the consequences.

The coach should try to use a real-life example for this to help explain. For example:

**Initial Action** – Missed the gym because the children woke up late.

**Thoughts and feelings** – Initial anger and the children. They have prevented you from exercising and therefore improving your health. That leads to thoughts of failure, you've missed this session meaning it's pointless going back. Or I can start again next week, this week I will enjoy my bad health habits including food and drink.

**Consequences** – Initially aggressive at the children. Avoid the gym for the rest of the week. Feelings of guilt and failure leading to finding comfort in food and drink.

If these initial thoughts and feelings were addressed, the situation may have been different. For example:



## Week 7 – Self-Help – CBT, Gratitude Practice and Behaviour Activation

**Thoughts and feelings** – It's not their fault they woke up late. They didn't mean it; it was an easy mistake to make. I can make light of this situation and use the extra time in the morning to ready myself for a run at lunch time. Or I can always go to the gym tomorrow. If I try and eat healthy today, then I am giving myself a good chance at living a healthier life.

### **Behaviour Activation**

This method can help you to identify those events in the learner's life that they find pleasure and achievement from. Putting a numerical value next to those events that are pleasurable and the learner gains achievement from can help the learner to focus on these events in the future. The more time we spend on the things we enjoy, the happier we will be. The happier we are, the healthier we will live.

### **Gratitude Practice**

This is another popular method in boosting individuals' wellbeing. Again, the happier we are, the healthier we live. The concept is to write down 3 things you are grateful for every week. This could be something as big as your family's health to something as small as a nice cup of coffee. It has previously shown significant improvements in people's mental health in the past.

## Week 8 – Health Improvement Plan

### **Week 8 – Health Improvement Plan**

## Week 8 – Health Improvement Plan

<b>Aims:</b>	To discuss the development of the health improvement plan and how learners can continue to use it.		
<b>Objectives:</b>	Understand the importance of the health improvement plan	<b>Tick</b>	<input type="checkbox"/>
	Share experiences of using the health improvement plan	<b>Tick</b>	<input type="checkbox"/>
	Understand how to apply the HIP outside of 12th Man	<b>Tick</b>	<input type="checkbox"/>

Timings	Learners will	Teacher Activity	Resources	BC technique
5 mins	Understand the importance of the health improvement plan L.O. 1	<p><b><u>Importance of health improvement plan</u></b></p> <p>Reiterate to learners the importance of the health improvement plan. Relate how a personal trainer would provide you with one of these, but it wouldn't be personal to you.</p> <p>Explain the plan is based on research and behaviour change theories to help people make improvements to their life.</p>		
10 mins	Share with the group experiences of using the book. Learn from	<p><b><u>Blue section recap</u></b></p> <p>Begin by explaining the blue part of the booklet. Ask if anyone can share their</p>		Goal Setting (outcomes)

## Week 8 – Health Improvement Plan

	<p>others as to how this has helped them progress with their aims.</p>	<p>exercise log and goal setting. <b>Allow time for feedback.</b></p> <p>How are they planning on achieving their goals? Explain the food log and if anyone has referred to this.</p> <p>Ask if anyone has used the gratitude log and if they found it helped?</p> <p>Repeat the same questions for the wellbeing log, key achievements, try something new.</p> <p><b>Highlight:</b> If anyone has been using the goal setting, has anyone decided they may need to review their goals? <b>Allow time for re-assessment of personal goals.</b></p> <p><b>Subject to group dynamics and with considering the quieter group members, consider using smaller groups to discuss</b></p>		<p>Review Goal(s)</p> <p>Outcome</p>
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## Week 8 – Health Improvement Plan

		when and how they have used the blue section.		
10 mins	Re-assess and re-evaluate goals for the future.	In groups, work together to re-assess and re-evaluate goals. This may include changing their goals. Confirm to the group that this is good practice to do so. You may have realised that your original goal was not suitable and therefore needs to be adjusted or you may want to add to your goals that you have already set yourself		
10 mins	As above, learn from others in the group. Take advance from others on the course and how it has helped them.	<p><b><u>Green section recap</u></b></p> <p>Repeat the same as above but with green sections. Ask if anyone can share anything they have found particularly useful.</p>		
10 mins	Share with the group experiences of using the book. Learn from others as to how this has helped them progress with their aims.	<p><b><u>Red section recap</u></b></p> <p>Discuss the red section. This has not previously been referred to so ask if anyone has looked at it so far. Ask if anyone has any books or podcasts to add to their list. Happiness will be discussed in an upcoming week. Talk about top tips to improving exercise and if anyone can add to these.</p>		<p>Social Comparisons</p> <p>Social Support (unspecified)</p>

## Week 8 – Health Improvement Plan

		<b>Highlight:</b> Encourage individuals to praise each other if they have used sections of the book. Advise a round of applause for those who have used the book and found it useful.		
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### *Coaching pointers – Health Improvement Plan*

Goals setting and monitoring and feedback are large parts of BCTs. This may be an opportunity for the participants to adjust their goals as they see fit.

Encourage participants to also think of effective ways of monitoring their progress. Using the blue section in the workbooks can help with this.

**Week 9 – Self-help – Problem Solving Treatment**

### Week 9 self-help – problem solving treatment

<b>Aims:</b>	To learn some methods of self-help which can be applied to the future.			
<b>Objectives:</b>	Understand the basics of problem-solving treatment and how it could be applied to your life.	<b>Tick</b>	<input type="checkbox"/>	
	Attempt to apply the problem-solving method within the next week and evaluate how well you thought this worked.	<b>Tick</b>	<input type="checkbox"/>	

Timings	Learners will	Teacher Activity	Resources	BC technique
2 mins		Introduce problem solving. We are going to generate solutions to problems in your life. 1st step is to have a positive mind-set. Acknowledging you have a problem, it's ok and you can do something about it will help.	Work book	Credible Source
5 mins		Going to use the 5-stage problem solving method developed by Perri et al., (1992). These are described on the white board. 1) orientation. 2) definition. 3) generation of alternatives. 4) decision making. 5) implementation and evaluation. Orientation is that everyone needs to understand that problems are normal and that they can be managed effectively. This is step 1)	Whiteboard or Flip-chart paper if not available	
5 mins	Contribute to problems in their life. Write down a specific problem in the workbook. Write	2) is definition. What is the problem and what causes it? Ask the group to suggest some problems they have in their life. Write group	Workbooks	Problem Solving



### Week 9 self-help – problem solving treatment

	down where you are now and where you want to be in terms of your goals. Be specific as possible,	contributions on the board, individual contributions in workbooks. This diet or exercise (I wish I had the motivation to exercise more). <b>Tip:</b> You may want to use the problems which we identified in the diet week, exercise week, sleep week, anger week or the other self-help week. <b>E.g.,</b> I cannot find motivation to exercise		
5 mins	Create solutions to the problems you have created. Write as many solutions as possible in the workbooks. Be as imaginative as possible.	3) Generation of alternatives. Brainstorm potential solutions to the problems we have created. Write these solutions next to the problems and ask learner to come up with as many solutions as possible to the problem they have created. <b>E.g.,</b> I will find something I enjoy, where it is, when it is, how I get there. I will find others to do this with, family, friends, colleagues. I will find a challenge that I want to complete. I will find time in my diary to make sure I can access this.	Workbooks	Restructuring the physical environment
5 mins	Write down outcomes of each of the solutions you have come up with. What are the possible long term and short-term outcomes of each of these options.	4) Decision making. Anticipate the probable outcome of different options. What are likely positive and negative consequences of each of the options? Select which is the best option to take. <b>E.g.,</b> I might not find anyone to do this with. I might not be confident enough to access this. I might have events that happen in my diary which I cannot move.	Workbook	

### Week 9 self-help – problem solving treatment

5 mins	Choose a solution from the workbook and try implement it within the next week. At the end of the week use the table in the workbook to evaluate it.	5) Implementation and evaluation. Choose a solution that you have made already and try and implement it within the next week. At the end of the week evaluate it using the table in workbooks. <b>E.g.</b> , I am going to access that sport that I want to do. I will create a diary plan with all my exercise in. I will practice putting my trainers on and getting to the front door.	Workbook	Goal Setting (outcome)  Review outcome goal(s).
10 mins	Repeat the following exercise in terms of behaviours that you would like to improve.	Spend the next 10 minutes repeating the exercise for another problem. This time think about a part of your behaviour which you would like to improve. Is this stress? (I wish I didn't get stressed out at my own mistakes). Is this confidence? (I wish I had confidence to walk into a gym). Is this anxious? (I wish I didn't feel nervous before social situations).	Workbook	

#### *Coaching pointers – Self-help, Problem Solving Treatment*

This session is adapted from Perri et al., (1992) who suggested a 5-method plan of addressing problems.

- Orientation – this is the belief the participants have on the method and effectiveness of this tool. They need to commit to and have faith in the methods.
- Definition – identify the problem. What causes it?
- Generation of alternatives – What are all the potential solutions to the problems that are identified. It must be as thorough as possible to predict any issues.

