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**The Effectiveness of Corporate Gym Usage on Absenteeism and  
Mental Well-being**

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## **Abstract**

Mental ill health costs UK business more than £9-billion a year. This study aims to examine the effect of an on-site gym on mental well-being and absenteeism.

Participants were employees at Willis, an insurance broking firm in London. Three groups were compared: those who used the gym  $\leq$  once a week,  $>$  once a week and non gym-users.

Questionnaires were completed by all participants ( $n = 75$ ) consisting of four sections; 1) Mental Well-being 2) Past Participation of physical activity (PA), 3) Current PA and 4) general health. Gym-visits in the past twelve months were obtained from the gym database.

Absenteeism rates were obtained from the human resources department. Gym usage did not effect well-being scores [ $f(2,1) = .269, p = .765$ ] or absenteeism [ $f(2,1) = .113, p = .893$ ].

Results revealed that those who met government PA guidelines (150minutes per week) had significantly higher well-being scores than those who did not. In order to understand how employers can reduce absenteeism and increase well-being, future research should take a more holistic approach to examine the use of more permanent interventions.

**Key Words.** Employee Well-being, Absenteeism, Physical Activity, Corporate Health, On-site gym.

## **Chapter 1: Introduction and Literature Review**

## Background

The concept of 'well-being' represents a state of comfort, health and happiness (Oxford English Dictionary, OED, 2012). Previously, the meaning of well-being has become entangled with Quality of Life (QOL) and Vitality. Essentially, all are linked by the constructs of positivity and overall health and happiness. This is evident in the general definitions provided by OED (2012) and the overlap of these terms used in a number of studies. However, definitions of well-being vary. Guérin (2012) suggests that there are three constructs of well-being on a continuum: subjective, psychological and mental, whilst Ryan and Deci (2001) describe mental well-being as being derived from two perspectives separate from mental illness; Eudaimonic and Hedonic. Eudaimonic consists of self-realisation, autonomy and good relationships whilst Hedonic captures life satisfaction and subjective happiness as well as general positive mood. These are the concepts of well-being that I refer to throughout this study. This is due to their use in the development of the Warwick and Edinburgh Mental Well-being Scale (WEMWBS, NHS Health Scotland, 2006) used in this study to measure well-being.

Both sickness and mental well-being account for much of the absence observed in the workplace (CIPD in partnership with Simply Health, 2012). Absenteeism is thought to cost the UK economy around £15 billion a year. For employers, the financial costs of sick pay and other indirect costs of managing absence are estimated at £9 billion per year (Black & Frost, 2011). The established link between physical activity (PA) and better health suggests that leading an active healthy lifestyle could reduce sickness frequency. Indeed, a number of previous studies have observed associations between PA and reduced absenteeism (Burton, McCalister, Chen & Edington 2005; Jacobson & Aldana, 2001; Serxner, Anderson & Gold, 2004), although these associations were often found to be dependent on variables such as age (Rongen, Roebroek, Van Lenthe & Burdoff, 2013), gender (Vingard, et al., 2008) or other lifestyle choices (Gibbs & Cartwright, 2009).

It is not only absenteeism that incurs financial cost to employers. Presenteeism, described as poor performance at work due to sickness and ill health (Cooper, 2008), is also a problem for many employers (Brown, Gilson, Burton & Brown, 2011). As presenteeism is still an emerging concept, there is limited research in this area. However, one study that does address presenteeism, revealed reduced presenteeism with increased PA (Block, Sternfield & Block, 2008). When examining the health of a workforce it is therefore important not to focus solely on reducing sickness absence but more generally on improving the health, well-being and engagement of employees.

There is compelling evidence for the health benefits of PA, including improved general and mental health (Kravitz, 2007; Monroe, 2012). Interestingly, it seems that the findings on improved mental health are often by-passed by the general public and

common knowledge surrounding PA and general health is more salient. Kravitz (2007) identified the 25 most significant health benefits of PA and suggested the two most noticeable improvements were higher levels of cardiovascular fitness (lower cardiovascular disease risk) and reduced blood pressure. Furthermore, The Department of Health 'Start Active, Stay Active' report (Department of Health, 2011) identifies benefits to general health such as improved weight management, reduced incidences of fractures and decreased risk of cardiovascular disease across age groups.

In addition to general health improvements, there is evidence of a strong association between PA and positive mental health. Monroe (2012), states that PA is an essential key to sustained happiness. She provides compelling evidence to establish the link between PA, well-being and mood improvement. Likewise, PA has been shown to reduce the risk of a number of mental health conditions including low mood. It has also been suggested that PA can enhance well-being by improving self-esteem, mood and sleep quality (Department of Health, 2011). A literature review by Eriksson and Gard (2011) reports that PA enhanced mood and reduced feelings of sadness in seven out of eight studies. Two out of these seven studies (Krogh, Saltin, Gluud & Nordentoft, 2009; Singh, Clements & Singh, 2001) conducted a follow-up after 26 months, revealing maintained reduction in depressive symptoms (Singh et al., 2001) and a significant reduction in absence from work (Krogh et al. 2009) if increased levels of PA were sustained. The study by Krogh et al. (2009) had one of the largest sample sizes with 135 participants, thus, their results can be considered more reliable and more ecologically valid. Although Krogh et al. (2009) reported no significant reduction in depressive symptoms, positive effects on mental well-being have been linked with the practice of regular PA. According to Otto and Smitts (2011) PA can reduce feelings of low mood and enhance well-being. Whilst many studies report PA can have positive results on well-being (Vingard et al., 2008) general health (Block et al., 2008; Brand, Schlicht, Grossman & Duhnsen, 2006), increased attention and mental processing (Smith et al., 2010) and reduced stress (Atlantis, Chow & Kirby, 2004), there is limited literature that focuses specifically on well-being separately from mental illness.

Stress and mental ill health have been identified in the top seven causes for absenteeism (CIPD in partnership with Simply Health, 2012, see appendix 1). The Health and Safety Commission national statistics (2006/2007) specify that stress, anxiety and depression were responsible for a loss of 13.8 million working days over 2006 and 2007. In the light of this evidence, a clear association can be made between PA for both employee and employer benefits. Addressing the issues of poor work performance and employee health costs may therefore require a more active movement towards the encouragement of PA in the workplace.

It has been suggested that the work place could be an excellent environment for the promotion of health and well-being, as a large number of people can be reached over

an extended period of time (US Department of Health and Human Services, Physical Activity Guidelines Advisory Committee, 2008). Most adults spend more hours of the day at work than anywhere else (Person, Colby, Bulova & Whitehurst, 2010) and according to Ho (1997), employees who are offered well-being programs report higher job satisfaction. Moreover, literature surrounding Work Health Promotion Plans (WHPP) have provided further evidence to support the use of PA in improving well-being and absenteeism (Brown, et al., 2011; Gibbs & Cartwright, 2009; Van Dongen et al., 2011, Vingard et al., 2008). According to Van Dongen et al. (2011), WHPP's aimed at improving nutritional knowledge and/or increasing levels of PA, can reduce costs of employee medicals and monetary losses due to absenteeism. Dishman, Oldenburg, O'Neal and Shephard (1998), support this statement reporting that WHPP's reduce health care costs for employers. However, evidence regarding the effectiveness of WHPP's is inconclusive. While some studies report no associations with self reported Quality Of Life (QOL), vitality and workplace stress (Eriksen et al., 2002; Tveito & Erikson, 2009) others acknowledge the positive effects of WHPP's, which include positive psychosocial health, increased QOL (Block et al., 2008; Brand et al., 2006) as well as reduced absenteeism rates (Burton et al., 2005; Serxner et al., 2004). Interestingly, there is little evidence measuring well-being through the use of well validated and reliability tested scales. Many studies look more closely at aspects of well-being such as mood, depressive symptoms and self-esteem (Brown et al., 2011).

