

**High physical activity: A**

**Predictor of Self esteem**

**Health value and Body esteem**

Tristan O'Dowd

Submitted in partial fulfillment of the requirements of the Bachelor of Arts degree  
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Supervisor: Dr.Garry Prentice

Head of Department: Dr. Sinead Eccles

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Department of Psychology

DBS School of Arts

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## Abstract

The purpose of this research project was to examine whether high levels of physical activity were predictors of high self esteem, high levels of health value and high levels of body esteem. One hundred and nine participants, from a sample of convenience, comprising part time and full time students of Dublin Business School, and using a self reported questionnaire were surveyed. The results supported the hypothesis that there would be a significant positive correlation between self esteem and body esteem and also supported the hypothesis that there would be a significant positive correlation between high levels of physical activity and health value. Male and female scores were investigated for each variable within this study with health value being the only variable on which females scored higher than their male counterparts.

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## Introduction

*“If we could give every individual the right amount of exercise, not too little and not too much, we would have found the safest way to health”*

### Hippocrates

The relationship between physical exercise and psychological health has increasingly come under scrutiny over recent years. Physical inactivity is now considered a major global health concern, but no standardised methodology to measurement exist, and international evaluation and global monitoring are complex, labour intensive and costly (Montoye, Kemper, Saris & Washburn, 1996). An ever increasing wealth of research over the last decade shows that physical activity and exercise significantly enriches an individual’s psychological well being (Dubbert, 2002). Increasing people’s quotient of regular physical activity is a public health priority given the combination of extensive health benefits of regular physical activity and the low prevalence of physical activity among the general population (Garber, 2011). Frequent physical activity is of paramount importance to public health given its all-embracing physical and psychological benefits (Warburton, Katzmarzyk, Rhodes, & Shephard, 2007). Several earlier studies indicate the lower risk of death related to a physically active lifestyle was even lower amongst men who engaged in moderately vigorous sports activity on a weekly basis (Paffenbarger, Wing & Hyde, 1978).

The primary objective of this research project is to examine the effects of a high physical exercise regimen on people's self-esteem, the value that they currently place on their health and their current level of satisfaction with their body esteem. Lifestyle factors such as increasing physical activity have been correlated with reduced rates of chronic disease and a discernible improvement in weight control (Bauman, 2004). Physical-activity level, physical fitness, and other modifiable lifestyle characteristics may influence the risk of chronic disease and play a part in premature death rates (Paffenbarger, Brand, Sholz & Jung, 1978). Lifestyle factors can be compelling in influencing both physical and psychological health. In modern day affluent societies, the diseases contributing to the greatest mortality and morbidity; such as cardiovascular disorders, cancer, diabetes and obesity are now powerfully shaped by sedentary or active lifestyles. Modification in just four lifestyle factors - smoking, physical activity, alcohol intake, and diet, bring to bear a major impact on mortality and even minor modifications in lifestyle can have a significant effect on people's health status (Khaw, 2008). Initiating vigorous exercise activity, in conjunction with an alteration of lifestyle factors were linked with decreased rates of death from all causes amongst middle-aged and older men (Paffenbarger, Hyde, Wing, Dexter, Jung & Kampert, 1993).

Exercise enhances mental health by reducing anxiety, depression and negative mood and by enhancing self-esteem and cognitive function (Callaghan, 2004). It has been widely recognised that regular physical activity plays a prominent role in the prevention and management of copious physical diseases including cardiovascular disease, cancers and osteoporosis (Bouchard, Shephard, Stephens, Sutton & McPherson, 1990). Physical inactivity is now regarded as a global health concern (Booth, 2000). A meta-analysis conducted in 1990, based on eighty studies carried out between 1969 and 1989 presented a body of support

for a positive correlation between physical exercise and depression. All participants, regardless of gender, age or health status encountered the anti-depressant effects of exercise (North, McCullagh & Tran, 1990).

The Oxford English dictionary defines exercise as “an activity requiring physical effort, carried out to sustain or improve health and fitness”. It can also be described as any division of physical activity that is planned, structured, and repetitive and has a preservation or progression in one’s physical fitness and/or overall health as pre-determined outcomes. Exercise can significantly improve a person’s state of mind as it leads to enhanced quality of sleep (Youngstedt & Klein, 2006); reduces depression, stress, and anxiety and augments self-esteem and body esteem (Spence, McGannon, & Poon, 2005).

Physical activity can be classified as any bodily movement created by skeletal muscles that result in energy expenditure. Physical activity in daily life can be categorised into occupational, sports, housework or other types of physically related endeavors. It can also be categorised into how frequently an individual engages in aerobic exercise, but another important element to factor in is the intensity or vigorousness of that exercise (Craig et al., 2003). It has been clearly established in previous research that participants engaging in regular, high levels of physical activity exhibit more advantageous health outcomes across a range of physical conditions (Penedo, Dahn, & Jason, 2005).

Physical activity has long been acknowledged as one of the most noticeable lifestyle shifters amongst consumers (Kraft, & Goodell, 1993). High levels of physical activity are

commonly documented to have numerous psychological and physical health benefits; for example, it moderates depression and stress and elevates self-esteem and overall well-being (Maltby & Day, 2001). Prior research has characterised physical activity as being a positive health behaviour encompassing a multitude of physiological and psychological benefits (Hassmen, Koivula & Uutela, 2000). The potential of using exercise and physical activity in a scientific manner to promote mental health should encourage continued hard work to understand the biological, psychosocial, and cognitive mechanisms (Dubbert, 1992).

### *Physical activity and Self esteem*

Self-esteem may be defined as either a positive or negative orientation toward oneself or an inclusive appraisal of one's worth or value. William James described self esteem as “the ratio of our actualities in relation to our supposed potentialities” (James 1950 c.f. Andrews, 1998). It is now widely recognised that low self esteem is inherently correlated with inadequate body image (O’Dea, 2004). Trzesniewski (2006) found that low self-esteem during adolescence predicts deficient mental and physical health, inferior economic welfare and prohibitive levels of criminal activity in young adulthood. Research findings advocate that the development of self-esteem, which is defined as “a person's appraisal of his or her value” may have momentous consequences for life (Leary & Baumeister, 2000). In addition, there appears to be an association between an individual's physical self-perceptions and participation in exercise and physical activity (Fox, 2000). As with the other psychological health variables, exercise has a positive influence on improving self-esteem (McAuley, 2000). People are motivated to have high self-esteem and having it indicates positive self-



worth. Self-esteem has been defined as the “level of global regard one has for the self” (Harter, 1993), or how well a person “prizes, values, approves, or likes” themselves (Blascovich & Tomaka, 1991). There is increasing attention on the contribution of exercise in both the endorsement of mental well-being and the treatment and prevention of mental illness and disorders. A wealth of previous evidence is consistent with a possible functional network linking physical activity participation with improved self-esteem via a mediated effect of increased physical self-concept (Sonstroem, 1998).

It is widely believed that positive self-esteem is central to overall well-being and contentment with life, and a long line of research espouses the conception that self-esteem can be boosted through physical activity (Sonstroem & Morgan, 1989). The effect of exercise also appears to be more compelling in those who have lower self-esteem (McAuley, 2000). However, self-esteem is quite convoluted and studies intimate that certain subcomponents play a part in a person’s self-esteem including perceived sport competence, physical condition, body esteem and strength (Scully, Kremer, Meade, Graham & Dudgeon, 1998). Because of the many variables that have an effect upon self-esteem, it is important to note within this research, that a person may greatly value his/her physical condition and yet have a negative appraisal of his/her physical appearance. In addition, there appears to be a connection between an individual's physical self-perceptions and participation in exercise and physical activity (Fox, 2000). Within this context, self-esteem is regarded as an important element of well-being and a construct that might be open to transformation through exercise and physical activity experiences (Sonstroem, 1991). Self-esteem is only one constituent of the self-concept or the entirety of the individual's thoughts and feelings with reference to themselves as an entity.