### Week 9 self-help – problem solving treatment

- Decision making – anticipate all the probable outcomes of the different alternative offered above. Again, be as thorough as possible with for all the outcomes so that the individual can predict any disadvantageous outcomes.
- Implementation and evaluation – Choose a solution, implement it, and evaluate its effectiveness. Like monitoring and evaluation.

Week 10 – Picking your team

**Week 10 – Picking your team**

## Week 10 – Picking your team

<b>Aims:</b>	Encourage men to identify potential available support and received support in their social network.			
<b>Objectives:</b>	Identify how learners support their favourite sports team	<b>Tick</b>		
	Relate the above objective to how they support others in their life	<b>Tick</b>		
	Relate the above objective to how others can support the learners in their own life	<b>Tick</b>		
	Identify how to improve and seek social support within their life.	<b>Tick</b>		

<b>Timings</b>	<b>Learners will</b>	<b>Teacher Activity</b>	<b>Resources</b>	<b>BC technique</b>
5 mins		Introduce this session as an opportunity to explore the social networks within the learner's social network. Explain that this is based on psychological research in supporting individuals through health behaviour changes. Brief explanation of the benefits of social support (mental and physical health).		
5 mins	Understand different examples of support	Explain what the different support systems are and why these are important to physical and mental health.		
5 mins	Discuss what the learner does when the team:	Ask the learners to discuss how they act during the different scenarios in the box to the left. <b>Highlight:</b> Verbal encouragement. Praise. Celebration. Support when the team		Stress buffering system? – only because in times of

## Week 10 – Picking your team

	<ul style="list-style-type: none"> <li>• Scores a goal</li> <li>• Are in the lead in the last minutes of the game</li> <li>• Lose the game in the last minute.</li> <li>• When the team are struggling over a season.</li> </ul>	<p>don't do too well. Focus on behaviours and communication.</p>		<p>defeat, this can be stressful.</p> <p>Also, main effects model, so benefits of support irrespective of stress experienced.</p>
5 mins	<p>Discuss how the learner supports others during situations like:</p> <ul style="list-style-type: none"> <li>• A close relation/friend gets a work promotion.</li> <li>• A close relation/friend gets into the last round of interviews but doesn't get the promotion</li> <li>• A close relation/friend fails a driving test.</li> </ul>	<p>Split the group into two or three sub-groups ask them to complete a flip chart paper with the three bullet points on in the box to the left. Ask learners to answer these questions.</p> <p>Ask the learner to discuss how they can support others during life events discuss in the box to the left. <b>Highlight:</b></p> <p><b>Emotional Support</b> (when goals are missed): Listening, talking things through, moral support, encouragement, and reassurance. How does the learner provide these to individuals in their life?</p>		<p>Social Support (Emotional)</p> <p>Esteem Support</p> <p>Informational Support</p> <p>Tangible Support</p>

## Week 10 – Picking your team

		<p><b>Esteem Support</b> (When goals are scored): Bolstering a person's self-confidence.</p> <p><b>Informational support</b> (when someone fails): Advice, guidance, and feedback to help with decision making.</p> <p><b>Tangible Support:</b> e.g., Driving them to the interview, or listening to a presentation in advance.</p> <p>Is there a difference between this and how you support the team? Are you better at supporting your family or football team? What's easier to do?</p> <p>What are the benefits to you after providing this support?</p>		
15 mins	In pairs, work through the tasks given by the teacher. Be aware that there is an option to feedback to the group at the end of the task.	<p>Put group into pairs. Hand out and ask learners to answer the questions on worksheets which are listen bellow:</p> <ol style="list-style-type: none"> <li>1. Who supports you when you are thriving?</li> <li>2. Who supports you when life is dragging by, maybe work isn't going</li> </ol>	Handouts	<p>Perceived Social Support.</p> <p>Esteem Support</p> <p>Informational Support</p> <p>Emotional Support.</p>

## Week 10 – Picking your team

		<p>as planned or your relationship is becoming tough?</p> <p>3. Who supports you when your life is very difficult. This may be during times of grief or financial difficulties.</p> <p>Hand the worksheets with these questions out separately. Allow 2 minutes for the first two questions but longer for the final question.</p> <p>During the final question ask the following questions rhetorically:</p> <ol style="list-style-type: none"> <li>1. How does it feel to be supported?</li> <li>2. Is there any way this support could have been improved?</li> <li>3. What were the positives you learnt from this experience?</li> <li>4. Was there anything that prevented you from asking for help?</li> </ol>		Tangible Support
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## Week 10 – Picking your team

		<p>After the paired task ask if learners were comfortable to discuss this with the group.</p> <p>The intentions are for learners to begin to understand who can support them in their times of need, and what they do to support them. If there is no-one, who could there be? Give examples of the 12<sup>th</sup> Man group or your chosen number 9 or 10.</p>		
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*Coaching pointers – picking your team.*

### **Benefits of being socially healthy**

At the beginning of this session, it is important to inform participants of the physical and mental health benefits of social networks. Social networks and ties can encourage people to make healthier lifestyle choices, i.e., your partner encourages you to eat a healthier diet. It can also help to boost self-esteem if you support other people.

### **Coaching pointers – Pick your own team**

This session is designed to equip participants with the knowledge of support systems. Being a football supporter can relate to how humans support each other in life. We give each other:

**Emotional support** – Being there for comfort and security, leading a person feeling loved and cared for. This can be given through listening, talking, moral support, encouragement, and reassurance. Provide an example from football. i.e., Rafa helping a player when they are having a difficult time in their personal life and being available for players to discuss their feelings.

## Week 10 – Picking your team

**Esteem support** – bolstering a person's sense of confidence or self-esteem. i.e., Rafa reminding a player when they have been successful in the past after making a mistake or shouting encouragement.

**Informational support** – Guidance and advice. Information of guidance, advice, feedback, constructive criticism, and help with decision making. i.e., Rafa suggesting tactical suggestions, such as where a player should run, or what technique they should use.

**Tangible Support-** Concrete instrumental assistance. i.e., Rafa and coaching staff setting out cones and nets in training. Kit man providing clean boots and kit for each training session/match.

It may also be useful for participants to highlight those in their lives who they perceive are available to them in times of difficulty (perceived support) and when they have received support over the last two weeks (received support). What do they think helps them and who helps them? It may be appropriate to highlight that examples of these may include the 12<sup>th</sup> Man group themselves or their number 9 or number 10. Then also highlight members of their existing support network and identify that we don't all go to the same people for the same types of support. We might need to utilise our support network differently, at different times.

### NOTES FROM ADAM MEETING POST THIS DELIVERY:

If, when addressing social support networks during testing/difficult times in the men's lives, and they do not have any obvious support, offer the following options:

- 1) First, ask the men to highlight the importance of social support. What are the implications if a social support network is not put in place?

## Week 10 – Picking your team

- 2) Offer an alternative hypothetical situation of someone they loved who didn't have anyone to support them. If this individual asked you for help, would you think that they were a burden? This should make the men realise that they would not be a burden to others in a similar situation.
- 3) Offer the option of contacting the coach or the 12<sup>th</sup> Man group in these times of need.
- 4) Offer the option to contact local services like the Samaritans or use the BeAGameChanger campaign ran by the club.

It is important to understand that the perception that help is available can be just as important as the help being available.

It is important to understand how to create a comfortable environment for the men in the room. To reiterate this, you could relate this session to a football team. What is said in the changing room, stays in the changing room.

In future, it is important to provide the coach with real key points to maintain consistency. Also encourage the coach to use the real examples given within the group.

Create an action plan within the men's books. These action plans may ask men to address the following issues:

- 1) 3 things to be a better provider of support.
- 2) 2 examples of providing better support for loved ones.
- 3) 1 example of providing support to those in the 12<sup>th</sup> Man group.
- 4) 3 examples of how to improve your own support network.

Ask men to give examples of how they will support each other in this group and how we can apply that to after the course. As a group, come to a conclusion about how to put this into action following the 12-weeks.

## Week 10 – Picking your team

Provide more specific examples for how you support others and how they support you.

Look to challenge men's ideas around how they do support others. What is the evidence that you are supporting your family? Do you support you son more than you do your daughter?