The effectiveness of WHPPs in reducing absenteeism is also unclear. In 2009, Gibbs and Cartwright examined the effectiveness of a WHPP in a corporation that also had on-site gym access. Ultimately, the 'Lamplighter' program, which consisted of a holistic personalised six-month well-being program, reduced stress and absence frequency. The reduction in absence rates is also apparent in other research of a similar nature (Blair et al., 1986; Kerr & Vos, 1953). However, other studies report unchanged absence rates or duration of sick leave (Altchiler & Motta, 1994; Burton et al., 2005; Eriksen et al., 2002; Van den Heuvel et al., 2005). These inconsistent findings could be a result of the different definitions of the concept of well-being (Guérin, 2012).

Whilst Rongen, Robroek, Van Lenthe and Burdoff (2013) suggest that a WHPP may not be effective in reducing absenteeism, Proper, Staal, Hildebrandt, Van der Beek and Van Mechelen (2002) argue that the problem lies with poor methodology. Bize and Plotnikoff (2008) acknowledge only a limited set of covariates are considered in their WHPP study (smoking behaviour, age, gender, education, and BMI). However, they failed to look at the effect of general PA and sedentary behaviours on QOL and only focused on leisure time activity of their participants. It is important to consider existing PA patterns and sedentary behaviour when evaluating the effectiveness of PA based interventions to improve well-being and reduce absenteeism. Furthermore, Proper et al. (2002) identify one reason for conflicting findings may be that the populations being compared are very different. For example, more gain will be seen

in individuals who have not previously been involved in PA compared to a sample who are already physically active.

Another common problem for WHPP interventions is the poor uptake rates. Roebroek, Van Lenth, Van Empelen and Burdof (2009) suggest the average is less than 50%. In a study by Person, Colby, Bulova and Whitehurst (2010) this problem is particularly highlighted as only 50% of participant's attended one session out of ten and as little as 1% attended five out of ten. Caution must therefore be taken when drawing general conclusions from their study. Person, et al. (2010) also identify four barriers to participation: insufficient incentives, inconvenient location, future opportunity to partake in a WHPP (for example, continued practice of PA) and free time. With the provision of something more permanent than a WHPP, such as an on-site gym, both inconvenient location and future participation could be barriers that are overcome.

A more specific focus on gym usage as opposed to general WHPP's could identify whether the costs companies are allocating to employee health are effective. Considering "mental ill health costs UK business more than £9bn a year" (Occupational Health, 2006,) alongside evidence that PA can considerably improve mood, general happiness and overall well-being; (Otto & Smitts, 2011) it is clear that a push for a more active workforce is a worthwhile investment for employers.

It has been established that the use of an on-site gym to promote a healthy workforce produces positive financial returns (Vandongen et al., 2011) reducing workplace stress (Toumi, Vanhala, Nykyri & Janhonen, 2004) and time taken off work for health reasons (Gibbs & Cartwright, 2009). This brings home to employers that the well-being of employees is important. Many large corporations are beginning to put in place schemes such as onsite occupational health and pastoral care (CIPD, 2012). Corporate gyms are becoming a popular choice for employers who are striving to make their employees more content in the workplace. However, there is limited literature in recent years that examines whether the provision of a corporate gym actually makes a difference to employee well-being. In the light of this, the present study aims to examine whether the frequency of use of a corporate gym is positively associated with well-being. It will also aim to build on previous findings such as Muto and Sakurai (1993) who found that exercisers had a significantly lower incidence of absence than non-exercisers. Preliminary investigations into absenteeism rates at Willis revealed that 47% of reported absence in the last 36 months, in employees who were not using the gym, was due to psychological reasons. However by contrast, gym users who took part in this study did not have any days off caused by psychological reasons (see appendix 2). Based on this information this study investigated how absenteeism and well-being differed in the context of gym usage.

The two main questions this research will address are:



- 1) Is there an association between corporate gym use and mental well-being? And
- 2) Is there an association between corporate gym use and sickness absence?

## Chapter 2: Methodology

### 2.1 Sample and recruitment procedures

Participants were recruited from a large UK insurance broker (Willis) with 1,800 employees, of which with 584 were members of the on-site gym managed by Personal Touch Fitness (PTF). This places Willis in the top range of average participation of an on-site health facility (10-64% in other enterprises) (Roebroek et al., 2009).

An email explaining the nature of the study (including information sheet) was sent to 584 gym-members and a first cohort of 200 non-gym users who were randomly selected by the Human Resources (HR) department at Willis. A further 200 emails were sent to non gym-users until a more even sample was recruited. Participants volunteered by returning an informed consent form and further information was sent via email. Participants who volunteered were offered an incentive of a free 30-minute personal training session with PTF on completing the questionnaire. The study aimed to recruit equal numbers of males and females however, due to the male to female ratio at Willis, there were more male participants than female (47 male, 28 female).

The sample consisted of 75 Willis employees who volunteered to take part in the study. Of the 584 gym members, 51 agreed to participate, however, only 46 completed the questionnaire. 31 non-gym users gave consent to participate in the research and three participants later withdrew their consent due to time constraints and work commitments. Participants were then split into three groups; those who use the gym  $\leq$  once a week (N= 24),  $>$  once a week (N=22) and those who do not use the gym (N= 29). Participants in the gym user group had been registered at the gym for  $\geq$  3 months. Non-gym users were recruited from the wider work force.

**Ethics.** The University of Exeter ethics committee granted ethical approval for this study to go ahead. Participants provided informed consent prior to completing the questionnaire and at the end of the study participants were debriefed with a follow-up email. Participants were aware they could withdraw from the study at any point without giving reason; and were also able to ask any questions via email.

### 2.2 Measures

A self-report questionnaire, distributed during office hours was used to collect information about mental well-being, past participation of PA, current PA, and general health. Gym visits per week for the last year were extracted from the PTF fit-track computer system and total number of days off work for the past twelve and thirty-six months were provided by both self-report and the HR department at Willis.

A schematic of the participant recruitment and group allocations is presented in Figure 1.

**Well-being.** Respondents indicated their well-being over the last two weeks on the Warwick and Edinburgh Mental Well-Being Scale (WEMWBS, NHS Health Scotland, University of Warwick and University of Edinburgh, 2006). The WEMWBS has undergone extensive testing, for reliability and validity. Through the use of focus groups in student populations, face validity was established. However, more importantly, the focus groups revealed that the scale clearly measured mental well-being and not mental illness (Tennant, Fishwick, Platt, Joseph & Stewart-Brown, 2006). The use of the WEMWBS in different national surveys revealed construct validity of the WEMWBS (Tennant, Hiller, Fishwick, Platt, Joseph et al., 2007). The scale originally consisted of the 20 statements adapted from the Affectometer 2 (Kammann & Flett, 1983). In order to avoid social desirability response bias which had been found previously through the use of the Affectometer 2, this was then refined (through the help of focus groups) into the 14-item WEMWBS (Tennant et al., 2007). The scale was then used in national surveys to validate population data (Scottish Health Education Population Survey, 2006; Well? What Do You Think?, 2006). Internal consistency was evident due to the normal distribution of results that captured the full spectrum of mental health without any ceiling or floor effects. The WEMWBS requires participants to answer statements such as ‘I’ve been feeling good about myself’, on a 5-point scale ranging from ‘none of the time’ to ‘all of the time’. All data, from this section of the questionnaire, was entered into a database, allowing for a sum of WEMWBS responses to be calculated for each participant. Overall scores across the 14-items range from 14 to 70.