### *Physical activity and Health value*

The magnitude of health to an individual is believed to influence that individual's behaviours with respect to the value that they place on their own health status (Lau, Hartman & Ware, 1986). The innumerable health risks that people face in modern day society are greatly influenced by their health behaviours. The most universal measurement within this domain, the Health Value Scale (Lau, 1986) is concerned with the value an individual places on his or her health. Attributing a high value to health is regarded as an essential component of the motivation to act upon and carry out health-related behaviours. Numerous studies have demonstrated that specific health cognitions, i.e. health locus of control beliefs, are only prognostic of health related behaviours in those individuals with a high sense of health value (Shelton, Smith & Wallston, 1992). The internal and external locus of control theory explains the degree to which people will assume the accountability for what happens to them.

Individual behaviours such as regular physical activity are key factors affecting individual health, and there are several evidence-based proposals that advise regular physical activity up to old age (Nelson, 2007). Grossman's model of health production has been extremely influential in the field of health value. Grossman's model views every person as both a producer and a consumer of health. Health is treated as a stock which deteriorates over time in the absence of "investments" in health, so that health is looked upon as a type of capital (Muurinen, 1982). Investment in health is expensive as consumers must trade off time and resources dedicated to health, such as exercising in the gym, against other intention.

Much previous research has looked at the motivations for exercise and shown that exercising for weight control, body image or attractiveness reasons has been associated with low body satisfaction (Silberstein, Mishkind, Striegel-Moore, Timko, & Rodin, 1988; Tiggemann & Williamson, 2000). Conversely, exercising for health and fitness motives is more likely to result in enhanced body image and greater self-esteem (Tiggemann & Williamson, 2000). A study by Vartanian in 2012 looking at people's reasons for exercise pointed towards the fact that appearance-based motives for exercise and weight loss corresponded to negative outcomes. Efforts to promote exercise and weight control should emphasise the health benefits rather than the implications towards aesthetic appearance (Vartanian, 2012). These factors are used to establish the ideal level of health that an individual will demand. It has been found, for example, that placing a high value on health predisposes one to engage in positive health behaviours (Abella & Heslin, 1984; Wurtele, Britcher & Saslawsky, 1985).

### *Exercise and Body image*

“Our image of our body plays a major role in how we feel, what we do, whom we meet, whom we marry, and what career path we choose, even if it's precise meaning and its role in mental well-being continue to delude psychologists” (Gerner & Kearney-Cooke, 1997 c.f. Blood, 2005). The flawless body is an obsession in today's era of media oppression. The so called “ideal physique” imposed by models in advertising imagery is primarily Caucasian from the muscle bound v-shape for males to the slim, willowy physiques for females. Attractive people are more likely both to be hired (Marlowe, Schneider, & Nelson, 1996) and to be pursued for romantic relationships (Singh & Young, 1995) and are, by and large, more

popular, socially adept, and sexually experienced than unattractive people (Feingold, 1992). Empirical studies have established that appearance-related commentary in the main has negative effects on an individuals' body esteem (Calogero & Herbozo, 2009). Body image mirrors how you feel your body is aesthetically and how attractive you perceive yourself. Throughout history, humans have regarded the beauty of the human body as important. What we regard as cultural benchmarks may not always be compatible with our assessment of our own body.

Paul Ferdinand Schilder (1950, c.f. Grogan, 1999) an Austrian psychiatrist and psychoanalyst and student of Sigmund Freud was the first to coin the phrase “body image” in his book *The Image and Appearance of the Human body*. A New Zealand study found that men and women were uniformly aware of the significance that society values on physical attractiveness and being slim, however women reported appreciably greater internalisation of thinness norms compared to men (Miller, Evonne & Halberstadt, 2005).

With so few of the global population able to realise this type of appearance many people are left feeling deficient or malfunctioning. Negative attitudes with respect to particular body images are commonplace in modern day society. They reflect a prejudice against larger sized individuals. It is conditioned into our children, is noticeable in our workplace and our hiring procedures and present in our everyday dialogue (Schwartz & Brownell, 2004). Because of the media, we have become accustomed to extremely rigid, impractical and unattainable yardsticks of physical attractiveness. Icons of seemingly human physical excellence rain down on us from advertisements, newspapers, magazines and

television. A sense of self-esteem is therefore often an insurmountable quest for many people, even at the apparent casual level of one's own individual façade. Amid women in the West, body esteem disorders are now so prevalent that many researchers consider them 'normative' experiences, particularly among adolescents (Smolak, 2006).

The causes of body dissatisfaction are however quite diverse. The media alone does not contribute to eating problems and distorted self-image; factors can be genetic, personal or social. Body dysmorphic disorder, eating disorders, exercise addiction and cosmetic surgery can all be symptoms of a damaged internal interpretation of one's own body image. Society's idealisation of a hyper-mesomorphic, hyper-lean male body, in combination with pressures from parents and peers over body size and shape, may harmfully influence boys' and men's body image and subsequent eating patterns (Leit, Gray, & Pope, 2002; Smolak, Murnen, & Thompson, 2005). Body esteem dissatisfaction is often recognised as the single strongest predictor of eating disorder symptomatology among women (Phelps, Johnston, & Augustyniak, 1999).

As women in Western culture are encouraged to be dissatisfied with their bodies and to keep an eye on their appearance rather than attend to their internal qualities (Fredrickson & Roberts, 1997), it is not unexpected or surprising that most individuals (90%) with clinical eating disorders are women (Striegel-Moore & Cachelin, 2001). Body attractiveness has been found to be one of the stronger predictors of physical self-worth over time (Opdenacker, 2009) and recent longitudinal research in middle-aged women proposes the relationship between alterations in body composition and general self-esteem may be arbitrated by

changes in attractiveness perceptions (Elavsky, 2010). College females, in particular, are at high risk for eating disorders and disturbances ( Meilman, von Hippel, & Gaylor, 1991).

Body esteem has been characterised as an individual, personal illustration of one's own physical appearance created both by self-observation and by monitoring the feedback of peers, principally in terms of body cathexis, body esteem, and weight satisfaction. Body-cathexis reflects how content people are with specific features of their bodies (Jourard & Secord, 1955), body image reflects how close a person's actual shape is to their ideal shape (Furnham, Badmin, & Snead, 2002), and weight satisfaction reflects how close a person's authentic weight is to their perceived ideal weight (Furnham, Badmin & Sneade, 2002). Davis and Cowles conducted a study in both males and females across a wide range of ages and compared them on a number of variables related to body image and their level of exercise participation. Findings from this research have demonstrated that a more optimistic body appraisal was connected with increases in exercise participation (Davis & Cowles, 1991).

Traditionally, body esteem has been viewed by many to be a female concern; few would have deemed these topics as being relevant to males. Men are generally judged to have a more positive body image than women. Progressively more men are seeking psychological help for body image problems, principally focused on muscularity (Davey & Bishop, 2006). However, commencing in the 1980s investigators began to recognise that body image disturbance may have gendered aspects. Specifically, men consistently report a desire to be larger and more muscular, as evidenced by discrepancies between men's ratings of their

present and ideal bodies (Calden, Lundy, & Schlafer, 1959). Similar changes in body ideals over the last twenty or thirty years can be seen not only in the media, but also in toy action figures. According to scholars (Baghurst, Hollander, Nardell, & Haff, 2006; Pope, Olivardia, Gruber, & Borowiecki, 1999), G. I. Joe, Batman, and Superman action figures are all much more muscular than they were twenty five years ago. Not surprisingly, the handling of these excessively muscular figures has resulted in decreased body esteem in young men (Bartlett, Harris, Smith, & Bonds-Raacke, 2005). In spite of this, as men endeavor to achieve the muscular Adonis-like body type, they become overweight in the process, and this often predisposes the individual to a disapproving image of their own physique. This condition is often referred to as 'reverse anorexia', and now more commonly 'bigorexia'. Previous studies have indicated that amongst men the compulsion for increased muscularity is associated with inferior self-esteem (Brunet, Sabiston, Dorsch, & McCreary, 2010). The origins are not known but two fundamental suggestions revolve around bigorexia as a form of obsessive compulsive behaviour and secondly, the effect of the media placing the same type of coercion on men to conform to an ideal silhouette as has been the case with women for many years. Silberstein, Striegel-Moore, Mishkind and Rodin (1989) named this "Threatened masculinity theory".