**Week 11 – Social Action Project**

## Week 11 – Social Action Project

<b>Aims:</b>	By the end of the session, all attendees will have contributed to group discussions around how they could help others in their community. Some may share charities, communities, or projects that they are particularly interested in. The conclusion of the session should involve vague plan as how they can help others as a collective.			
<b>Objectives:</b>	1) All learners should share ideas between the group	<b>Tick</b>		
	2) All learners will begin to learn more about their peers	<b>Tick</b>		
	3) Some learners will share interests between other members of the group.	<b>Tick</b>		
		<b>Tick</b>		

<b>Timings</b>	<b>Learners will</b>	<b>Teacher Activity</b>	<b>Resources</b>	<b>BC technique</b>
5 mins	Listen to instructor	<p>Introduce the purpose of the session.</p> <p>We know that when you do good things for others it makes you feel good. Hence “love thy neighbour” “Set your heart on doing good. Do it repeatedly, and you will be filled with joy – Gautama Buddha”.</p> <p>Here, we are going to work together to come up with ideas of helping others. Give examples: Present collection for Oxfam for Christmas. The faith and fitness day. <b>By the</b></p>		

## Week 11 – Social Action Project

		end of the session there will be an aim of 3 social action projects within the group		
20 mins	Work in groups to establish social action projects that learners would like to work on	In groups, learners should discuss anything that is close to their heart. Is there a charity or a group of people you would love to help? Begin thinking of ideas. Begin asking if anyone has any contacts or expertise they could add. First role is determine who is the captains and vice captains. Write these in the books.	Pens,  Paper	1.
5 mins	Decide on 3 projects	Decide on the 3 most important issues or projects that the consensus of the group would like to challenge. Decide on important aims and objectives for each of the three groups.		
5 mins	Delegate responsibilities within the groups for the 3 projects	Split the group into the 3 subgroups. However, if someone is passionate about more than 1 social action project, they can support more than 1. Delegate roles and responsibilities between the groups.		
5 mins	Assign actions for the next meeting	Ask the group to list actions to begin the social action project. Set targets and dates alongside these.		Goal setting  Social Support

## Week 11 – Social Action Project

### *Coaching pointers – Social Action Project*

The purpose of this week is to begin to get the men to work together and develop group bonds. It is also to allow men to plan to give something back to others. This is based on the 5 ways to wellbeing in which one of the 5 ways is to give back to others. When people do good things for others, they often feel better themselves. The better you feel, the more likely you are to make healthier choices.



## Week 12 – Health Improvement Plan and Social Action Project

### **Week 12 – Health Improvement plan and Social Action Project**

## Week 12 – Health Improvement Plan and Social Action Project

<b>Aims:</b>	Allow the group to reflect on the journey so far and begin to plan to the future.			
<b>Objectives:</b>	Develop a more strategic plan for the social action project	<b>Tick</b>		
	Continue to refine the health improvement plan	<b>Tick</b>		
	Say goodbye to the group	<b>Tick</b>		
		<b>Tick</b>		

<b>Timings</b>	<b>Learners will</b>	<b>Teacher Activity</b>	<b>Resources</b>	<b>BC technique</b>
5 mins		Introduce this session as a reflective session. We will look back on the journey and focus on creating aims for the future.		
10 mins	Continue from next week. Are there any actions that have already been taken?	Ask the group to reflect on the previous week. Have they made any progress with either their HIP or SAP? Ask learners to be specific when describing their steps taken.	Pens Paper Workbook	
10 mins	Create steps for the future. Set dates for the SAP, means of keeping in touch.	Ask learners to set dates to meet for the future in relation to the SAP. Ask learners to contribute to discussions around how they will as a group keep in touch. Facilitate this		

## Week 12 – Health Improvement Plan and Social Action Project

		by ensuring social media is up to date with all learners added in.		
5 mins	Share contact details of those in the group as well as all exercise providers.	Ask if anyone would like the contacts that have been used throughout the 12 <sup>th</sup> Man session. Share these contacts with the group. Ask if anyone would like further information for exercise classes around the city.	Pen Paper Workbook	
5 mins	Set new goals or adjust goals if necessary, using the workbooks.	If they feel they have achieved their goal, allow learners time to review goals and set new ones.		Review outcome goal(s)

## **The Atmosphere**

The success of this course has been suggested in post-intervention focus groups to be reliant upon the group cohesion. Men bond during the 12-weeks. They become friends. They invite each other's to weddings and FA cup final parties. The reason for this group cohesion could be due to the similarities individuals share on the course. They are all football fans; they all want to make improvements to their lives, and they are all men with similar physical characteristics. "People like me" is the phrase that is often branded around when participants share their opinions of others on the course.

The 12<sup>th</sup> Man has progressed through feasibility and acceptability pilot stages. Here, the content of the course was trialled with the participants and post-intervention focus groups helped to determine the key components of the course. One of these components was the atmosphere created during the weekly sessions. The atmosphere that was created was reliant upon various factors.

Firstly, the group size aimed to be around 20. From previous conversations with other clubs who ran men's health programmes, it appeared that this was a suitable number of participants. If the numbers were lower, the bigger characters in the group could begin to dominate conversations and disrupt the comfortable atmosphere. The bigger the group, the more opinions could be shared on weekly topics. Groups that had a bigger than 20 cohort would be difficult to accommodate in terms of facilities and activities.

Another factor was that men felt comfortable enough to "open up". Men expressed how sessions were safe enough to discuss topics which would otherwise not be discussed in other social situations. Examples of situations that were given included the pub. This comfortable atmosphere was also carried into the physical activity sessions. There was no "pressure" and no competition between the men which made the exercises far more comfortable to complete.

There was also a suggestion that the group cohesion was important for the men. It motivated the men to return the following week. Men often referred to "camaraderie" as a motivator. The atmosphere was also referred to as "laid back", which also made the men feel safe and encouraged them to return.

Another factor which facilitated the group atmosphere was the qualities the coaches possessed. It was clear to determine that these factors were vital for the men during weekly sessions. These qualities will be discussed in their own section of this manual.

### **The Coach**

It is clear from the findings of the post-intervention that the qualities of a coach are vital for the success of the 12<sup>th</sup> Man Intervention. It is not possible to replicate every coach to be the same, but it is important for coaches to demonstrate the qualities listed below. Throughout the delivery of the intervention, the coach should be mindful of the qualities below and practice them on all occasions.

Firstly, the gender of the coach did not appear to be an issue if the coach still possessed the essential qualities. It was originally proposed that a female instructor could make the men feel self-conscious and would therefore not be comfortable during the course. This appears to not be the truth and men have suggested that the gender of the instructor does not matter.

The essential qualities that were most important were caring, empathetic, approachable, supportive and encouraging. Other qualities that have been mentioned include “not being cocky”, relatable and having a sense of humour. Humour was a very important aspect of the 12-weeks. It allows men to be comfortable and enjoy themselves. The weekly sessions may be the only time during the week when men can share the company of other men. This is a hugely important factor to consider during the 12-weeks and should be capitalised upon throughout. Men have come to the course to enjoy it.

Interestingly, empathy, caring, approachable and supportive were extremely important to the men. Although this is a group of men who on the face of things may demonstrate a stereotypical masculine front (i.e., humour and aggression), it was clear that men can be very vulnerable. They have accessed the course because they want to make a change to their health. This puts them in an exposed position which means the coach must be empathetic and caring. To understand how to be empathetic, watch this YouTube video (“Brene Brown, Empathy vs. Sympathy”) <https://www.youtube.com/watch?v=1Evwgu369Jw>.

If the coach demonstrates care and empathy, they will begin to appear approachable. But this can be reinforced by actively encouraging participants to ask for help and advice. When advice is given, this can be followed with encouragement. Encouragement can be verbal but most

importantly it should be supported with the 12<sup>th</sup> Man workbooks and the content of the course. The coach should regularly refer to the workbook as a tool to help encourage health changes. If the participants follow the books, they will begin to see changes. It may also be worth highlighting that the workbooks do not need to be kept up to date weekly. The participants may feel that they do not want to complete the booklets until they are ready. This may be after the course. That has been known to be done in the past and has proven popular.

The coach should also be knowledgeable. Men often referred to the course being a source of information that they trusted. They would refer to coaches as professionals and individuals who were well informed on physical and mental health. Although coaches will not know the solution to everyone's questions, they will have a good understanding of health. To help support the coach, there is recommended reading for coaches in this manual. Being knowledgeable and offering information forms part of the behaviour change theories and the social connections theories within this programme. Alongside knowledge, the coach should not be afraid to offer real life experience. Being open and honest about the barriers the coach has faced in the past can help the participant to develop relationships and trust the coach with what they are offering.

The coach should also be willing to share personal experiences and stories during the weekly workshops. Appearing vulnerable, like the men, can strengthen the coach-learner bond. Vulnerability may appear in anecdotal experiences of adversity, but the coach may highlight how they overcame these issues.

### **Key information for every coach**

To deliver the content of the course, the coaches need to be well informed on health and wellbeing. They should also practice what they preach in that they too live healthy lives. Coaches are often seen as role models to the men which is why this is important.

The most important key information for coaches is on the trust in the BCTs used within the 12-weeks. BCTs are tools which can be used to motivate and support individuals to change their health. Information given in previous sections will equip coaches with enough knowledge for the delivery of the programmes.

The coach should also have a good understanding of the weekly topics. This information is listed next to the session plans in the above sections. It may also be useful to complete the further reading in the recommended reading sections.

## **Recruitment**

Utilising the football club is essential in the recruitment process. It is important to use the club badge during all recruitment of participants. This can be used through social media platforms, local media outlets or advertising around the ground. With all recruitment materials, the lead coach's information should be included as contact details. When participants contact the coach, they should use the following templates and phone call scripts to ensure participants are fully informed of the 12th Man Intervention. If participants are fully informed, they are more likely to attend regular sessions.