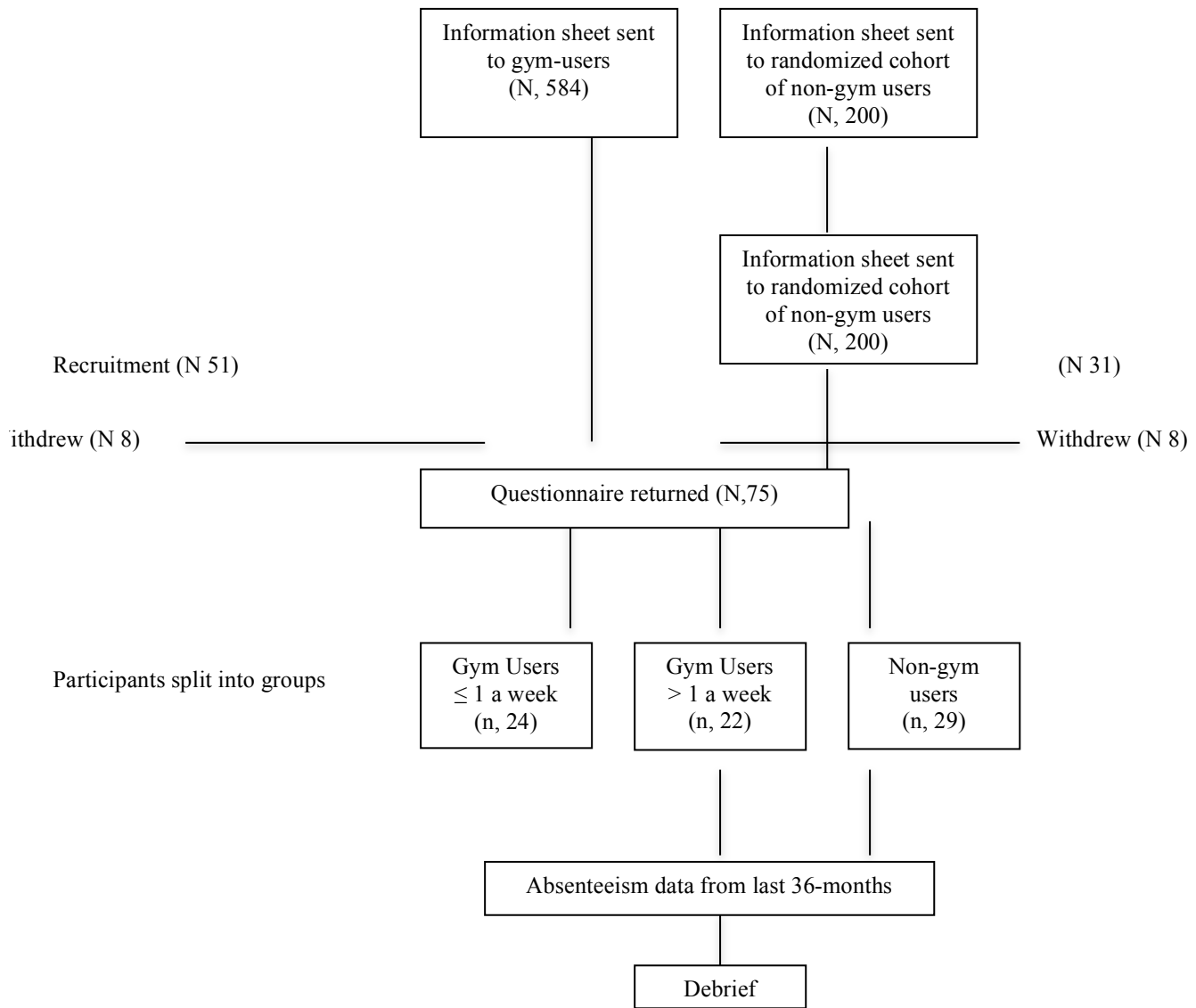
**Physical activity and general health.** The questionnaire included two questions on past participation of physical activity (Allied Dunbar National Fitness Survey, ADNFS, 1991) requiring participants to indicate how much exercise they took part in at ages 14-19 and 20-24 on a four-point scale ranging from ‘A Lot’ to ‘None at all’. Current PA participation was measured using the IPAQ, short form (2001) consisting of questions to establish participant’s vigorous, moderate, walking and sitting time in the past seven days. Finally, general health questions taken from the Commuting and Health in Cambridge Questionnaire (2009) included an indication of time taken of work in the past twelve months as well as a general health rating over the past month on a six-point scale ranging from ‘Excellent’ to ‘Very Poor’. All questions were previously validity and reliability tested, reaching minimum standards for objective activity measuring devices and fitness measures (Ogilvie, Griffin, Jones, Mackett, Guell et al., 2010; Lee, Macfarlane, Lam, Stewart, 2011).

**Gym Usage.** Gym visits were averaged per week from PTF records and added to the database along with the data gathered from the questionnaire.

**Absenteeism and data protection.** A database containing the names of consenting participants was sent to the HR department to assess absenteeism. HR provided anonymised absenteeism data on all participants. Absence data was examined for the previous six, twelve and thirty-six months. However, only data for the last thirty-six months was assessed as a result of infrequent absence from work across six and twelve months.

### **2.3 Analysis**

All statistical analyses were conducted using SPSS (SPSS Inc., Chicago, IL, USA, version 20). A one-way analysis of variance (ANOVA) was run to examine the variance of total well-being (WEMWBS) scores between the three gym usage groups (use the gym  $\leq 1$  a week,  $> 1$  a week, and do not use the gym) (Model 1). A second ANOVA (Model 2) assessed the variance of self reported absenteeism across the past 12 months as a result of gym usage and a third ANOVA (Model 3) assessed the variance of HR reported absenteeism across the past 36 months as a result of gym usage. Initial univariate analyses (Model 1 and 3) were adjusted to account for age and gender (Model 1a and 3a) and then body mass index (BMI), PA (moderate-vigorous hours) and sitting time (hours) (Model 1b and 3b). Two independent sample t-tests were conducted to firstly compare mental well-being score in the group who met government PA guidelines (150 minutes a week) ( $N = 52$ ) and those who did not ( $N = 23$ ) and then to establish the difference in absenteeism for those who met the PA guidelines and those who did not.