Even though first posited in relation to women's body-esteem, men have become gradually more objectified in the media and culture, perhaps leading to an increase in male self-objectification (Martins, Tiggemann & Kirkbride, 2007). Many men today are facing a dilemma vis-à-vis masculine identity. This predicament centres on Western society's escalating objectification of the male body and its main cultural messages regarding masculine physique. Body dissatisfaction, particularly with regard to leanness and

muscularity, has been identified as a key dynamic in men's psychological health and well-being (Cafri, Thompson, Ricciardelli, McCabe, Smolak, & Yesalis, 2005), including the development of muscle dysmorphia, eating disorders, and depression (Olivardia, Pope, Borowiecki, & Cohane, 2004). All the time more portrayals of the male body through action figures and in the general media, have come to propagate and exalt images that accentuate the physical manifestation as a decisive factor for gauging masculine value. This state of affairs is not dissimilar, some might argue, from the way women have countenanced time-honoured collective pressures to aspire to impractical expectations of magnificence.

Prevalence rates for body dissatisfaction suggest that almost one in every two females encounter some level of body dissatisfaction, with estimates for males considerably lower (Bearman, Martinez & Stice, 2006). According to body dissatisfaction, which is prevalent amongst women, has also become increasingly common amongst men (Tiggemann, Polivy & Hargreaves, 2009). Body dissatisfaction among men is said to play a role in a number of negative conclusions, such as the development of eating disorders, exercising addiction, depressive moods and depleted self esteem.

A study in 2006 showed that the correlation between body dissatisfaction and self-esteem may alter across the different phases of life (Paxton, Eisenberg & Neumark-Sztainer, 2006). One previous study showed that men are more upset than women by the appearance of their bodies as they age (Kaminski & Hayslip, 2006). However attractiveness is also more central to women's identity, and thus women are more apprehensive than are men about the effects of ageing on their appearance (Gupta & Schork, 1993). Alternatively previous



research confirmed the conclusion that body dissatisfaction remains comparatively stable across the life span (Grogan, 1999).

### *Hypotheses*

The purpose of this study was to examine the unique contributions of high level physical activity on people's self-esteem, the value that they currently place on their health and their level of satisfaction with their body esteem.

The first hypothesis predicts that there will be a significant positive relationship between high levels of physical activity and self esteem. It is widely believed that a high level of self-esteem is integral to overall well-being and satisfaction with life, and a long line of research supports the notion that self-esteem can be improved through physical activity (Sonstroem & Morgan, 1989).

The second hypothesis predicts that there will be a significant positive correlation between an individual's self esteem and their body esteem. Body esteem has been found to be one of the most resilient predictors of self esteem over time (Opdenacker, Delecluse & Boen, 2009). According to Franzoi and Shields (1984) body esteem is "an important dimension of general self-esteem" that is comprised solely of feelings about one's body.

The third hypothesis will predict that there will be a significant positive relationship between self esteem and health value. Individuals with high self-esteem tend to report better physical health alongside a higher internal value attached to their health status (Benyamini, Leventhal, & Leventhal, 2004).

The fourth hypothesis predicts that there will be a significant positive correlation between high physical activity and health value. It has been found in previous studies that the placement of a high value on health predisposes one to engage in positive health behaviours, i.e. physical activity and exercise (Abella and Heslin, 1984).

The fifth hypothesis predicts that there will be a significant positive correlation between high exercise and body esteem. Greater body satisfaction was positively associated with increased levels of physical activity participation and with increased body focus, a variable that was associated with increased levels of physical activity (Davis and Cowles, 1991).

It will also be predicted that males will have a significantly higher mean score than females in high levels of physical activity. This research will also expect that males will have a significantly higher mean score in relation to self esteem compared to females and also that males will have a significantly higher mean score on body esteem compared to their female counterparts. Finally this study will envisage that females will have a significantly higher mean score compared to males in relation to their health value.

## Methods

### *Participants*

The sample population which comprised this research was based on convenience sampling. One hundred and nine participants, (51 male and 58 female), comprising undergraduate and postgraduate students from Dublin Business School, who ranged in age from 18–64 years. The sample was recruited by attaining permission from Dublin Business School lecturers to hand out a self-report questionnaire during both daytime and evening lectures. Access to a cohort of both full-time and part-time students allowed for a population with a much broader age range and also ensured that the participants were made up of people who were in full-time and/or part-time employment and not just full-time students of Dublin Business School.

### *Design*

The research incorporated a cross sectional, questionnaire based, correlation study. The Predictor variables in this research were high exercise, self-esteem and gender and the Criterion variables were health value and body esteem.

## *Materials*

All instruments used in this research were self-administered paper based questionnaires utilising the following measures;

### *1. The Body-Esteem Scale (1984)*

Body esteem refers to self-evaluations of one's body or appearance. Developed by Franzoi & Shields (1984), this scale consists of 35 body-related parts and functions (eg, thighs, stomach, face, sex drive etc.). Participants were asked to indicate as to how they felt about that particular body part or function of their own body using a five point scale ranging from 1 = have strong negative feelings to 5 = have strong positive feelings. This scale has been extensively used in previous research and has proven reliability and validity as a measure of body esteem (Franzoi, S.L. 1994).

### *2. Rosenberg Self-Esteem Scale (1989)*

Self-esteem is a positive or negative orientation toward oneself; an overall evaluation of one's worth or value. People are motivated to have high self-esteem, and having it indicates positive self-regard. The Rosenberg self-esteem scale (RSES), developed by sociologist Dr. Morris Rosenberg, is a self-esteem measure used extensively in social-science research. It is a ten-item Likert scale with items answered on a four-point scale from 3 =

strongly agree to 0 = strongly disagree. Five of the items have positively worded statements and five have negatively worded ones. Items 1,3,4,7 & 10 are scored: SA=3, A=2, D=1, SD=0. Items 2, 5, 6, 8 & 9 are reverse scored: SA=0, A=1, D=2, SD=3.

The scale measures state self-esteem by asking the respondents to reflect on their current feelings (Rosenberg & Morris, 1989). The scale generally has high reliability (Blascovich & Tomaka, 1993). (Appendix: Figure 99)

### 3. *International Physical Activity Questionnaire (2002)*

The International Physical Activity Questionnaire - Short Form (IPAQ-SF) has been recommended as a reliable and valid method to assess physical activity (Craig et al., 2003). The International Physical Activity Questionnaire was developed to address the worldwide lack of exercise and physical activity concerns by a group of experts in 1998 to facilitate the surveillance of physical activity levels on a global standard (Craig et al., 2003). It comprises seven questions pertaining to the levels of physical activity engaged in over the last seven days and classifies the amount and intensity of the exercise. The questions asked participants about the time spent being physically active for at least ten minutes in duration over the last seven days. The final question asks about the amount of time spent sitting on one of the days over the last seven day period. The purpose of the questionnaire is to provide a common instruments that can be used to obtain reliable and valid internationally comparable data on health related physical activity and to categorise the levels of physical activity into low, moderate or high vigorous intensity.

Expressed as MET-min per week: MET level x minutes of activity/day x days per week

## Sample Calculation

### MET levels MET-minutes/week for 30 min/day, 5 days

Walking = 3.3 METs  $3.3 * 30 * 5 = 495$  MET-minutes/week

Moderate Intensity = 4.0 METs  $4.0 * 30 * 5 = 600$  MET-minutes/week

Vigorous Intensity = 8.0 METs  $8.0 * 30 * 5 = 1,200$  MET-minutes/week

TOTAL = 2,295 MET-minutes/week

Total MET-minutes/week = Walk (METs\*min\*days) + Moderate (METs\*min\*days) +

Vigorous

(METs\*min\*days)

### Categorical Score- three levels of physical activity are proposed

#### 1. Low

No activity is reported or some activity is reported but not enough to meet categories 2 or 3.