### *Introductory email*

Hi [X]

Thank you for getting in touch relating to our 12<sup>th</sup> Man programme. I will give you a brief introduction into the programme and if you are interested in joining, please let me know and I will organise a phone call.

The 12th Man is a 12-week course which incorporates all aspects of health: physical, mental, and social. Each week we discuss various topics during a workshop which include exercise, diet, stress, sleep, anger, coping strategies and how we can make long term changes to our health. Each week also incorporates a physical activity element where we introduce the 12th Men to various activities and exercises around Newcastle. These include cycling, boxing, tennis, badminton and many more.

If this is a programme which you think might interest you, send me your phone number and a time that suits you best and we can arrange a phone call with further information.

Kind Regards,

[COACHES NAME]

### *Initial phone call key information*

- 12<sup>th</sup> man is a 12-week health and wellbeing intervention and has been designed to create long term health changes in men. During the 12-weeks we cover a range of topics including exercise, diet, stress, sleep, anger, and happiness. We also take part in taster or very basic introductory sessions to activities **around the city** including boxing,

walking football, badminton, tennis and more. These are designed to introduce people and not make people exhausted.

- Obviously, everyone has a life and can't make every singles session, but we ask men to pledge to attend at least 8 of the 12 sessions. This improves the quality of the sessions for everyone involved.
- 9 of the activities that are organised are away from the stadium. This may make it difficult for those who don't drive to access these sessions. Please don't worry as the groups are always happy to offer lifts to and from venues.
- Information about the first week.
- Ask for t-shirt size and nickname, ask to complete the registration form and personality questionnaire, and send back via email.
- Explain the reason for sending the personality questionnaire.

*Follow up email.*

Hi [X]

Thank you for taking my phone call, it was great to chat, and I am really excited to welcome you onto the 12<sup>th</sup> Man programme.

As a reminder, the first date of the 12<sup>th</sup> Man programme will be the [X] between [Xtimes]. We will be in one of the boxes in St. James Park. If you come to the main glass reception in the Milburn Stand, just off Barrack Road, the receptionist will point you in the right direction.

I have attached the registration form and the personality questionnaire which I previously discussed on the phone. If you could complete these and return them to me before the first day of the programme, I would really appreciate it.

If you need anything else, please feel free to let me know.

Kind Regards,

[COACHES NAME]



## Coaches' checklist

### Before the 12<sup>th</sup> Man Intervention

Task	Explanation	Tick
Recruitment	6 weeks before the start of the programme, begin recruitment. This may be through social media or networking events or a prior waiting list. When people make contact, send a template email with further information. This information will include brief 12 <sup>th</sup> Man outline; dates of beginning; enrolment form; explanation of welcome measurement session	
Collect enrolment information	Within the enrolment application or form (online or hard copy), participants should be asked the following information: name; age; postcode; email address; mobile phone number; height; weight; ten-item personality inventory; t-shirt size.  It is essential for mobile numbers to be collected on registration so that dropouts can be followed up. This can also help to encourage attendance as men will be easily contactable if they are absent on concurrent weeks.	
Book venues	Book all the venues for the 12-weeks. The first 3 weeks and the measurement sessions (pre and post) should be at the football stadium. Make sure arrangements are made for both the practical and the classroom sessions at each venue. Record these in a concise document which can be given to participants at weekly sessions.	

### During 12th Man Intervention

Task	Explanation	Tick
Social media	After first week add all participants to WhatsApp and Facebook groups. Following the first week, update participants with opportunities that become available. Encourage weekly support within the group. Ask for pictures of activities and meals they have tried outside of the weekly sessions. Use the social media of any changes in plans.	
Session prep	Ensure all session plans and coaching notes have been read and understood. Prepare resources for each week including flip chart paper, sticky notes, pens, workbooks.	

Weekly register	Record attendance of participants on a weekly register. If participants miss 1 week, WhatsApp them an encouraging message. If they miss 2 weeks, call their mobile to ensure they are ok.	
Weekly catch-up videos	Record 5-minute videos covering the topics in the workshops. This can be personalised for individuals. Using peoples' names in the video to give examples of discussions can be motivating for participants.	
Take pre and post measures	Record, analyse and distribute the pre and post measures taken from participants from the 12 <sup>th</sup> Man Intervention.	

### After 12th Man Intervention

Task	Explanation	Tick
Encourage social action project	Communicate with participants through WhatsApp and Facebook groups with regular support for the social action project. Offer assistance in contacting organisations or arranging events. However, remember this is a participant's project and not the coaches so don't take charge.	
6 month meet ups	Arrange a 6 month meet up. Communicate with participants around what they would like to do for the meet up. Arrange the meet up and attend.	
Social media	Encourage the social media platforms that are available to the 12 <sup>th</sup> Man group. Update these weekly with motivational posts. Questions to the groups are usually interactive for uses. Try any of the follow: <ul style="list-style-type: none"> <li>• What was your favourite week in the 12<sup>th</sup> Man programme?</li> <li>• What activities would you still like to do in the future?</li> <li>• Has anyone used anything they have learnt during the 12-weeks?</li> <li>• Does anyone have any opportunities for others in this group to join you in exercises or activities?</li> </ul>	

## Extended reading

The Buddhist approach to Happiness as explained by Yuval Noah Harari in his book *Sapiens*.

Most religions and philosophies have consequently taken a very different approach to happiness than liberalism does.<sup>3</sup> The Buddhist position is particularly interesting. Buddhism has assigned the question of happiness more importance than perhaps any other human creed. For 2,500 years, Buddhists have systematically studied the essence and causes of happiness, which is why there is a growing interest among the scientific community both in their philosophy and their meditation practices.

Buddhism shares the basic insight of the biological approach to happiness, namely that happiness results from processes occurring within one's body, and not from events in the outside world. However, starting from the same insight, Buddhism reaches very different conclusions.

According to Buddhism, most people identify happiness with pleasant feelings, while identifying suffering with unpleasant feelings. People consequently ascribe immense importance to what they feel, craving to experience more and more pleasures, while avoiding pain. Whatever we do throughout our lives, whether scratching our leg, fidgeting slightly in the chair, or fighting world wars, we are just trying to get pleasant feelings.

The problem, according to Buddhism, is that our feelings are no more than fleeting vibrations, changing every moment, like the ocean waves. If five minutes ago I felt joyful and purposeful, now these feelings are gone, and I might well feel sad and dejected. So if I want to experience pleasant feelings, I have to constantly chase them, while driving away the unpleasant feelings. Even if I succeed, I immediately have to start all over again, without ever getting any lasting reward for my troubles.

What is so important about obtaining such ephemeral prizes?



Why struggle so hard to achieve something that disappears almost as soon as it arises? According to Buddhism, the root of suffering is neither the feeling of pain nor of sadness nor even of meaninglessness. Rather, the real root of suffering is this never-ending and pointless pursuit of ephemeral feelings, which causes us to be in a constant state of tension, restlessness and dissatisfaction. Due to this pursuit, the mind is never satisfied. Even when experiencing pleasure, it is not content, because it fears this feeling might soon disappear, and craves that this feeling should stay and intensify.

People are liberated from suffering not when they experience this or that fleeting pleasure, but rather when they understand the impermanent nature of all their feelings, and stop craving them. This is the aim of Buddhist meditation practices. In meditation, you are supposed to closely observe your mind and body, witness the ceaseless arising and passing of all your feelings, and realise how pointless it is to pursue them. When the pursuit stops, the mind becomes very relaxed, clear and satisfied. All kinds of feelings go on arising and passing – joy, anger, boredom, lust – but once you stop craving particular feelings, you can just accept them for what they are. You live in the present moment instead of fantasising about what might have been.

The resulting serenity is so profound that those who spend their lives in the frenzied pursuit of pleasant feelings can hardly imagine it. It is like a man standing for decades on the seashore, embracing certain 'good' waves and trying to prevent them from disintegrating, while simultaneously pushing back 'bad' waves to prevent them from getting near him. Day in, day out, the man stands on the beach, driving himself crazy with this fruitless exercise. Eventually, he sits down on the sand and just allows the waves to come and go as they please. How peaceful!

This idea is so alien to modern liberal culture that when Western New Age movements encountered Buddhist insights, they translated them into liberal terms, thereby turning them on their head. New



Age cults frequently argue: 'Happiness does not depend on external conditions. It depends only on what we feel inside. People should stop pursuing external achievements such as wealth and status, and connect instead with their inner feelings.' Or more succinctly, 'Happiness begins within.' This is exactly what biologists argue, but more or less the opposite of what Buddha said.

Buddha agreed with modern biology and New Age movements that happiness is independent of external conditions. Yet his more important and far more profound insight was that true happiness is also independent of our inner feelings. Indeed, the more significance we give our feelings, the more we crave them, and the more we suffer. Buddha's recommendation was to stop not only the pursuit of external achievements, but also the pursuit of inner feelings.