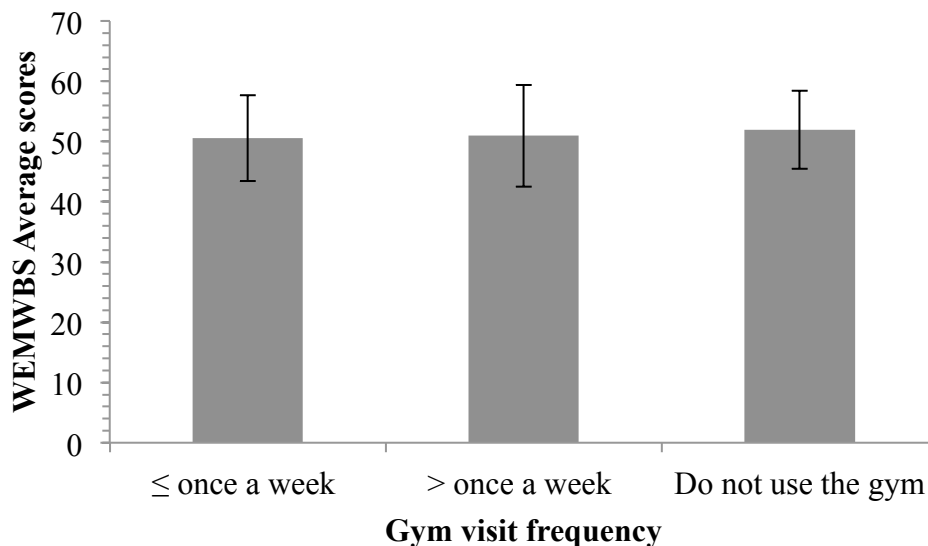
**Figure 1.** Procedure of measures

### Chapter 3: Results

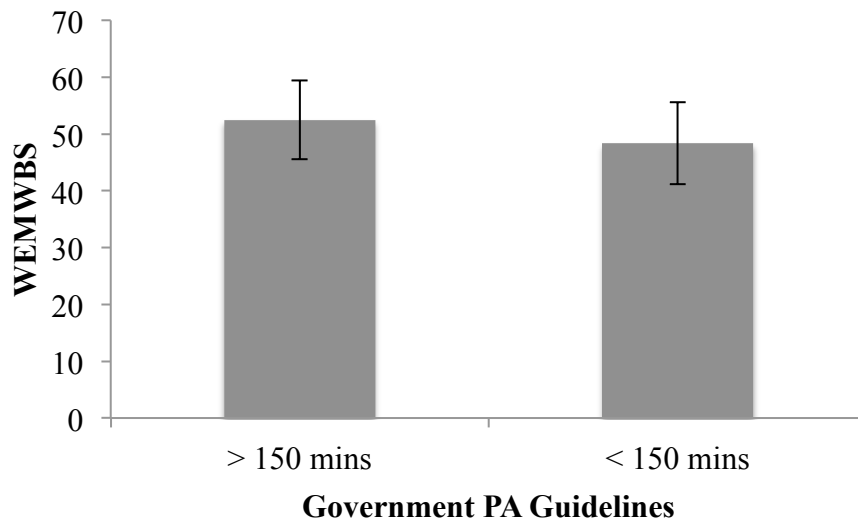
Sample characteristics are described in Table 1. A total of 75 Willis employees completed the questionnaire and were put into groups; those who used the gym  $\leq$  once a week (N= 24),  $>$  once a week (N=22) or those who did not use the gym at all (N= 29). Figure 2 shows the average well-being scores of participant's across the three gym usage groups. Figure 3 shows average WEMWBS in those who meet government guidelines and those who do not and Figure 4 shows PA minutes per week across the three gym usage groups.

Variables	Gym Users ( $\leq 1$ )	Gym Users ( $>1$ )	Non Gym Users
Gender			
Male	17	15	15
Female	7	7	14
Age	39.17 ( $\pm 10.27$ )	31.14 ( $\pm 8.94$ )	35.52 ( $\pm 10.38$ )
Height	170.33 ( $\pm 12.44$ )	174.25 ( $\pm 5.42$ )	172.17 ( $\pm 8.24$ )
Weight	77.46 ( $\pm 12.75$ )	76.71 ( $\pm 12.73$ )	67.82 ( $\pm 9.31$ )
BMI	26.69 ( $\pm 6.52$ )	25.26 ( $\pm 5.45$ )	22.88 ( $\pm 7.93$ )
* Absenteeism	.88 ( $\pm 1.83$ )	.81 ( $\pm 1.47$ )	.66 ( $\pm 1.74$ )

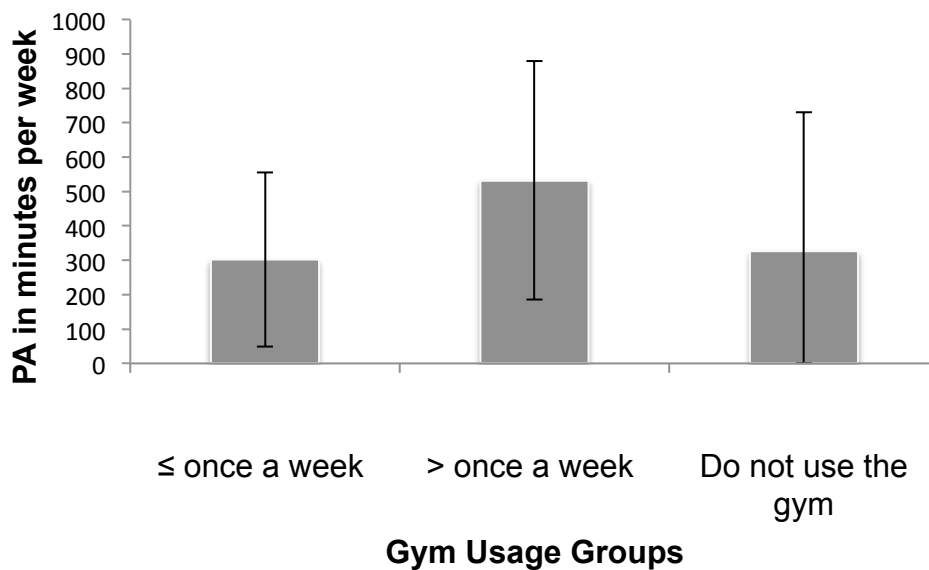
**Table 1.** Participant Characteristics (\* average days off in 36months - data from Willis HR department)



**Figure 2.** Average well-being score for all three groups. (Standard deviation shown in error bars)



**Figure 3.** WEMWBS for those who met government guidelines and those who did not. Significant differences ( $P < 0.05$ ) between those who met government guidelines (150 minutes per week) and those who did not indicated by \*. (Standard deviation shown in error bars)



**Figure 4.** PA per week across gym users. (Standard deviation shown in error bars, \* indicates a significant difference between groups).

A one way ANOVA (Model 1) revealed there were no significant differences between groups; those who use the gym  $\leq$  once a week,  $>$  once a week or not at all [ $f_{(2,1)} = .269, p = .765$ ]. A second ANOVA (Model 2) indicated that there were no significant differences in self-reported days off between the groups who use the gym  $\leq$  once a

week, > once a week and not at all [ $f_{(2,1)} = 1.956, p = .149$ ]. ANOVA (Model 3) also showed that there were no significant differences in HR reported days off across all groups [ $f_{(2,1)} = .113, p = .893$ ].

An adjusted ANCOVA (Model 1a) was run to investigate gym-usage and well-being adjusting for age [ $f_{(4,1)} = 1.87, p = .176$ ] and gender [ $f_{(4,1)} = 3.602, p = .062$ ]. These results suggest that even when adjusting for age and gender there are no significant differences in well-being scores between the three gym-usage groups. A second model (Model 1b) revealed that there was also no significant difference when controlling for BMI [ $f_{(9,1)} = .854, p = .438$ ], moderate PA [ $f_{(9,1)} = .737, p = .394$ ], for vigorous PA [ $f_{(9,1)} = .682, p = .412$ ] or for moderate and vigorous combined [ $f_{(9,1)} = .767, p = .384$ ]. Finally, sitting time in minutes also showed no significant differences [ $f_{(9,1)} = 1.75, p = .191$ ].