#### 2. Moderate

3 or more days of vigorous activity of at least 20 minutes per day or 5 or more days of moderate-intensity activity and/or walking of at least 30 minutes per day or 5 or more days of any combination of walking, moderate-intensity or vigorous intensity. Activities achieving a minimum of at least 600 MET-minutes/week

#### 3. High

Vigorous-intensity activity on at least 3 days and accumulating at least 1500 MET-minutes/week or 7 or more days of any combination of walking, moderate- or vigorous-intensity activities accumulating at least 3000 MET-minutes/week.

#### *4. Health Value Scale (1986)*

This project utilised the Health Value Scale (Lau, Hartman & Ware, 1986), a short four-item Likert scale in a self-report generalised questionnaire, designed to measure the value that participants placed on their health. This questionnaire consists of statements such as “If you don’t have your health, you don’t have anything”, and responses were scored on a seven-point scale where 1 = strongly agree to 7 = strongly disagree. Items 1 and 3 are reverse scored producing a total range of scores from 4-28. The higher the score, the greater the importance an individual places on their health. The Health Value scale is a reliable and valid measure that has been widely used in health related research.

#### *Procedures*

Participants were asked to fill in a self-report questionnaire as part of a final year, Dublin Business School, undergraduate psychology research study on exercise and its effects. Permission to hand out the questionnaires to students, at the start of lectures, had been agreed with the respective lecturers beforehand. The participants were told that the survey would take approximately 5-10 minutes to complete. To be included in this research, participants

had to indicate that they were over 18 years of age. Participants were also left with an email address if they would like to receive the results of this research. No participant identifiers were included within the questionnaire other than age bracket and gender. Individuals were advised that they could stop completing the questionnaire or withdraw their participation at any time without question or penalty. No inducements rewards or credits were offered to any of the participants. A comprehensive list of support services was included on the back page of the questionnaire should anyone have been affected by any issues raised within the questionnaire. Normality of the data was checked using exploratory functions in SPSS. In a descriptive analysis of items for all measures, and taking into account the skewness and kurtosis indices, the data set appears similar to a normal distribution. A full copy of the questionnaire is included in the Appendices.



## Results

### *Descriptive Statistics*

Table 1: *Descriptive statistics of psychological measures*

Variable	Mean	Standard deviation
Self-esteem	21.63	5.33
Body esteem	118.94	28.09
Health value	21.31	4.86
High exercise	1536.14	1939.79

The mean score on self esteem was 21.63 with a standard deviation of 5.33. The Rosenberg self-esteem scale ranges in score from 0-30. Scores between 15 and 25 are within normal range; scores below 15 suggest low self-esteem. Males were found to have slightly higher levels of self esteem (Mean = 21.66) than females (Mean = 21.60) but this was not statistically significant (Table 2). This indicates that overall, the respondents in this study expressed a normal level of self esteem.

The body esteem scale ranges in score from 35-175. A higher score on the scale indicates a higher value attached to body esteem. The mean score on body esteem was 118.94 with a standard deviation of 28.09 indicating that the cohort had no major concerns regarding body esteem. Males were found to have slightly higher levels of body esteem (Mean = 124.31) than females (Mean = 114.22) but this was found not to be of statistical significance (Table 3).

The mean score for Health value was 14.36 with a Standard deviation of 2.73. The Health value scale ranges in score from 4-28. A higher score on the Health value scale indicates a higher value attached to one's health. This indicates that the value that this group place on their health is within the normal range and is what you would expect to find in this predominantly young population. Females were found to have slightly higher levels of health value (Mean = 22.27) than males (Mean = 20.21) and this was found to be statistically significant (Table 4).

The mean score for High exercise was 1536.15 with a Standard deviation of 1939.79. The high physical activity range is from 0 to 8000 MET-minutes per week. The higher the MET score the higher the intensity of the physical activity. Males were found to engage in higher levels of physical activity (Mean = 1678.43) than females (Mean = 1411.03) but this was found not to be of statistical significance (Table 5).

*Inferential Statistics*Table 2: *Pearson's Correlation Table*

Variable	High exercise	Self esteem	Body esteem	Health value
High exercise	-	-	-	-
Self esteem	.181	-	-	-
Body esteem	.183	.405**	-	-
Health value	.213*	-.131	-	-
Moderate Exercise	-	.163	-	-

\* $p$  significant at .05 level.

\*\* $p$  significant at .01 level

Scatter plots of the significant correlations between Self esteem and Body esteem (Graph 1) and High physical activity and Health value are included in the appendices (Graph 2).

Table 3: *An Independent Samples T-test displaying the differences between Gender and High exercise*

Variable	Mean	SD	<i>t</i>	<i>df</i>	<i>p</i>
High Exercise – Males	1678.43	1804.84			
High Exercise - Females	1411.03	2058.64			
Equal variances assumed			.716	107	.475

\**p* significant at .05 level.

\*\**p* significant at .01 level.

Males (mean = 1678.43, SD = 1804.84) were found to engage in higher levels of intense exercise than females (mean = 1411.03, SD = 2058.64). The 95% confidence limit shows that the population mean difference of the variables lies somewhere between -472.44 and 1007.23. An independent samples t-test found that there was no statistical significance difference between high exercise scores of males and females ( $t(107) = .716, p = .475$ ).

Therefore the null can be accepted.

Table 4: *An Independent Samples T-test displaying the differences between Gender and Self esteem*

Variable	Mean	SD	<i>t</i>	<i>df</i>	<i>p</i>
Self esteem - Males	21.66	5.23			
Self esteem – Females	21.60	5.46			
Equal variances assumed			.061	107	.951

\**p* significant at .05 level.

\*\**p* significant at .01 level.

Males (mean = 21.66, SD = 5.23) were found to have higher levels of self esteem than females (mean = 21.60, SD = 5.46). The 95% confidence limit shows that the population mean difference of the variables lies somewhere between -1.97 and 2.10. An independent samples t-test found that there was no statistically significant difference between self esteem of males and females ( $t(107) = .061, p = .951$ ). Therefore the null can be accepted.

Table 5: *An Independent Samples T-test displaying the differences between Gender and Body esteem*

Variable	Mean	SD	<i>t</i>	<i>df</i>	<i>p</i>
Body esteem - Males	124.31	28.89			
Body esteem – Females	114.22	26.73			
Equal variances assumed			1.89	107	.061

\**p* significant at .05 level.

\*\**p* significant at .01 level.

Males (mean = 124.31, SD = 28.89) were found to have higher levels of body esteem than females (mean = 114.22, SD = 26.73). The 95% confidence limit shows that the population mean difference of the variables lies somewhere between -.44 and 20.65. An independent samples t-test found that there was no statistical significance difference between body esteem of males and females ( $t(107) = 1.89, p = .061$ ). Therefore the null can be accepted.

Table 6: *An Independent Samples T-test displaying the differences between Gender and Health value*

Variable	Mean	SD	<i>t</i>	<i>df</i>	<i>p</i>
Health value – Females	22.27	4.57			
Health value – Males	20.21	4.98			
Equal variances assumed			-2.24	107	.027*

\**p* significant at .05 level.

\*\**p* significant at .01 level

Females (mean = 22.27, SD = 4.57) were found to have higher levels of health value than males (mean = 20.21, SD = 4.98). The 95% confidence limit shows that the population mean difference of the variables lies somewhere between -3.87 and -.24. An independent samples t-test found that there was a statistically significant difference between health value of males and females ( $t(107) = -2.24, p = .027$ ). Therefore the null can be rejected.

## Discussion

The primary objectives of this research project were to examine:

1. The relationship between high levels of physical activity and people's self-esteem.
2. The relationship between self esteem and body esteem.
3. The relationship between self esteem and health value.
4. The relationship between high physical activity and health value.
5. The relationship between high physical activity and body esteem.