To sum up, subjective well-being questionnaires identify our well-being with our subjective feelings, and identify the pursuit of happiness with the pursuit of particular emotional states. In contrast, for many traditional philosophies and religions, such as Buddhism, the key to happiness is to know the truth about yourself – to understand who, or what, you really are. Most people wrongly identify themselves with their feelings, thoughts, likes and dislikes. When they feel anger, they think, 'I am angry. This is my anger.' They consequently spend their life avoiding some kinds of feelings and pursuing others. They never realise that they are not their feelings, and that the relentless pursuit of particular feelings just traps them in misery.

If this is so, then our entire understanding of the history of happiness might be misguided. Maybe it isn't so important whether people's expectations are fulfilled and whether they enjoy pleasant feelings. The main question is whether people know the truth about themselves. What evidence do we have that people today understand this truth any better than ancient foragers or medieval peasants?

Scholars began to study the history of happiness only a few years ago, and we are still formulating initial hypotheses and searching

for appropriate research methods. It's much too early to adopt rigid conclusions and end a debate that's hardly yet begun. What is important is to get to know as many different approaches as possible and to ask the right questions.

Most history books focus on the ideas of great thinkers, the bravery of warriors, the charity of saints and the creativity of artists. They have much to tell about the weaving and unravelling of social structures, about the rise and fall of empires, about the discovery and spread of technologies. Yet they say nothing about how all this influenced the happiness and suffering of individuals. This is the biggest lacuna in our understanding of history. We had better start filling it.

## Appendix. D – Questionnaires from the 12th Man pilot feasibility study

	Question Number	Question
	1	Participant number
	2	Is this your first or second attempt at this questionnaire?
BREQ-2		
BREQ-2 Introjected regulation	3	Using the scale below, please indicate to what extent each of the following items is true for you. I feel guilty when I don't exercise.
BREQ-2 identified regulation	4	Using the scale below, please indicate to what extent each of the following items is true for you. I value the benefits of exercise
BREQ-2 intrinsic motivation	5	Using the scale below, please indicate to what extent each of the following items is true for you. I exercise because it's fun
BREQ-2 amotivation	6	Using the scale below, please indicate to what extent each of the following items is true for you. I don't see why I have to exercise
BREQ-2 External regulation	7	Using the scale below, please indicate to what extent each of the following items is true for you. I take part in exercise because my friends/family/partner say I should

BREQ-2 Introjected regulation	8	Using the scale below, please indicate to what extent each of the following items is true for you. I feel ashamed when I miss an exercise session.
BREQ-2 identified regulation	9	Using the scale below, please indicate to what extent each of the following items is true for you. It is important to me to exercise regularly.
BREQ-2 amotivation	10	Using the scale below, please indicate to what extent each of the following items is true for you. I can't see why I should bother exercising.
BREQ-2 intrinsic motivation	11	Using the scale below, please indicate to what extent each of the following items is true for you. I enjoy my exercise sessions.
HAPA – Action panning for nutrition		Most people intend to further improve their nutrition by eating less salt and fat. How about you? I already have concrete plans...  From 1 ( <i>not at all true</i> ) to 4 ( <i>exactly true</i> )
	12	how to change my nutritional habits.
	13	when to change my nutritional habits.
	14	when to especially watch out in order to maintain my new nutritional habits.
	15	what to do in difficult situations in order to stick with my intentions.
	16	how to deal with relapses.
HAPA – Action		Do you already have concrete plans in regard to exercising? I already have concrete plans...



planning for exercise		From 1 ( <i>not at all true</i> ) to 4 ( <i>exactly true</i> )
	17	...when to exercise.
	18	...where to exercise.
	19	...how to exercise.
	20	...with whom to exercise.
HAPA – Coping planning		Do you already have concrete plans for your new exercise schedule (habits)? I already have concrete plans...
	21	... what to do if something intervenes.
	22	... what to do if I miss an exercise session.
	23	... what to do in difficult situations in order to stick to my intentions.
	24	... when to especially watch out in order to stay committed.
Self-efficacy for nutrition		Certain barriers make it hard to change one's nutrition habits. How sure are you that you can overcome the following obstacles? I can stick to a healthy (low-fat or low salt) diet even...
	25	... if I have to learn more about my nutrition.
	26	... if I initially have to watch what I eat in social situations.
	27	... if I fail initially and have to start again.
	28	... if I initially don't get much support.

	29	... if my partner/ my family don't change their nutritional habits.
Motivational self-efficacy		Certain barriers make it hard to begin exercising. How sure are you that you can begin exercising regularly? I am sure that...
	30	I can change to a physically active lifestyle
	31	I can be physically active once a week.
	32	I can be physically active at least 3 times a week for 30 minutes.
Precautionary self-efficacy		It is always hard to get started. How sure are you that you can start exercising regularly? I am sure I can start being physically active immediately even if...
	33	... I initially have to reconsider my views on physical activity.
	34	... the planning for this is very laborious.
	35	... I have to force myself to start immediately.
	36	... I have to push myself
Coping self-efficacy		It is important to stay physically active. Are you confident you can manage that? I am sure I can keep being physically active regularly even if...
	37	... it takes me a long time to make a habit.
	38	... I am worried and troubled.
	39	... I don't see immediate improvements.
	40	... I am tired.
	41	... I am stressed out.

	42	... I don't get social support for my first attempts.
	43	... I have to start again several times before I succeed.
	44	... my partner/family isn't physically active.
Recovery self-efficacy		In spite of good intentions, smaller or larger relapses may occur. Imagine you stopped exercising for some time. How confident are you about restarting exercise? I am sure I can be physically active again regularly, even if...
	45	... I postpone my plans several times.
	46	... I am not able to pull myself together sometimes.
	47	... I have already paused for several weeks.
General self-efficacy		Please rate the statements below from not at all true to exactly true.
	48	I can always manage to solve difficult problems if I try hard enough.
	49	If someone opposes me, I can find the ways and means to get what I want.
	50	It is easy for me to stick to my aims and achieve my goals.
	51	I am confident that I can deal efficiently with unexpectedly events.
	52	Thanks to my resourcefulness, I know how to handle unforeseen situations.
	53	I can solve most problems if I invest the necessary effort.
	54	I can remain calm when facing difficulties because I can rely on my coping abilities.

	55	When I am confronted with a problem, I can usually find several solutions.
	56	If I am in trouble, I can usually think of a solution.
	57	I can usually handle whatever comes my way.
Rosenberg self-esteem scale		Please rate the statements below from strongly disagree to strongly agree.
	59	On the whole, I am satisfied with myself.
	60	At times I think I am not good at all.
	61	I feel that I have a number of good qualities.
	62	I am able to do things as well as most other people.
	63	I feel that I do not have much to be proud of.
	64	I certainly feel useless at times.
	65	I feel that I am a person of worth, at least on equal plane with others.
	66	I wish I could have more respect for myself.
	67	All in all, I am inclined to feel that I am failure.
	68	I take a positive attitude toward myself
EQ-5D-5L		Under each heading, please describe ONE box that describes your health today
	69	MOBILITY
		I have no problems in walking about.

		I have slight problems in walking about.
		I have moderate problems in walking about.
		I have severe problems in walking about.
		I am unable to walk about.
	70	SELF-CARE
		I have no problems washing or dressing myself.
		I have slight problems washing or dressing myself.
		I have moderate problems washing or dressing myself.
		I have severe problems washing or dressing myself
		I am unable to wash or dress myself.
	71	Usual activities (e.g., work, study, housework, family or leisure activities)
		I have no problems doing my usual activities.
		I have slight problems doing my usual activities.
		I have moderate problems doing my usual activities.
		I have severe problems doing my usual activities.
		I am unable to do my usual activities.
	72	Pain/Discomfort
		I have no pain or discomfort.
		I have slight pain or discomfort.
		I have moderate pain or discomfort.

		I have severe pain or discomfort.
		I have extreme pain or discomfort.
	73	Anxiety/depression
		I am not anxious or depressed
		I am slightly anxious or depressed
		I am moderately anxious or depressed
		I am severely anxious or depressed
		I am extremely anxious or depressed
	74	We would like to know how good or bad your health is today. This scale is numbered from 0 to 100. 100 means the best health you can imagine. 0 means the worst health you can imagine. Mark on the scale how your health is today.