Additionally, an ANCOVA (Model 3a) was conducted adjusting for Age [ $f_{(28, 17)} = 1.299, p = .288$ ] and Gender [ $f_{(1,2)} = .678, p = .413$ ]. The results revealed that there were no significant differences across Age and Gender on absenteeism in the previous 36 months in all three gym-usage groups.

A further model (Model 3b) was run adjusting for the covariates BMI [ $f_{(1,2)} = .978, p = .327$ ], weekly moderate PA in minutes (minutes), vigorous PA in minutes and a combination of moderate and vigorous activity as well as sitting time in minutes. The adjusted model showed no significant difference for moderate PA [ $f_{(1,2)} = .649, p = .423$ ], for vigorous PA [ $f_{(1,2)} = .671, p = .416$ ] or for moderate and vigorous combined [ $f_{(1,2)} = .717, p = .400$ ] or for sitting time in minutes [ $f_{(1,2)} = 1.760, p = .189$ ].

Although gym membership itself caused no difference in results, it was important to examine the data to discover whether PA participation would make a difference to well-being scores. There was a significant difference found in the well-being scores for those who met government guidelines ( $M = 52.48, \pm = 6.94$ ) and those who did not meet government guidelines ( $M = 48.35, \pm = 7.21$ ) [ $t_{(73)} = 2.35, p = .022$ ]. An independent sample t-test was also conducted to compare days off in the past 36 months across both groups. There was no significant difference in time off work for those who met government guidelines ( $M = 0.63, \pm = 1.34$ ) and those who did not meet government guidelines ( $M = 1.09, \pm = 2.41$ ) of 150 minutes of PA per week; [ $t_{(73)} = -1.04, p = .301$ ]. Although no difference can be observed for absence rates, these analyses reveal that reaching PA guidelines does make a difference to average well-being scores. More importantly, those who do meet recommended guidelines tend to have higher well-being scores.

Finally, an ANOVA revealed that there were significant differences in PA minutes per week between the groups who use the gym  $\leq$  once a week, > once a week and not at all [ $f_{(2,1)} = 3.103, p = .05$ ]. These results suggest that being a member of the gym increases your likelihood of reaching government PA guidelines.



## Chapter 4: Discussion

The aim of the current study was to gain a clearer insight into how effective the provision of an on-site gym is in relation to employee well-being and employee absenteeism. The study separately examined the effect of using an on-site corporate gym on objectively assessed days taken off work and self-reported well-being scores.

There were three main findings in this study. First, it was discovered that total mental well-being scores did not vary across all three gym-usage groups (those who used the gym  $\leq$  once a week,  $>$  once a week or who did not use the gym at all). Second, gym visit frequency had no significant effect on absence rates. Although this data refers only to gym usage, it is possible that the provision of other well-being facilities, such as employee health benefits and counselling, could potentially reduce absenteeism from work. Third, this study found a positive association with meeting government guidelines of PA (150 minutes a week) and average well-being score. This is consistent with the findings of Gibbs and Cartwright (2009), who discovered increases in fitness and PA can improve employee well-being.

Importantly, there was a significant difference of PA minutes per week between the three gym usage groups. According to the graph, those who use the gym are more likely to reach government guidelines of 150 minutes of PA a week. This is an encouraging finding as it suggests the provision of a gym can allow for employees to reach PA guidelines. Together with the evidence that PA improves mental well-being, these findings provide a strong case for the provision of on-site well-being facilities such as an on-site gym.

There was also little difference found in both well-being and absenteeism when adjusting for the covariates age and gender respectively, as well as further adjustments including BMI, PA intensity and sitting time. Thus, compared to previous evidence suggesting WHPP's improve well-being and absenteeism (Kerr & Vos, 1993) the data in this study suggests that gym usage may not influence well-being scores or absenteeism rates. However, it is important to acknowledge there is some benefit for employers to encourage the use of the facilities, such as an on-site gym, in order to attain the government guidelines for PA.

In contrast with the current findings, increased PA has previously been found to improve well-being (Brown et al., 2011; Gibbs & Cartwright 2009) as part of a WHPP. Similarly, reductions in absenteeism have been well documented in the literature surrounding employee WHPP's (Proper et al., 2002). These findings are particularly encouraging in the current economic climate, as the promotion of a healthier workforce could contribute to effective financial recovery (Brown et al., 2011). However, even with additional adjustments in the current analysis, including a larger range of co-variates (age, gender, BMI, moderate and vigorous PA, sitting time) for gym usage groups, correlations did not change significantly.

Preliminary investigations into absenteeism rates at Willis revealed that 47% of reported absence in the last 36 months was due to psychological causes in non-gym users. Healthy worker bias, first coined by Li & Sung, (1999) to describe over-representation of healthy individuals and low levels of absence in samples from affluent backgrounds/job roles, could explain why this study found no significant differences between gym and non-gym using groups and could not build on the preliminary findings.

Previous research observing reductions in absenteeism and improvements in well-being with health and well-being interventions has been observed in a similar environment to Willis. Gibbs and Cartwright (2009) examined a total of 38 participants who took part in the 'Lamplighter programme' comprising personal exercise programmes and fitness and health education sessions. The onsite gym provisions used as part of the 'Lamplighter programme' were managed by the same company as the gym facilities at Willis (PTF). The conflict in findings observed in the present study and the findings presented by Gibbs and Cartwright (2009), suggests that there were confounding factors, other than the gym, influencing employee well-being and absenteeism.

WHPP's that offer holistic programmes have a higher success rate in reducing absenteeism (Person et al., 2010). Although not mentioned in this study, it is possible that confounding variables such as other health benefits offered to employees (including health insurance, private health care, telephone counselling and the 'bike to work' scheme) could have been responsible for the general low levels of absenteeism observed. Evidence also suggests that the more well-educated participants have lower absenteeism (Chaudhury, & Ng, 1992). This could have also had an influence on the low absence rates in this data set.

On the other hand, the use of well-validated scales to measure well-being, in the WHPP literature, is not common. In a review of 20 studies, Brown et al. (2011) use the term well-being however, no specific well-being scales were used as a method of measuring well-being across all studies. As previously mentioned the terms QOL, vitality and mental health can often become entangled and cause invalid conclusions to be drawn from studies which in effect are measuring different concepts.

#### 4.1 Strengths and limitations

This study builds on past research by clarifying that well-being includes Eudaimonic and Hedonic concepts. Through the use of the well validated and reliability tested WEMWBS this study provides empirical data measuring of well-being, without being confounded by other factors that are closely related to well-being such as vitality and QOL.

Furthermore, the study uses objective data (HR reported days off work in the past 36 months) to measure the absence rates of employees. This reduces the possibility of a type two error due to social desirability bias responses that self-report measures can incur. A further strength is this study's focus on one institution. Consequently, employees were subject to the same working environment and the same access to well-being facilities. Whilst the control of confounding factors (age, gender, BMI, moderate and vigorous PA, sitting time) is also a considerable strength, it must be acknowledged that it was not possible to control for all variables. Aspects such as diet and social influence can be powerful influencers on both mood and behaviour (Otto & Smitts, 2011). According to Otto and Smitts (2011), diet can be as powerful a tool as exercise in mood enhancement. This is evident in studies that show high carbohydrate meals can lead to motor deficiencies, lower concentration and reduced reaction times (Lieberman, Wurtman & Chew, 1986; Spring, Maller, Wurtman, Dignan & Cozolino, 1983). Likewise, the social pressures of motivation to exercise and stay healthy are important factors. Christakis and Fowler (2007) discuss the theory of habit spreading through communities and report that the risk of becoming obese increases by 57% if a friend is also obese. Essentially, this theory could transfer to exercise habits (Otto & Smitts, 2011). If a desk partner goes to the gym on their lunch break, it may influence another's decision to have a lunchtime workout. Social influence in the work place is an area that future research could focus on in order to discover the difference between a functioning WHPP and a WHPP that is not effective which the current study could not take into account

The main limitation of this study is the cross-sectional design. This means that causal inferences cannot be made. Secondly, the reliance on self-reported data and a volunteer sample could have encouraged biases such as recall bias (falsely remembering details or responding in a socially desirable manner), selection bias (healthier participants being more keen to volunteer in a study clearly focusing on health and well-being), and temporal bias (questions that focused on recent PA- past seven days only and may differ from normal routine). Likewise, no information from non-responders could be attained therefore no comparison with less healthy individuals could be made. These biases could be responsible for the general high well-being scores and reduced absenteeism observed in the present study. Additionally, the small sample size along with the potential of a healthy worker bias could have reduced the statistical power of the analyses run in this study.