The data supported two of the five hypotheses; there was a significant positive correlation between self esteem and body esteem and there was also a significant positive correlation between high levels of physical activity and health value. Throughout the research another fundamental intention was to look at the gender differences in relation to high physical activity, self esteem, and body esteem and health value and elucidate as to whether or not any gender differences were statistically significant.

A Pearson correlation coefficient found that there was no significant relationship between high levels of physical activity and self esteem ( $r(107) = 0.181, p < .01$ ). This is however not surprising given the low rates of high physical activity participation in this population. Forty eight respondents (44%) of those that engaged in high levels of physical activity were at the lower end of the high physical activity range, scoring approximately 500

MET-minutes/week, and only one respondent (0.9%) scored within the higher end of the physical activity range, scoring above 6000 MET-minutes/week. Males were found to engage in slightly higher levels of physical activity and have higher levels of self esteem than females however; both of these outcomes were found to be not statistically significant (Table 3).

One of the limitations of this research with regard to physical activity was that it was not a longitudinal study; it focused on an individual's physical activity regimen over the previous seven day period only. Previous research has shown a direct correlation between participation in physical activity and increased self-esteem over a period of time (McAuley, Elavsky, Motl, Konopak, Hu & Marquez, 2005). Specifically, McAuley et al. found that physical activity had a positive effect on physical self-worth and self-esteem over a four year period. This research suggests a future need for assessing longitudinal associations between physical activity and self-esteem. A short-term physical activity study in 1989 demonstrated significant improvements in psychological well-being and mood for moderate intensity exercise, as distinct from high-intensity exercise. They showed that if the desired result of physical activity is an improvement in psychological outcomes, i.e. self-esteem; it is recommended that participants actually avoid high intensity, vigorous physical activity (Moses, Steptoe, Matthews & Edwards, 1989). An array of physical activity papers recommended an accumulation of thirty minutes of moderate intensity physical activity on either most days of the week (Pate et al, 1995) or a minimum of 3 days per week (Fletcher et al., 1996).

When the relationship between moderate levels of physical activity and self esteem was looked at in this population, a Pearson correlation coefficient found that there was no



significant relationship between moderate levels of physical activity and self esteem ( $r(107) = 0.163, p < .01$ ). (Table 2)

This research did not take into account the social aspect related to the types of physical activity that the participants engaged in. It has been suggested that the social aspects of exercise groups may be important for both adherence to any physical activity (Heinzelmann & Bagley, 1970) and for enhancements in an individual's psychological health (Hughes, Casal & Leon, 1986).

As this study did not find a positive correlation between high levels of physical activity and self esteem it is suggested that future research in this area should focus on people's motivations for exercise. Are they motivated to exercise for health and fitness related outcomes or for aesthetic reasons? It has been found in previous research that those who exercise for health and fitness reasons are more likely to have a higher self esteem, compared to those who exercise for weight control, body tone and attractiveness motivations (Strelan, Mehaffey & Tiggemann, 2003). A further limitation of this research was that an individual's self efficacy was not measured. Whether a person believes or doesn't believe that they have the ability to carry out the required physical activity greatly effects their motivations and intentions. Self-efficacy which is the belief or perception that one can perform a specific behaviour has been heavily applied to physical activity research and has been demonstrated to play a pivotal role in physical activity, exercise and other health-related behaviours (Sallis, Pinski, Grossman, Patterson & Nader, 1988). Bandura stated that self-

efficacy “is concerned with judgments of how well one can execute courses of action required to deal with prospective situations” (Bandura, 1982).

It was not within the scope of this research to measure participants intention or interest to partake in physical activity, which is time and again one of the key variables of attention when examining the determinant capability of an individual’s performance and would be worthy of focus in future research on this topic. People may have higher self-esteem for a multitude of other significant and wide-ranging reasons. They may be more motivated to exercise compared to those who have lower self-esteem. This research cannot conclude that high physical activity has a cause and effect relationship on self-esteem, simply because this study is not experimental. However the relationship between high physical activity and high self-esteem is robust and indeed worthy of an experimental diagnosis in future research to perhaps show cause and effect.

Another fundamental aspiration of this research project was to determine if self esteem and body esteem were positively correlated. It is generally accepted that feelings about one’s own body are correlated with feelings about the self. A Pearson correlation coefficient found that there was a significant positive relationship between self esteem and body esteem ( $r(107) = 0.405, p < .01$ ). Males were found to have higher self reported body esteem than females within this research; however, this was shown to be not of any statistical significance (Table 5).

Body attractiveness has been found to be one of the stronger predictors of physical self-worth over time (Opdenacker, Delecluse & Boen, 2009) and the relationship between changes in body composition and general self-esteem may be mediated by changes in one's view on their appearance (Elavsky, 2010). Among both genders, dissatisfaction with one's body is associated with low self-esteem (McCaulay, Mintz, & Glenn, 1988). This is consistent with previous work showing positive correlations between self-esteem and body-esteem scores (Swami, Stieger, Haubner & Voracek, 2008). A previous study found that the greatest predictor of self-esteem was a positive body appreciation (Swami, Airs, Chauhan, Leon & Towell, 2009). Previous research has shown that body-esteem is quite strongly related to self-esteem (Mendelson, Mendelson & Andrews, 2000; Jung & Lennon, 2003). Theory, research, and common observation suggest that one's physical body is a potential source of self-esteem and that not living up to one's standards regarding body-esteem can have negative consequences for the self. According to Franzoi and Shields (1984) body-esteem is "an important dimension of general self-esteem" that is comprised solely of feelings about one's body. Research has also shown that the bodily self is an important part of the self-concept and that body-esteem is positively correlated with one's own individual self-esteem (Padin, Lerner, & Spiro, 1981).

It seems quite unambiguous, that in present-day Western culture, as well as in this research that the body is a critical source of self-esteem and they have a vital influence on each other. The evidence is consistent with a possible functional network linking physical activity with superior self-esteem through a mediated effect of augmented physical self-concept (Sonstroem, 1998). However the actual causal direction of the relationship between body-esteem and self-esteem remains unclear, regardless of age (Tiggemann, 2005).

A recipe to understanding the relationships between physical activity, body esteem and self esteem will be the investigation of how these variables change with respect to each other over time or as the result of any intervention. Worthy of note within this study was the fact that both self esteem and body esteem were based entirely on self-reported data and other conceptualisations of body image, i.e. self-objectification were not assessed and taken into account. This is a construct worthy of investigation in any future research correlating self esteem and body esteem. It is strongly recommended that a longitudinal study would be best suited to correlate physical activity, its effects on both self esteem and body esteem and vice versa, over time.

A Pearson correlation coefficient found that there was no significant relationship between respondents' level of self esteem and health value ( $r(107) = -.131, p < .01$ ). In relation to health value, an independent t-test showed that females had a higher level of health value than males and this was found to be statistically significant (Table 6). It has been postulated in previous studies that males and females differ in certain health beliefs. It is the psychological role of the female, in their role as mothers, to be more concerned about health than males (Gochman, 1984). Several earlier studies also implicated similar findings, that self esteem has no important influence on an individual's health value (Boden, Fergusson, & Horwood, 2008; Krueger, Vohs, & Baumeister, 2008).

A drawback of this analysis was that the construct of self efficacy was not appraised and its potential influence on an individual's self esteem and the value that they put on their health. The concept of self-efficacy has secured much standing, within psychology research, as a predictor of both, health value and behaviour. The performance of health related

behaviours is a function of the interface between health value and perceived self efficacy; the degree to which a person believes that their actions influence their health status, and the degree to which they have belief in their own innate ability to successfully perform those requisite health-related exploits (Wallston, 1992).