## Appendix. E – COREQ: Chapter 5

Developed from:

Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

No. Item	Guide questions/description	Reported on Page #
Domain 1: Research team and reflexivity		
<i>Personal Characteristics</i>		
1. Inter viewer/facilitator	Which author/s conducted the interview or focus group?	4.2.4
2. Credentials	What were the researcher's credentials? E.g. PhD, MD	Not reported
3. Occupation	What was their occupation at the time of the study?	Not reported
4. Gender	Was the researcher male or female?	4.2.4
5. Experience and training	What experience or training did the researcher have?	4.2.4
<i>Relationship with participants</i>		
6. Relationship established	Was a relationship established prior to study commencement?	4.2.4
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	4.2.4
8. Interviewer characteristics	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	Not reported
Domain 2: study design		

<i>Theoretical framework</i>		
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	4.2.4
<i>Participant selection</i>		
10. Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	4.2.2
11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	4.2.2
12. Sample size	How many participants were in the study?	4.3.2
13. Non-participation	How many people refused to participate or dropped out? Reasons?	Not reported
<i>Setting</i>		
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	4.3.2
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	Not reported
16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	4.3.2
<i>Data collection</i>		
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	4.2.4
18. Repeat interviews	Were repeat inter views carried out? If yes, how many?	4.3.2
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	4.3.2
20. Field notes	Were field notes made during and/or after the interview or focus group?	Not reported



21. Duration	What was the duration of the inter views or focus group?	4.3.2
22. Data saturation	Was data saturation discussed?	Not reported
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	Not reported
Domain 3: analysis and findings		
<i>Data analysis</i>		
24. Number of data coders	How many data coders coded the data?	Not reported
25. Description of the coding tree	Did authors provide a description of the coding tree?	Not reported
26. Derivation of themes	Were themes identified in advance or derived from the data?	<b>4.3.2</b>
27. Software	What software, if applicable, was used to manage the data?	Not reported
28. Participant checking	Did participants provide feedback on the findings?	Not reported
<i>Reporting</i>		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	4.3.2
30. Data and findings consistent	Was there consistency between the data presented and the findings?	4.3.2
31. Clarity of major themes	Were major themes clearly presented in the findings?	4.3.2
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	4.3.2

## Appendix. F – Focus group topic guide for Chapter 5

### *Topic Guide*

Areas of enjoyment in the course

Favourable and unfavourable modules

Opinions of taking part in research

Draw backs of research participation

Health behaviour that have been adopted

Scope for future development.

### *Proposed Questions*

1	<p>What was it about 12<sup>th</sup> Man that interested you in the first place?</p> <p>- <b>Prompt</b> – If this was delivered in a different setting would this still interest you? For example, if this was delivered in your GP surgery, would you have gone along? If not, why not?</p>
2	<p>After the first workshop, what made you come back for the rest of the programme?</p> <p>- <b>Prompts:</b> Was it the setting or surroundings? Was it the programme or the content of the programme? Was it the instructor? What was it about the instructor that made you come back? Was it the other people on the programme? Why was it the other people?</p>
3	<p>Which workshops did you find most useful and why?</p> <p>Reminder of workshops:</p> <ul style="list-style-type: none"><li>• Exercise barriers</li><li>• Diet</li><li>• Sleep and Stress</li><li>• Social Action Project</li></ul>

	<ul style="list-style-type: none"> <li>• Anger</li> <li>• Self-help (C.B.T. Problem Solving training)</li> <li>• Health Improvement Plan</li> <li>• Happiness</li> </ul> <ul style="list-style-type: none"> <li>- Prompt:</li> <li>- What do you think of the delivery style?</li> <li>- Was there anything you expected the programme to cover, and it didn't?</li> <li>- Were any materials used during the workshops specifically useful?</li> </ul>
4	<p>Which workshops did you dislike or not enjoy and why?</p> <ul style="list-style-type: none"> <li>• How would you improve these workshops?</li> </ul>
5	<p>Outside of weekly sessions, what from the 12<sup>th</sup> Man programme helped you to make changes?</p> <ul style="list-style-type: none"> <li>- Prompt the weekly video update, the Facebook page, the WhatsApp groups.</li> <li>- Which of these things increased the likelihood of you making healthier choices?</li> <li>- What was it about these group that was particularly useful?</li> </ul>
6	<p>Was there anything in particular about the instructors/coaches that helped you to engage in the 12<sup>th</sup> Man programme.</p>
7	<p>Was there anything that you have done in addition to attending the 12<sup>th</sup> Man programme that you think has helped you to make positive changes?</p> <ul style="list-style-type: none"> <li>- Prompts: Any external exercise programmes, used any self-help tips or advice from books or podcasts, applied mindfulness meditation, changed your diet, and if so, how?</li> </ul>
8	<p>How did you find the experience of having measures taken at St. James Park?</p> <ul style="list-style-type: none"> <li>- <b>Prompts:</b> Accessibility, attraction of the club, atmosphere created</li> <li>- If we were to run this programme again but take the measures at the University by someone else, would you have done this?</li> <li>- What were your perceptions of having blood taken at St. James Park?</li> </ul>

9	<p>As part of this programme, you entered into a research study. Were you aware of this at the time? To what extent did it increase the likelihood of taking part?</p> <ul style="list-style-type: none"> <li>- <b>Prompts:</b> What did you think about the amount of time the research side of the programme takes – too much/too little?</li> <li>- How did you find completing the questionnaires</li> </ul>
10	<p>What have you learned from the 12<sup>th</sup> Man programme that you will continue to do or use?</p> <ul style="list-style-type: none"> <li>- <b>Prompts:</b> What have you changed in your life?</li> <li>- What have you learned from the programme that will continue to be important to you?</li> </ul>
11	<p>What were your thoughts about the health improvement plan and the social action programme? What did you gain from these if anything? What was not useful for you?</p>
12	<p>So, you have all completed the programme, what do you have planned now? What are you going to do after the 12<sup>th</sup> Man programme? What could you improve in the future?</p>
13	<p>What do you believe would improve about the 12<sup>th</sup> Man programme?</p> <ul style="list-style-type: none"> <li>- <b>Prompts:</b> Where it was delivered, the way it was delivered, how it was delivered (e.g., face-to-face), and the person delivered the programme (older, health professional, female)</li> <li>- Was 12-weeks appropriate, would you prefer a longer or shorter programme? What about the weekly sessions, would you prefer these to be longer or shorter?</li> </ul>
14	<p>Would you recommend the programme to someone else??</p> <ul style="list-style-type: none"> <li>- If yes, why?</li> <li>- If no, why</li> </ul>