## 4.2 Future Research

Future research should consider more rounded methods for increasing employee well-being and reducing absenteeism. Interventions recruiting a more holistic focus on factors affecting wellbeing such as mental coping strategies, fruit intake, PA (Strijk et al., 2013) and goal setting (Gibbs and Cartwright 2009) have provided evidence for increased wellbeing. One method of increasing the number of variables targeted is to enhance the communication between the well-being centre, the on-site restaurant and the occupational health unit. Thus, offering packages that focus not only on PA but also bringing into focus other factors affecting well-being and absenteeism such as diet (Otto & Smitts, 2010) and mental health support.

Perhaps the most important aspect of providing an on-site gym facility, is its ability to overcome all four potential barriers to participation; future opportunity, convenience of location, incentive and free time (Person at al., 2010). Firstly, future opportunity to take part is not an issue when there is a fitness centre occupying a permanent facility available to all employees at Willis. Likewise, the gym was on-site. Thus, convenience of location did not provide a barrier to participation. Furthermore, the incentive of a free PT session for every new member and the provision of shorter exercise classes, timetabled during the lunch hour, meant that incentive and free time does not pose a threat to participation at Willis. Future research needs to assess the use of on-site gym facilities alongside other more permanent health benefits available to employees such as a consistent healthy food option in on-site food establishments and the influence of previous education on future decisions. In addition, future literature should consider the difference between an effective WHPP and one that is not. Furthermore, employers need to investigate the best ways to encourage their employees to take part in a WHPP and increase PA levels in order to improve employee well-being and reduce costs related to absenteeism.

With compelling evidence suggesting a healthier employee will create less financial problems for their employers (Black & Frost, 2011), it is important to encourage the use of well-being facilities such as a fitness centre.

### **4.3 Conclusion**

This study is the first to consider how effective an on-site gym is on both well-being and absenteeism. The results suggest, whilst being a frequent gym user may not improve well-being or absenteeism, there is still a need to encourage PA within the work force. These findings are important as they highlight the need to encourage employees to take regular PA. In order to overcome barriers to participation and to cover a wider spectrum of covariates, a move towards a more eclectic approach is needed to enhance employee wellbeing. Future research should aim to study larger samples, combining self-report methods and the investigation of facilities that incorporate a wider range of confounding co-variables as well as overcoming the four barriers to participation.

## Chapter 5: References

- Altchiler, L., & Motta, R. (1994). Effects of Aerobic and Nonaerobic Exercise on Anxiety, Absenteeism, and Job Satisfaction. *Journal of Clinical Psychology*, 50 (6), 829-840
- Atlantis, E., Chow, C.M., Kirby, A., & Singh, M. F. (2004). An effective exercise-based intervention for improving mental health and quality of life measures: A randomized controlled trial. *Journal of Preventative Medicine*, 39 (2), 424-434
- Birdee, G. S., Byrne, D. W., McGrown, P. W., Rothman, R. L., Rolando, L. A., Holmes, M. C. & Yarbrough, M. I. (2013). Relationship Between Physical Inactivity and Health Characteristics Among Participants in an Employee-Wellness Program. *Journal of Occupational and Environmental Medicine*, 55, 514-519. doi: 10.1097/JOM.0b013e31827f7d7
- Bize, R. & Plotnikoff, R. C. (2008). The Relationship Between a Short Measure of Health Status and Physical Activity in a Workplace Population. *Journal of Psychology, Health & Medicine*, 14, 53-61. doi: 10.1080/13548500802032699
- Black, C., & Frost, D. (2011). *Health at Work – an Independent Review of Sickness Absence*. Secretary of State for Work and Pensions by Command of Her Majesty. Norwich, United Kingdom: TSO Information & Publishing Solutions 5-109. ISBN: 9780101820523
- Blair, S. N., Smith, M., Collingwood, T.R., Reynolds, R., Prentice, M. C., & Sterling, C. L. (1986). Health Promotion for Educators: Impact on Absenteeism. *Journal of Preventative Medicine*. 15, 166-175. doi: 10.1016/0091-7435(86)90086-1
- Block, G., Sternfeld, B., Block, C. H., Block, T. J., Norris, J., Hopkins, D., & Clancy, H. A. (2008). Development of Alive! (A Lifestyle Intervention Via Email), and its effect on health-related quality of life, presenteeism, and other behavioral outcomes: randomized controlled trial. *Journal of medical Internet research*, 10(4)

- Brand, R., Schlicht, W., Grossman, K., Duhnsen, R.(2006): Effects of a physical exercise intervention on employees' perceptions quality of life: a randomized controlled trial. *Preventative medicine*, 51(1), 14-23
- Brown, H. E., Gilson, N. D., Burton, N. W., & Brown, W. J. (2011). Does Physical Activity Impact on Presenteeism and Other Indicators of Workplace Well-Being? *Sports Medicine*, 41(3), 249-262
- Burton WN, McCalister KT, Chen CY, Edington DW. (2005). The association of health status, worksite fitness center participation, and two measures of productivity. *Journal of Occupational & Environmental Medicine* 2005;47:343-51.
- Chaudhury, M., & Ng, I. (1992). Absenteeism predictors: least squares, rank regression, and model selection results. *Canadian Journal of Economics*, 615-635. doi: 0008-4085/92/615-34
- Chartered Institute of Personnel and Development in Partnership with Simply Health. (2012). *The Annual Survey Report of Absence Management (13th edition.)*. London, United Kingdom: Author
- Christakis, N. A., & Fowler, J. H. (2007). The Spread of Obesity in a large Social Network over 32 Years. *New England Journal of Medicine*, 357, 370-379
- Cummings, M. E., Davies, P. T., & Campbell, S. B. (2000). *Developmental Psychopathology and Family Process: Theory, Research, and Clinical Implications*. New York and London: The Guildford Press
- Davis, C. (2005). HEALTH-Coping with stress-Carol Davis reports on how to tackle the 12.8 million working days lost annually due to stress, depression and anxiety. Will the HSE's new management standards help? *Health and Safety at Work*, 27(2), 9-12
- Department of Health, Physical Activity, Health Improvement and Protection. (2011). *Start Active, Stay Active: A report on physical activity from the four home countries' Chief Medical Officers*. London, United Kingdom: Crown Copyright
- Dishman, R. K., Oldenburg, B., O'Neal, H., & Shephard, R. J. (1998). Work-Site Physical Activity Interventions. *American Journal of Preventative Medicine*, 15(4) 344-361
- Eriksson, S., Gard, G. (2011). A Systematic Review of Physical Exercise and Depression. *Physical Therapy Reviews*, 16, 261-268. doi: 10.1179/1743288X11Y.0000000026
- Eriksen, H. R., Ihlebaek, C., Mikkelsen, A., Gronningsaeter, H., Sandal, G. M., & Ursin, H. (2002). Improving Subjective Health at the Worksite: a Randomized Controlled Trial of Stress Management Training, Physical Exercise and an Integrated Health Programme. *Journal of Occupational Medicine*, 52, 383-91. doi: 10.1093/occmed/52.7.383