Health locus of control is most pertinent where people place a high value on their health; people are unlikely to engage in health protective behaviour if they place a somewhat low value on their health, regardless of their control perspective. It has been intimated that a robust and consistent relationship will be found between health locus of control and health related behaviours only among people who place a high value on their health (Wallston & Smith, 1994). Health value should act as an arbiter of the association between health locus of control and health behaviour (Lau & Ware, 1981). As the Wallstons' state "There is no theoretical reason to expect health locus of control to predict health behaviour, unless it is used in combination with a measure of health value" (Wallston & Wallston, 1980). This research project has been, in some measure, been compromised by a failure to address the moderating effects of locus of control in relation to the respondents' health behaviours and health value status and it is a strong recommendation that locus of control be focused on and measured, in any related future research incorporating health value as a variable.

In relation to the hypothesis between high physical activity and health value, a Pearson correlation coefficient found that there was a significant positive relationship between high physical activity and health value ( $r(107) = .213, p < .01$ ). It has been found, for example, that placing a high value on health predisposes one to engage in positive health

behaviours (Abella & Heslin, 1984; Wurtele, Britcher & Saslawsky, 1985). To what extent an individual values their own health robustly influences their respective physical activity behaviours (Lau, Hartman & Ware, 1986). These findings are similar to a study of male college students, with high health value, who also conveyed more resolute preventative health behaviours, such as physical activity and exercise, than did students with a lesser level of health value (Abella & Heslin, 1984). Kristiansen (1985) reported data that shows that health value by itself forecasts the performance of preventive health behaviours, such as high levels of physical activity and exercise. Lau, Hartman & Ware (1986) found that a high value placed on health is a necessary pre-requisite for the carrying out of certain health behaviours; other than any programme intended to change health convictions, and will accomplish in modifying health behaviours only amongst participants who value their health favourably. It can be argued that, in general, health value indexes reproduce predominantly physical health data rather than psychological health data.

One question that this research leaves unanswered is what aspect of health people are referring to when they respond to the Health Value items. Health can be conceptualised to include physical, mental, and social aspects (Ware, 1976) but it is impossible to say if the present Health value scale replicates all of facets. Given the way the health value scale interrelates with efforts to predict health behaviours, one could argue that it is evidently reflecting a value placed solely on physical health. As a result it may be to some extent indistinct whether the manner of quantifying the value placed on health used within this research was beneficial in relation to an individual's psychological health.

Another question, worthy of note, is to reflect upon how people learn to value health across the lifespan. Lau (1982) showed that health value is a function of long-term encounters with sickness and of health related habits, and that the value placed on health might also change dependant on current health status. For example, the elderly, who typically experience more poor health than younger people, might come to value health more highly than a younger population. In this research only 7 (6.4%) of the respondents from this research were in the fifty five to sixty four years of age bracket, with seventy eight (71.5%) in the twenty five to forty four year old age group. This young to middle aged population, found within this study, is therefore not fully representative of a general population which would include a substantially larger elderly cohort and therefore any measurement of health value cannot be assumed to be robust. The question of changes and of the importance of health value would therefore be best addressed with longitudinal data and a wider range of ages in any future studies related to this topic.

It was hypothesised that there would be a significant positive correlation between high levels of physical activity and body esteem, however, a Pearson correlation coefficient found that there was no significant positive relationship between high levels of physical activity and body esteem ( $r(107) = -.183, p < .01$ ). A low level of body dissatisfaction, in earlier research, has been associated with higher levels of physical activity (Kruger, Lee, Ainsworth & Macera, 2008). Previous research has shown that exercise dependence (which is often linked with high levels of physical exercise) symptoms only weakly predicted body satisfaction in women (Hausenblas & Fallon, 2002).

Future researchers should examine not only the relationship between body esteem and physical activity investment, but also take into account diet, cosmetic surgery, anabolic steroid usage, tanning salon usage and smoking to keep weight under control, as these factors all sway an individual's evaluation of their appearance and body esteem. Only the participant's levels of physical activity were measured within this research.

This study uncovered several interesting findings with some worthy of note. It found a significant positive relationship between self esteem and body esteem and this was consistent with much previous work in the area. Males scored higher in their levels of both self esteem and body esteem compared to females within the study. This research also supported past findings that females were generally less content with their bodies than were males (Mendelson & White, 1985). A study of adolescents and adults indicated that thirty one per cent of female respondents and twenty four per cent of male respondents reported negative attitudes about their physical appearance (Cash, Winstead & Janda, 1986). We live in an age where severe dieting, cosmetic surgery and eating disorders are extremely prevalent. The study of how best to help those individuals who suffer from worrying and stressful thoughts and feelings with regard to their physical appearance and self esteem, is one of substantial opportunity for future research in this area. It also found a significant positive relationship between high levels of physical activity and health value with females placing more value on their health than males. Interestingly, within this research health value was the only variable that females scored higher than males.



### *Potential limitations of this study*

The sample size of one hundred and nine participants was selected by means of a sample of convenience from students in Dublin Business School. This relatively small sample size may have impacted the research as the data collected may not be fully representative of the levels of physical activity in the general population. The respondents were almost equal in gender representation with fifty one males and fifty eight females participating. One of the limitations of this research with regard to physical activity was that it was not a longitudinal study; it focused only on an individual's physical activity regimen over the previous seven day period. This research did not take into account the social aspect related to the types of physical activity that the participants engaged in which could have a large influence on self esteem outcomes. It is also recommended that future research in this area should focus on people's motivations for exercise or engaging in physical activity. Are they motivated to engage in physical activity for health and fitness related outcomes or for aesthetic reasons which would again have potentially major influences on self esteem, body esteem and health value?

One question that this research leaves unanswered is what aspect of health people are referring to when they responded to the Health value items. Given that the health value scale interacts with attempts to predict health behaviours, one could argue that it is clearly reflecting a value placed on physical health and ignores psychological health completely. Health and the value that an individual places on it dramatically rise as one ages. In this research only seven of the respondents from this research were in the fifty five to sixty four

years of age bracket, with seventy eight in the twenty five to forty four year old age bracket. It would be unreasonable to argue the robustness of health value in this population. This study calculated the relationship between body esteem and physical activity investment, but did not take into account self efficacy, dieting, cosmetic surgery, and anabolic steroid use, tanning, and smoking to keep weight under control, as these factors all greatly influence an individual's body esteem.

### *Future research suggestions*

#### *Gender*

As this study did not take account of counterbalancing between male and female participants, this research could be carried out using a) a population comprising exclusively males or b) a population comprising exclusively females.

#### *Culture*

Further research could be carried out to see if there are differences in physical activity, self esteem, and body esteem and health value between different nationalities, societies and cultures. For example, research carried out between sample populations from Western individualist cultures may generate diverse results, as compared to more collectivist Western cultures within which this research project was conducted.