**Ask all participants to bring their workbooks as reminders.**

## Appendix. G – R Script

```
##### Exercise #####
```

```
# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst  
controlling for baseline weight
```

```
Exercise_ANCOVA <- aov(Exercise_post ~ Group + Exercise_pre, data = PhysData, na.action =  
na.exclude)
```

```
# Return p-value for the effect of Group
```

```
Anova(Exercise_ANCOVA, type = "III")
```

```
# Calculate the mean difference with 95% confidence interval
```

```
Exercise_PostHoc <- glht(Exercise_ANCOVA, linfct = mcp(Group = "Tukey"))
```

```
summary(Exercise_PostHoc)
```

```
confint(Exercise_PostHoc)
```

```
##### Exercise_Reg #####
```

```
# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst  
controlling for baseline weight
```

```
Exercise_Reg_ANCOVA <- aov(Exercise_Reg_post ~ Group + Exercise_Reg_pre, data = PhysData,  
na.action = na.exclude)
```

```
# Return p-value for the effect of Group
```

```
Anova(Exercise_Reg_ANCOVA, type = "III")
```

```
# Calculate the mean difference with 95% confidence interval
```

```
Exercise_Reg_PostHoc <- glht(Exercise_Reg_ANCOVA, linfct = mcp(Group = "Tukey"))
```

```
summary(Exercise_Reg_PostHoc)
```

```
confint(Exercise_Reg_PostHoc)
```

```
##### how_to_change #####
```

```
# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst  
controlling for baseline weight
```

```
# Weight_POST = Dependent variable
```

```
# Group = Independent variable (two levels: Intervention & Control)
```

```
# Weight_PRE = covariate
```

```
how_to_change_ANCOVA <- aov(how_to_change_Post ~ Group + how_to_change_pre, data =  
PhysData, na.action = na.exclude)
```

```
# Return p-value for the effect of Group
```

```
Anova(how_to_change_ANCOVA, type = "III")
```

```
# Calculate the mean difference with 95% confidence interval
```

```
Shame_PostHoc <- glht(how_to_change_ANCOVA, linfct = mcp(Group = "Tukey"))
```

```
summary(how_to_change_PostHoc)
```

```
confint(how_to_change_PostHoc)
```

```
##### When_to_change #####
```

```
# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst  
controlling for baseline weight
```

```
# Weight_POST = Dependent variable
```

```
# Group = Independent variable (two levels: Intervention & Control)
```

```
# Weight_PRE = covariate
```

```
When_to_change_ANCOVA <- aov(When_to_change_pre ~ Group + When_to_change_post, data =  
  PhysData, na.action = na.exclude)
```

```
# Return p-value for the effect of Group
```

```
Anova(When_to_change_ANCOVA, type = "III")
```

```
# Calculate the mean difference with 95% confidence interval
```

```
When_to_change_PostHoc <- glht(When_to_change_ANCOVA, linfct = mcp(Group = "Tukey"))
```

```
summary(When_to_change_PostHoc)
```

```
confint(When_to_change_PostHoc)
```

```
##### Watch_out #####
```

```
# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst  
  controlling for baseline weight
```

```
# Weight_POST = Dependent variable
```

```
# Group = Independent variable (two levels: Intervention & Control)
```

```
# Weight_PRE = covariate
```

```
Watch_out_ANCOVA <- aov(Watch_out_post ~ Group + Watch_out_pre, data = PhysData, na.action  
  = na.exclude)
```

```
# Return p-value for the effect of Group
```

```
Anova(Watch_out_ANCOVA, type = "III")
```

```
# Calculate the mean difference with 95% confidence interval
```

```
Watch_out_PostHoc <- glht(Watch_out_ANCOVA, linfct = mcp(Group = "Tukey"))
```

```
summary(Watch_out_PostHoc)
```

```
confint(Watch_out_PostHoc)
```

```
##### Difficult_situations #####
```

```
# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst  
controlling for baseline weight
```

```
# Weight_POST = Dependent variable
```

```
# Group = Independent variable (two levels: Intervention & Control)
```

```
# Weight_PRE = covariate
```

```
Difficult_situations_ANCOVA <- aov(Difficult_situations_post ~ Group + Difficult_situations_pre, data  
= PhysData, na.action = na.exclude)
```

```
# Return p-value for the effect of Group
```

```
Anova(Difficult_situations_ANCOVA, type = "III")
```

```
# Calculate the mean difference with 95% confidence interval
```

```
Difficult_situations_PostHoc <- glht(Difficult_situations_ANCOVA, linfct = mcp(Group = "Tukey"))
```

```
summary(Difficult_situations_PostHoc)
```

```
confint(Difficult_situations_PostHoc)
```

```
##### Relapse #####
```

```
# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst  
controlling for baseline weight
```

```
# Weight_POST = Dependent variable
```

```
# Group = Independent variable (two levels: Intervention & Control)
```

```
# Weight_PRE = covariate
```

```
Relapse_ANCOVA <- aov(Relapse_post ~ Group + Relapse_pre, data = PhysData, na.action =  
na.exclude)
```

```
# Return p-value for the effect of Group
```



```
Anova(Relapse_ANCOVA, type = "III")
```

```
# Calculate the mean difference with 95% confidence interval
```

```
Relapse_PostHoc <- glht(Relapse_ANCOVA, linfct = mcp(Group = "Tukey"))
```

```
summary(Relapse_PostHoc)
```

```
confint(Relapse_PostHoc)
```

```
##### When_exercise #####
```

```
# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst  
controlling for baseline weight
```

```
# Weight_POST = Dependent variable
```

```
# Group = Independent variable (two levels: Intervention & Control)
```

```
# Weight_PRE = covariate
```

```
When_exercise_ANCOVA <- aov(When_exercise_post ~ Group + When_exercise_pre, data =  
PhysData, na.action = na.exclude)
```

```
# Return p-value for the effect of Group
```

```
Anova(When_exercise_ANCOVA, type = "III")
```

```
# Calculate the mean difference with 95% confidence interval
```

```
When_exercise_PostHoc <- glht(When_exercise_ANCOVA, linfct = mcp(Group = "Tukey"))
```

```
summary(When_exercise_PostHoc)
```

```
confint(When_exercise_PostHoc)
```

```
##### Where_exercise #####
```

```
# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst  
controlling for baseline weight
```

```

# Weight_POST = Dependent variable

# Group = Independent variable (two levels: Intervention & Control)

# Weight_PRE = covariate

Where_exercise_ANCOVA <- aov(Where_exercise_post ~ Group + Where_exercise_pre, data =
  PhysData, na.action = na.exclude)

# Return p-value for the effect of Group

Anova(Where_exercise_ANCOVA, type = "III")

# Calculate the mean difference with 95% confidence interval

Where_exercise_PostHoc <- glht(Where_exercise_ANCOVA, linfct = mcp(Group = "Tukey"))

summary(Where_exercise_PostHoc)

confint(Where_exercise_PostHoc)

##### How_exercise #####

# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst
  controlling for baseline weight

# Weight_POST = Dependent variable

# Group = Independent variable (two levels: Intervention & Control)

# Weight_PRE = covariate

How_exercise_ANCOVA <- aov(How_exercise_post ~ Group + How_exercise_pre, data = PhysData,
  na.action = na.exclude)

# Return p-value for the effect of Group

Anova(How_exercise_ANCOVA, type = "III")

# Calculate the mean difference with 95% confidence interval

How_exercise_PostHoc <- glht(How_exercise_ANCOVA, linfct = mcp(Group = "Tukey"))

```

```
summary(How_exercise_PostHoc)
```

```
confint(How_exercise_PostHoc)
```

```
##### How_often #####
```

```
# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst  
controlling for baseline weight
```

```
# Weight_POST = Dependent variable
```

```
# Group = Independent variable (two levels: Intervention & Control)
```

```
# Weight_PRE = covariate
```

```
How_often_ANCOVA <- aov(How_often_post ~ Group + How_often_pre, data = PhysData, na.action  
= na.exclude)
```

```
# Return p-value for the effect of Group
```

```
Anova(How_often_ANCOVA, type = "III")
```

```
# Calculate the mean difference with 95% confidence interval
```

```
How_often_PostHoc <- glht(How_often_ANCOVA, linfct = mcp(Group = "Tukey"))
```

```
summary(How_often_PostHoc)
```

```
confint(How_often_PostHoc)
```

```
##### With #####
```

```
# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst  
controlling for baseline weight
```

```
# Weight_POST = Dependent variable
```

```
# Group = Independent variable (two levels: Intervention & Control)
```

```
# Weight_PRE = covariate
```

```
With_ANCOVA <- aov(With_post ~ Group + With_pre, data = PhysData, na.action = na.exclude)
```

```

# Return p-value for the effect of Group

Anova(With_ANCOVA, type = "III")

# Calculate the mean difference with 95% confidence interval

With_PostHoc <- glht(With_ANCOVA, linfct = mcp(Group = "Tukey"))

summary(With_PostHoc)

confint(With_PostHoc)

##### Intervenes #####

# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst
controlling for baseline weight

# Weight_POST = Dependent variable

# Group = Independent variable (two levels: Intervention & Control)

# Weight_PRE = covariate

Intervenes_ANCOVA <- aov(Intervenes_post ~ Group + Intervenes_pre, data = PhysData, na.action =
na.exclude)

# Return p-value for the effect of Group

Anova(Intervenes_ANCOVA, type = "III")

# Calculate the mean difference with 95% confidence interval

Intervenes_PostHoc <- glht(Intervenes_ANCOVA, linfct = mcp(Group = "Tukey"))

summary(Intervenes_PostHoc)

confint(Intervenes_PostHoc)

##### Miss_session #####

```

```

# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst
controlling for baseline weight

# Weight_POST = Dependent variable

# Group = Independent variable (two levels: Intervention & Control)

# Weight_PRE = covariate

Miss_session_ANCOVA <- aov(Miss_session_post ~ Group + Miss_session_pre, data = PhysData,
na.action = na.exclude)

# Return p-value for the effect of Group

Anova(Miss_session_ANCOVA, type = "III")

# Calculate the mean difference with 95% confidence interval

Miss_session_PostHoc <- glht(Miss_session_ANCOVA, linfct = mcp(Group = "Tukey"))

summary(Miss_session_PostHoc)

confint(Miss_session_PostHoc)

#####

##### Weight #####

# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst
controlling for baseline weight

# Weight_POST = Dependent variable

# Group = Independent variable (two levels: Intervention & Control)

# Weight_PRE = covariate

Weight_ANCOVA <- aov(Weight_POST ~ Group + Weight_PRE, data = PhysData, na.action =
na.exclude)

```

```

# Return p-value for the effect of Group

Anova(Weight_ANCOVA, type = "III")

# Calculate the mean difference with 95% confidence interval

Weight_PostHoc <- glht(Weight_ANCOVA, linfct = mcp(Group = "Tukey"))

summary(Weight_PostHoc)

confint(Weight_PostHoc)

##### BMI #####

# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst
controlling for baseline weight

BMI_ANCOVA <- aov(BMI_POST ~ Group + BMI_PRE, data = PhysData, na.action = na.exclude)

# Return p-value for the effect of Group

Anova(BMI_ANCOVA, type = "III")

# Calculate the mean difference with 95% confidence interval

BMI_PostHoc <- glht(BMI_ANCOVA, linfct = mcp(Group = "Tukey"))

summary(BMI_PostHoc)

confint(BMI_PostHoc)

##### Waist circumference #####

# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst
controlling for baseline weight

Waist_ANCOVA <- aov(Waist_POST ~ Group + Waist_PRE, data = PhysData, na.action = na.exclude)

```

```

# Return p-value for the effect of Group

Anova(Waist_ANCOVA, type = "III")

# Calculate the mean difference with 95% confidence interval

Waist_PostHoc <- glht(Waist_ANCOVA, linfct = mcp(Group = "Tukey"))

summary(Waist_PostHoc)

confint(Waist_PostHoc)

##### BP Systolic #####

# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst
controlling for baseline weight

# Weight_POST = Dependent variable

# Group = Independent variable (two levels: Intervention & Control)

# Weight_PRE = covariate

BP_Systolic_ANCOVA <- aov(BP_Systolic_POST ~ Group + BP_Systolic_PRE, data = PhysData,
na.action = na.exclude)

# Return p-value for the effect of Group

Anova(BP_Systolic_ANCOVA, type = "III")

# Calculate the mean difference with 95% confidence interval

BP_Systolic_PostHoc <- glht(BP_Systolic_ANCOVA, linfct = mcp(Group = "Tukey"))

summary(BP_Systolic_PostHoc)

confint(BP_Systolic_PostHoc)

##### BP diastolic #####