- Guérin, E. (2012). Disentangling Vitality, Well-being, and Quality of Life: A Conceptual Examination Emphasising Their Similarities and Differences With Special Application in the Physical Activity Domain. *Journal of Physical Activity & Health*, 9(6), 896-909. doi: 20120903
- Gibbs, P., & Cartwright, S. (2009). *Evaluation of a Health and Well-being Programme for Unilever*. Lancaster University, United Kingdom: Centre for Organisational Health & Well-being
- Ho., J., S. (1997). Corporate Wellness Programmes in Singapore: Effect on Stress, Satisfaction, and Absenteeism. *Journal of managerial psychology*, 12, 177-189
- Jacobson, B. H., & Aldana, S. G. (2001). Relationship between frequency of aerobic activity and illness-related absenteeism in a large employee sample. *Journal of Occupational Environmental Medicine*, 43, 1019–1025
- Kammann, R., & Flett, R. (1983). Affectometer 2: A Scale to Measure Current Level of General Happiness. *Australian Journal of Psychology*, 35 (2), 259-265
- Kerr, J. H., & Vos, M. C. (1993). Employee Fitness Programmes, Absenteeism and General Well-being. *Work & Stress: An International Journal of Work, Health & Organisations*, 7, 179-190. doi:10.1080/02678379308257059
- Kirkcaldy, B. D., Cooper, C. L., Shephard, R. J., & Brown, J. S. (1994). Exercise, job satisfaction and well-being among superintendent police officers. *European Review of Applied Psychology*, 44, 117-123
- Kravitz, L. (2007). The 25 Most Significant Health Benefits of Physical Activity & Exercise. *IDEA Fitness Journal*, 4(9), 54-63
- Krogh, J., Saltin, B., Gluud, C., & Nordentoft, M. (2009). The DEMO trial: a Randomized, Parallel-Group, Observer-Blinded Clinical Trial of Strength Versus Aerobic Versus Relaxation Training for Patients with Mild to Moderate Depression. *Journal of Clinical Psychiatry*, 70, 790-800
- Lee, P. H., Macfarlane, D. J., Lam, T.H., Stewart, S. M. (2011). Validity of the International Physical Activity Questionnaire Short Form (IPAQ-SF): a systematic review. *International Journal of Behaviour, Nutrition and Physical Activity*, 115 (8). doi: 10.1186/1479-5868-8-115.
- Li, C. Y., & Sung, F. C. (1999). A Review of The Healthy Worker effect in Occupational Epidemiology. *Occupational Medicine*, 49 (4), 225-229
- Lieberman, H. R., & Wurtman, J. J., & Chew, B. (1986). Changes in Mood after Carbohydrate Consumption Among Obese Individuals. *American Journal of Clinical Nutrition*, 44, 772-778
- McDonald, C. M., Widman, L., Abresch, R. T., Walsh, S. A., & Walsh, D. D. (2005). Utility of a step activity monitor for the measurement of daily ambulatory activity in children. *Archives of physical medicine and rehabilitation*, 86(4), 793-801.
- Monroe, M. (2012). The Happiness Factor part two. *IDEA Fitness Journal*, 46-55



- Muto, T., & Sakurai, H. (1993). Relation Between Exercise and Absenteeism Due to Illness and Injury in a Manufacturing Companies in Japan. *Journal of occupational medicine*, 35 (10), 995
- Ogilvie, D., Griffin, S., Jones, A., Mackett, R., Guell, C., Panter, J., ... & Chapman, C. (2010). Commuting and health in Cambridge: a study of a 'natural experiment' in the provision of new transport infrastructure. *BMC Public Health*, 10(1), 703. doi:10.1186/1471-2458-10-703
- Otto, M. W., Smits, J. A. (2011). *Exercise for Mood and Anxiety: Proven Strategies for Overcoming Depression and Enhancing Well-Being*. New York, United States of America: Oxford University Press.
- Person, A. L., Colby, S. E., Bulova, J. A., & Whitehurst, J. (2010). Barriers to Participation in a Worksite Wellness Program. *The Korean Nutrition Society and the Korean Society of Community Nutrition*, 4, 149-154
- Physical activity guidelines advisory committee. *Physical Activity Guidelines Committee Report* (2008). Washington, DC: US Department of Health and Human Services
- Proper, K. I., Staal, B. J., Hildebrandt, V. H., Van der Beek, A. J., & Van Mechelen, W. (2002). Effectiveness of Physical Activity Programs at Worksites With Respect to Work-Related Outcomes. *Scandinavian Journal of Work, Environment and Health*, 28, 75-84. doi: 10.5271/sjweh.651
- Robroek, S. J., Van Lenthe, F. J., Van Empelen, P., & Burdof, A. (2009). Determinants of Participation in Worksite Health Promotion Programmes: A Systematic Review. *International Journal of Behavioural Nutrition and Physical Activity*, 6, 26-37
- Rongen, A., Robroek, S. J., Van Lenthe, F. J., & Burdoff, A. (2013). Workplace Health Promotion: a Meta-Analysis of Effectiveness. *American Journal of Preventative Medicine*, 44, 406-415. doi: 10.1016/j.amepre.2012.12.007
- Schaufeli, K. E. & Bakker, A. B. (2003). *Utrecht Work Engagement Scale*. Occupational Health Psychology Unit: Utrecht University
- Serxner, S., Anderson, D. R., & Gold, D. (2004). Building program participation: strategies for recruitment and retention in worksite health promotion programs. *American Journal of Health Promotion*, 18(4), 1-5.
- Shek, D. T. (1992). Reliance on self or seeking help from others: Gender differences in the locus of coping in Chinese working parents. *Journal Of Psychology: Interdisciplinary And Applied*, 126(6), 671-678
- Singh, N. A., Clements, K. M., & Fiatarone Singh, M.A. (2001). The Efficacy of Exercise as a Long-Term Antidepressant in Elderly Subjects: a Randomized, Controlled Trial. *Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, 56, 497-504
- Smith, P. J., Blumenthal, J. A., Hoffman, B. M., Cooper, H., Strauman, T. A., Welsh-Bohmer, K., Browndwyke, J. N., & Sherwood, A. (2010). Aerobic Exercise and Neurocognitive Performance: a Meta-Analytical Review of Randomized