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## Appendices

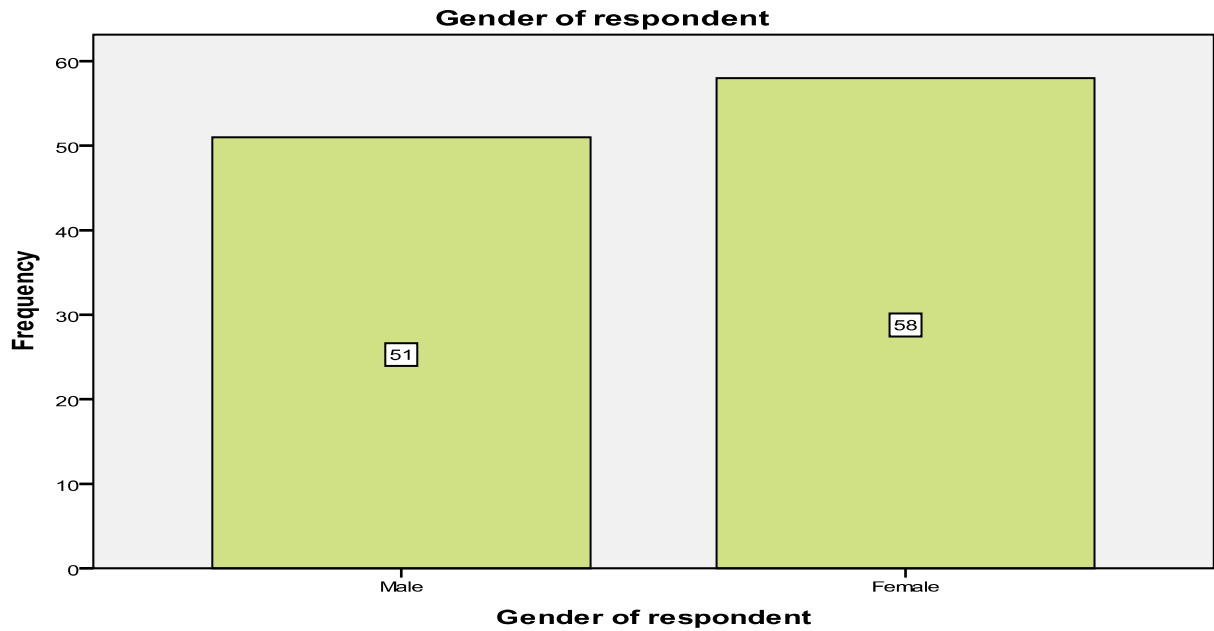
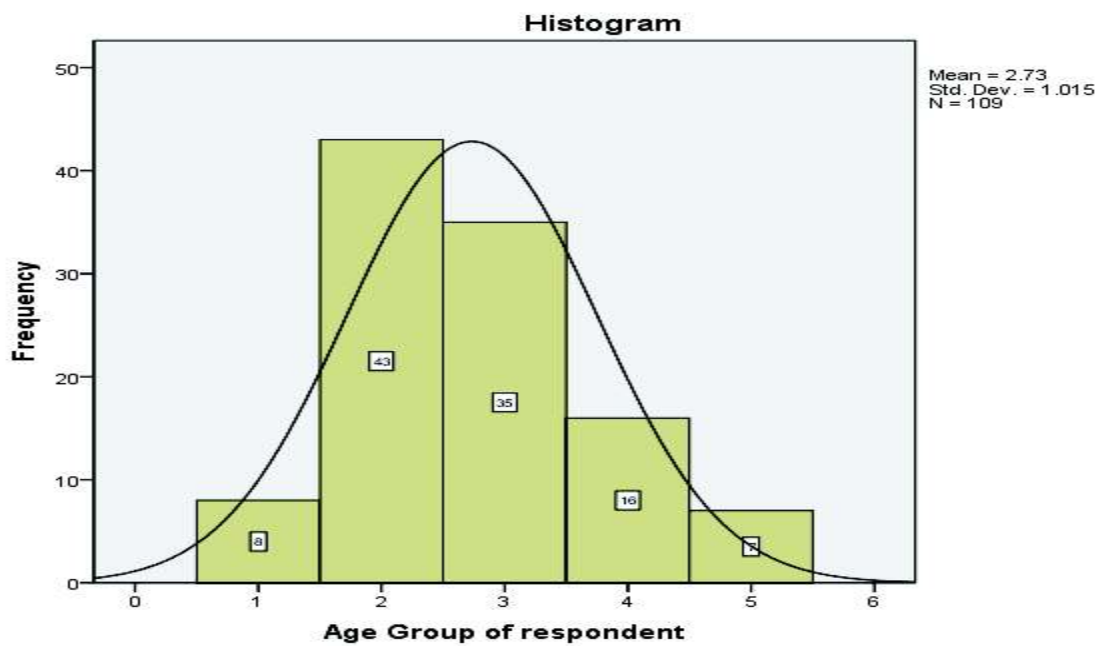
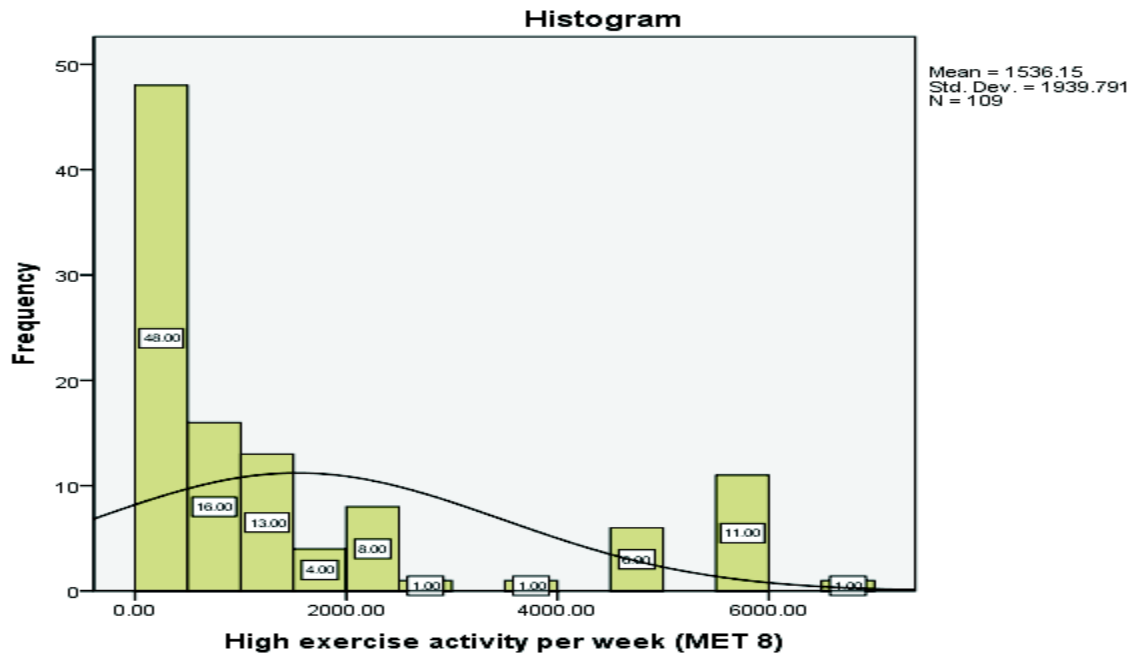
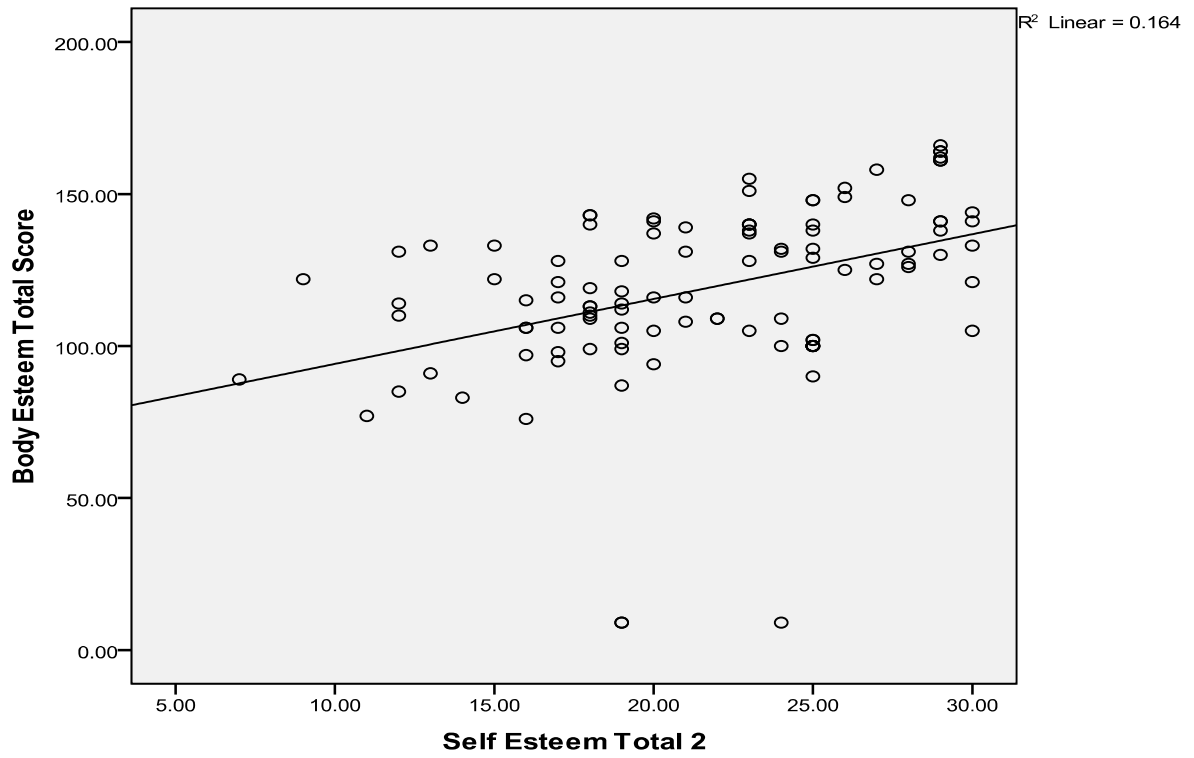
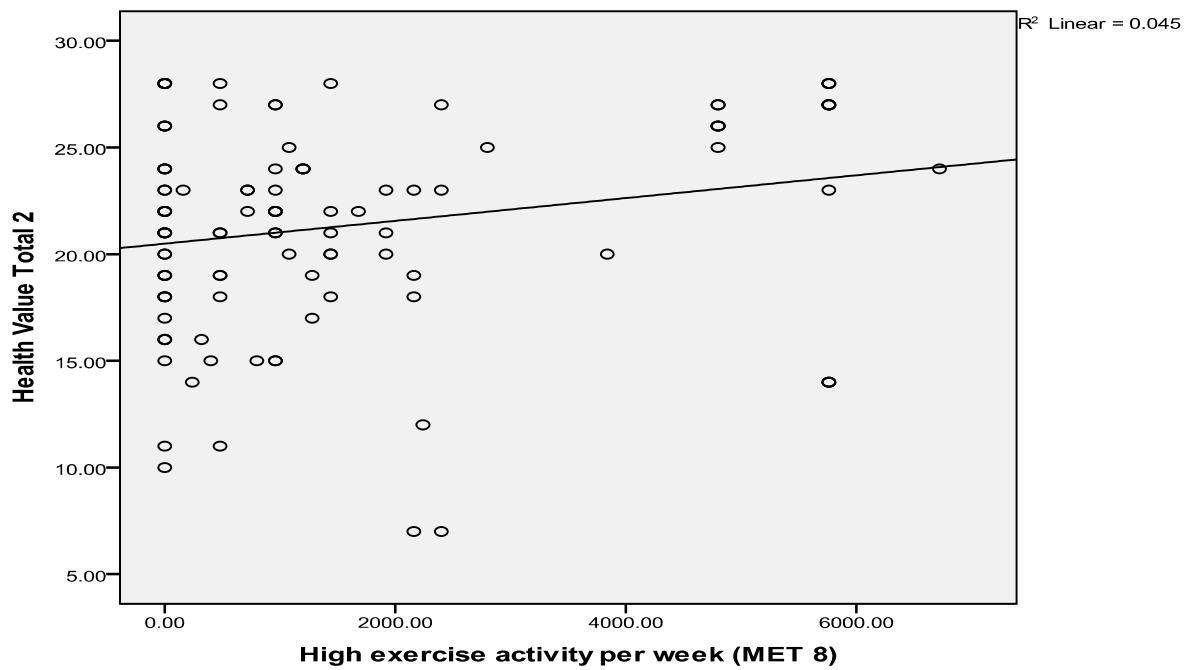
Figure 1: *Chart displaying gender breakdown of all respondents*Figure 2: *Histogram displaying the age groups of all respondents*