```

```

# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst
controlling for baseline weight

# Weight_POST = Dependent variable

# Group = Independent variable (two levels: Intervention & Control)

# Weight_PRE = covariate

BP_Diastolic_ANCOVA <- aov(BP_Diastolic_POST ~ Group + BP_Diastolic_PRE, data = PhysData,
na.action = na.exclude)

# Return p-value for the effect of Group

Anova(BP_Diastolic_ANCOVA, type = "III")

# Calculate the mean difference with 95% confidence interval

BP_Diastolic_PostHoc <- glht(BP_Diastolic_ANCOVA, linfct = mcp(Group = "Tukey"))

summary(BP_Diastolic_PostHoc)

confint(BP_Diastolic_PostHoc)

##### Glucose #####

# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst
controlling for baseline weight

# Glucose_POST = Dependent variable

# Group = Independent variable (two levels: Intervention & Control)

# Weight_PRE = covariate

Glucose_ANCOVA <- aov(Glucose_POST ~ Group + Glucose_PRE, data = PhysData, na.action =
na.exclude)

# Return p-value for the effect of Group

Anova(Glucose_ANCOVA, type = "III")

```



```

# Calculate the mean difference with 95% confidence interval

Glucose_PostHoc <- glht(Glucose_ANCOVA, linfct = mcp(Group = "Tukey"))

summary(Glucose_PostHoc)

confint(Glucose_PostHoc)

##### TNF #####

# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst
controlling for baseline weight

# Glucose_POST = Dependent variable

# Group = Independent variable (two levels: Intervention & Control)

# Weight_PRE = covariate

TNF_ANCOVA <- aov(TNF_POST ~ Group + TNF_PRE, data = PhysData, na.action = na.exclude)

# Return p-value for the effect of Group

Anova(TNF_ANCOVA, type = "III")

# Calculate the mean difference with 95% confidence interval

TNF_PostHoc <- glht(TNF_ANCOVA, linfct = mcp(Group = "Tukey"))

summary(TNF_PostHoc)

confint(TNF_PostHoc)

##### IL-6 #####

# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst
controlling for baseline weight

# Glucose_POST = Dependent variable

# Group = Independent variable (two levels: Intervention & Control)

```

```

# Weight_PRE = covariate

IL-6_ANCOVA <- aov(IL-6_POST ~ Group + IL-6_PRE, data = PhysData, na.action = na.exclude)

# Return p-value for the effect of Group

Anova(IL-6_ANCOVA, type = "III")

# Calculate the mean difference with 95% confidence interval

IL-6_PostHoc <- glht(IL-6_ANCOVA, linfct = mcp(Group = "Tukey"))

summary(IL-6_PostHoc)

confint(IL-6_PostHoc)

##### CRP #####

# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst
controlling for baseline weight

# Glucose_POST = Dependent variable

# Group = Independent variable (two levels: Intervention & Control)

# Weight_PRE = covariate

CRP_ANCOVA <- aov(CRP_POST ~ Group + CRP_PRE, data = PhysData, na.action = na.exclude)

# Return p-value for the effect of Group

Anova(CRP_ANCOVA, type = "III")

# Calculate the mean difference with 95% confidence interval

CRP_PostHoc <- glht(CRP_ANCOVA, linfct = mcp(Group = "Tukey"))

summary(CRP_PostHoc)

confint(CRP_PostHoc)

```

```
##### Cholesterol #####
```

```
# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst  
controlling for baseline weight
```

```
# Glucose_POST = Dependent variable
```

```
# Group = Independent variable (two levels: Intervention & Control)
```

```
# Weight_PRE = covariate
```

```
Cholesterol_ANCOVA <- aov(Cholesterol_POST ~ Group + Cholesterol_PRE, data = PhysData,  
na.action = na.exclude)
```

```
# Return p-value for the effect of Group
```

```
Anova(Cholesterol_ANCOVA, type = "III")
```

```
# Calculate the mean difference with 95% confidence interval
```

```
Cholesterol_PostHoc <- glht(Cholesterol_ANCOVA, linfct = mcp(Group = "Tukey"))
```

```
summary(Cholesterol_PostHoc)
```

```
confint(Cholesterol_PostHoc)
```

```
##### Insulin #####
```

```
# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst  
controlling for baseline weight
```

```
# Glucose_POST = Dependent variable
```

```
# Group = Independent variable (two levels: Intervention & Control)
```

```
# Weight_PRE = covariate
```

```
Insulin_ANCOVA <- aov(Insulin_POST ~ Group + Insulin_PRE, data = PhysData, na.action = na.exclude)
```

```
# Return p-value for the effect of Group
```

```
Anova(Insulin_ANCOVA, type = "III")
```

```

# Calculate the mean difference with 95% confidence interval

Insulin_PostHoc <- glht(Insulin_ANCOVA, linfct = mcp(Group = "Tukey"))

summary(Insulin_PostHoc)

confint(Insulin_PostHoc)


##### NEFA #####


# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst
# controlling for baseline weight

# Glucose_POST = Dependent variable

# Group = Independent variable (two levels: Intervention & Control)

# Weight_PRE = covariate

NEFA_ANCOVA <- aov(NEFA_POST ~ Group + NEFA_PRE, data = PhysData, na.action = na.exclude)


# Return p-value for the effect of Group

Anova(NEFA_ANCOVA, type = "III")


# Calculate the mean difference with 95% confidence interval

NEFA_PostHoc <- glht(NEFA_ANCOVA, linfct = mcp(Group = "Tukey"))

summary(NEFA_PostHoc)

confint(NEFA_PostHoc)


#####


PhysData <- read.csv(file.choose(), na.strings=".", header=TRUE, stringsAsFactors=TRUE)


##### Introjection #####

```

```
# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst  
controlling for baseline weight
```

```
Introjection_ANCOVA <- aov(Introjection_post ~ Group + Introjection_Pre, data = PhysData,  
na.action = na.exclude)
```

```
# Return p-value for the effect of Group
```

```
Anova(Introjection_ANCOVA, type = "III")
```

```
# Calculate the mean difference with 95% confidence interval
```

```
Introjection_PostHoc <- glht(Introjection_ANCOVA, linfct = mcp(Group = "Tukey"))
```

```
summary(Introjection_PostHoc)
```

```
confint(Introjection_PostHoc)
```

```
##### Identified #####
```

```
# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst  
controlling for baseline weight
```

```
Identified_ANCOVA <- aov(Identified_Post ~ Group + Identified_Pre, data = PhysData, na.action =  
na.exclude)
```

```
# Return p-value for the effect of Group
```

```
Anova(Identified_ANCOVA, type = "III")
```

```
# Calculate the mean difference with 95% confidence interval
```

```
Benefits_PostHoc <- glht(Identified_ANCOVA, linfct = mcp(Group = "Tukey"))
```

```
summary(Identified_PostHoc)
```

```
confint(Identified_PostHoc)
```

```
##### Intrinsic #####
```

```
# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst  
controlling for baseline weight
```

```
Intrinsic_ANCOVA <- aov(Intrinsic_Post ~ Group + Intrinsic_Pre, data = PhysData, na.action =  
na.exclude)
```

```
# Return p-value for the effect of Group
```

```
Anova(Intrinsic_ANCOVA, type = "III")
```

```
# Calculate the mean difference with 95% confidence interval
```

```
Fun_PostHoc <- glht(Fun_ANCOVA, linfct = mcp(Group = "Tukey"))
```

```
summary(Intrinsic_PostHoc)
```

```
confint(Intrinsic_PostHoc)
```

```
##### Amotivation #####
```

```
# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst  
controlling for baseline weight
```

```
Amotivation_ANCOVA <- aov(Amotivation_post ~ Group + Amotivation_Pre, data = PhysData,  
na.action = na.exclude)
```

```
# Return p-value for the effect of Group
```

```
Anova(Amotivation_ANCOVA, type = "III")
```

```
# Calculate the mean difference with 95% confidence interval
```

```
Amotivation_PostHoc <- glht(Amotivation_ANCOVA, linfct = mcp(Group = "Tukey"))
```

```
summary(Amotivation_PostHoc)
```

```
confint(Amotivation_PostHoc)
```

```
##### External #####
```

```
# Run the ANCOVA to test for a difference in post-intervention weight between groups, whilst  
controlling for baseline weight
```

```
# Weight_POST = Dependent variable
```

```
# Group = Independent variable (two levels: Intervention & Control)
```

```
# Weight_PRE = covariate
```

```
External_ANCOVA <- aov(External_post ~ Group + External_pre, data = PhysData, na.action =  
na.exclude)
```

```
# Return p-value for the effect of Group
```

```
Anova(External_ANCOVA, type = "III")
```

```
# Calculate the mean difference with 95% confidence interval
```

```
External_PostHoc <- glht(External_ANCOVA, linfct = mcp(Group = "Tukey"))
```

```
summary(External_PostHoc)
```

```
confint(External_PostHoc)
```