- Controlled Trials. *Journal of Biobehavioural & Psychosomatic Medicine*, 72, 239-252. doi:10.1097/PSY.0b013e3181d14633
- Spring, B., Maller, O., Wurtman, J., Digman, L., & Cozolino, L. (1982). Effects of Carbohydrates on Mood and Performance: Interactions with Sex and Age. *Journal of Psychiatry Research*, 17 155-167
- Stewart-Brown, S., & Janmohamed, K. (2008). *Warwick-Edinburgh Mental Well-being Scale (WEMWBS)*. Warwick Medical School, UK: University of Warwick
- Strijk, J. E., Proper, K. I., Van Mechelen, W., & Van der Beek, A. J. (2013). Effectiveness of a Worksite Lifestyle Intervention on Vitality, Work Engagement, Productivity, and Sick Leave: Results of a Randomized Control Trial. *Scandinavian Journal of Work, Environment and Health*, 39, 66-75. doi: 10.5271/sjweh.3311
- Tennant, R., Fishwick, F., Platt, S., Joseph, S., & Stewart-Brown, S. (2006). *Monitoring Positive Mental Health in Scotland: Validating the Affectometer 2 Scale and Developing the Warwick-Edinburgh Mental Well-being Scale for the UK*. NHS Health Scotland:Glasgow
- Tennant, R., Hiller, L., Fishwick, F., Platt, S., Joseph, S., Weich, S., Parkinson, J., Secker, S., & Stewart-Brown, S. (2007). The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): development and UK validation. *Health & Quality of Life Outcomes*, 5 (63). doi:10.1186/1477-7525-5-63.
- The Health and Safety Executive. (2006/2007). *Health and Safety Statistics 2006/07*. Suffolk, United Kingdom: Crown Copyright
- Toumi, K., Vanhala, S., Nykyri, E., & Janhonen, M. (2004). Organizational Practices, Work Demands and the Well-being of Employees: a Follow-up Study in the Metal Industry and Retail Trade. *Journal of Occupational Medicine*, 54, 115-21. doi: 10.1093/occmed/kqh005
- Tveito, T. H., & Erikson, H. R. (2009). Integrated Health Programme: A Workplace Randomized Control Trial. *Journal of Advance Nursing*, 65 (1), 110-119
- Urwin, T. (2006). How To...Manage Stress. *Occupational Health*, 12-14
- Van Dongen, J. M., Proper, K. I., Van Wier, M. F., Van der Beek, A. J., Bongers, P. M., Van Mechelen, W., & Van Tulder, M. W. (2011). A Systematic Review on the Financial Return of Worksite Health Promotion Programmes Aimed at Improving Nutrition and or Increasing Physical Activity. *Obesity Reviews*, 12, 1031-1049. doi: 10.1111/j.1467-789X.2011.00925.x
- Van den Heuvel, S. G., Boshuizen, H. C., Hildebrandt, V. H., Blatter, B. M., Ariens, J. A. & Bongers, P. M. (2004). Effect of Sporting Activity on Absenteeism in a Working Population. *British Journal of Sports Medicine*, 39, 1-5. doi:10.1136/bjism.2004.013052
- Van der Zee, K. I. & Sanderman, R. (1993). *Measuring Health Status Using the RAND 36 Questionnaire: a Practical Manual*. Groningen: Noordelijk Centrum voor Gezondheidsvraagstukken
- Vingard, E., Blomkvist, V., Rosenblad, A., Lindberg, P., Voss, M., Alfredson, L., & Josephson, M. (2008). A Physical Fitness Programme During Paid Working

Hours- Impact on Health and Work Ability Among Women in the Social Service Sector: A Three Year Follow up Study. *Occupational and Environmental Medicine*, 34,(3) 337-344. doi: 1D3833SAFDR-20094592

## Chapter 6: Appendices

### Appendix 1

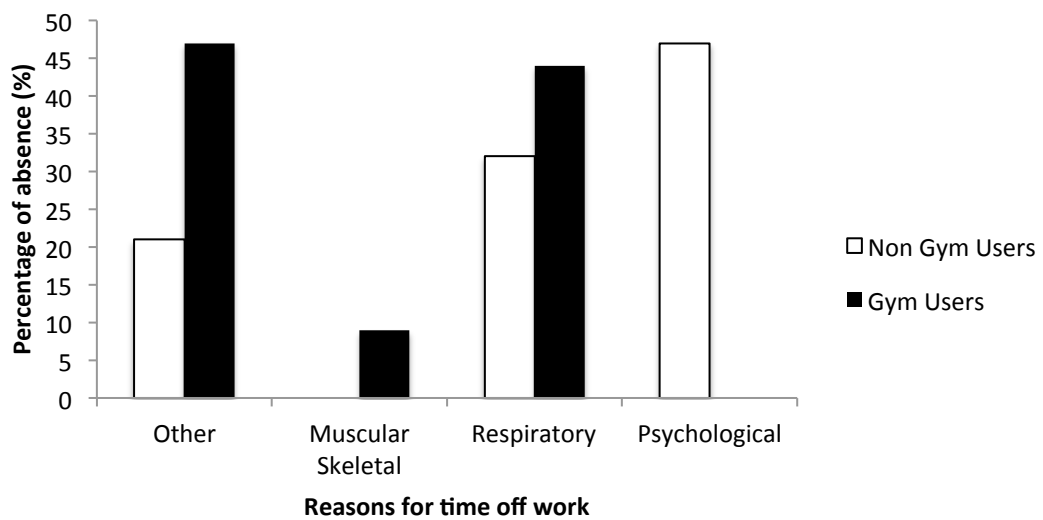
#### Absence Management table of short-term absence (CIPD, 2012).

Table 16: Top five most common causes of short-term absence for non-manual workers, by sector (%)

	All organisations	Manufacturing and production	Private sector services	Public services	Non-profit organisations
Minor illness (for example colds/ flu, stomach upsets, headaches and migraines)	99	100	99	96	100
Stress	56	44	54	71	53
Musculoskeletal injuries (for example neck strains and repetitive strain injury, but excluding back pain)	52	31	46	77	58
Back pain	46	36	46	53	50
Recurring medical conditions (for example asthma, angina and allergies)	42	49	38	45	40
Home/family responsibilities	32	43	39	13	29
Mental ill health (for example clinical depression and anxiety)	30	23	27	41	31

## Appendix 2

### Preliminary results of causes of absence (Willis, 2012).



## Appendix 3 Ethics.

*Ethical approval was provided by the University of Exeter, Exercise and Sports Science ethics committee.*

### Your application for ethical approval (2013/713) has been accepted

apache@exeter.ac.uk [apache@exeter.ac.uk] on behalf of Ethics Approval System [D.M.Salway@exeter.ac.uk]

Sent: Tuesday, June 18, 2013 9:27 AM

To: Campbell, Hannah

#### Ethical Approval system

Your application (2013/713) entitled Effectiveness of corporate gym useage on absenteism and mental well-being has been accepted

Please visit <http://www.exeter.ac.uk/staff/ethicalapproval/>

Please click on the link above and select the relevant application from the list.

Comments attached to this application are as follows:

#### Guidance for Researchers when Ethics Committee Approval is Given

1. Researchers are reminded that the research project has been given approval only in relation to its acceptability from an ethical point of view. It is not the role or responsibility of research ethics committees to give legal advice, nor are they liable for any of their decisions in this respect. Irrespective of the decision of a research ethics committee on a particular application, it is the researcher and/or sponsor who has the responsibility not to break the law.
2. Requests for extensions to the finish date of the project or proposed changes to the methodology and protocols outlined in the original submission must be submitted to the Chair of the Committee via College Office by email. The principal investigator and his or her research sponsor, and not the SHS Ethics Committee, are responsible for ensuring that a study follows the agreed protocol and for monitoring its progress.
3. A report should be made to the SHS Ethics Committee if any serious and unexpected adverse reactions are noted during the course of the study.
4. If a study is terminated or suspended the researcher must provide the SHS Ethics Committee with a detailed written explanation of the termination or suspension.
5. Researchers are reminded that ethical issues are given added salience where teaching and research involves children.

Guidelines for the appropriate conduct of research studies involving children and exercise are available in the Children's Health and Exercise Research Centre laboratory manual.