Figure 3: Histogram displaying all respondents who engaged in high levels of exercise





Graph1: Scatter plot displaying the correlation between Self esteem and Body esteem



Graph2: Scatter plot displaying the correlation between High exercise and Health value

*Project questionnaire*

Hi,

My name is Tristan O'Dowd and I am a final year undergraduate student in Dublin Business School. I am conducting a research study on Exercise and its effects as part of a BA Honours Degree Programme in Psychology. My Research Supervisor is Dr. Garry Prentice of Dublin Business School.

This survey should take approximately 5 - 10 minutes to complete. Participation in this study is completely voluntary. You may stop completing the questionnaire or withdraw your participation at any time. You will not be identified in any of the questionnaires or demographic sheet and all answers given will be treated with the strictest of confidence. Only those over 18 should complete this questionnaire.

If you would like me to provide you with the results of my findings, please contact me on the email below.

***Thank you very much for your participation.***

Tristan O'Dowd e-mail [REDACTED]

**AGE**

18-24

25-34

35-44

45-54

55-64

**GENDER**Male Female **THE BODY-ESTEEM SCALE**

On this page are listed a number of body parts and functions. Please read each item and indicate how you feel about this part or function of **your own body** using the following scale:

- 1 = Have strong negative feelings
- 2 = Have moderate negative feelings
- 3 = Have no feeling one way or the other
- 4 = Have moderate positive feelings
- 5 = Have strong positive feelings

- 1. Body scent \_\_\_\_\_
- 2. Appetite \_\_\_\_\_
- 3. Nose \_\_\_\_\_
- 4. Physical stamina \_\_\_\_\_
- 5. Reflexes \_\_\_\_\_
- 6. Lips \_\_\_\_\_
- 7. Muscular strength \_\_\_\_\_
- 8. Waist \_\_\_\_\_
- 9. Energy level \_\_\_\_\_
- 10. Thighs \_\_\_\_\_

11. Ears \_\_\_\_\_
12. Biceps \_\_\_\_\_
13. Chin \_\_\_\_\_
14. Body build \_\_\_\_\_
15. Physical coordination \_\_\_\_\_
16. Buttocks \_\_\_\_\_
17. Agility \_\_\_\_\_
18. Width of shoulders \_\_\_\_\_
19. Arms \_\_\_\_\_
20. Chest or breasts \_\_\_\_\_
21. Appearance of eyes \_\_\_\_\_
22. Cheeks/Cheekbones \_\_\_\_\_
23. Hips \_\_\_\_\_
24. Legs \_\_\_\_\_
25. Figure or Physique \_\_\_\_\_
26. Sex drive \_\_\_\_\_
27. Feet \_\_\_\_\_
28. Sex organs \_\_\_\_\_
29. Appearance of stomach \_\_\_\_\_
30. Health \_\_\_\_\_
31. Sex activities \_\_\_\_\_
32. Body hair \_\_\_\_\_
33. Physical condition \_\_\_\_\_
34. Face \_\_\_\_\_
35. Weight \_\_\_\_\_

**ROSENBERG SELF-ESTEEM SCALE**

Below is a list of statements dealing with your general feelings about yourself.

If you *strongly agree* with the statement - **Circle SA**

If you *agree* with the statement - **Circle A**

If you *disagree* with the statement - **Circle D**

If you *strongly disagree* with the statement - **Circle SD**

1.	On the whole, I am satisfied with myself.	SA	A	D	SD
2.	At times, I think I am no good at all.	SA	A	D	SD
3.	I feel that I have a number of good qualities.	SA	A	D	SD
4.	I am able to do things as well as most other people.	SA	A	D	SD
5.	I feel I do not have much to be proud of.	SA	A	D	SD
6.	I certainly feel useless at times.	SA	A	D	SD
7.	I feel that I'm a person of worth, at least on an equal plane with others.	SA	A	D	SD
8.	I wish I could have more respect for myself.	SA	A	D	SD
9.	All in all, I am inclined to feel that I am a failure.	SA	A	D	SD
10.	I take a positive attitude toward myself.	SA	A	D	SD

## INTERNATIONAL PHYSICAL ACTIVITY QUESTIONNAIRE

I am interested in finding out about the kinds of physical activities that people do as part of their everyday lives. The questions will ask you about the time you spent being physically active in the **last 7 days**. Please answer each question even if you do not consider yourself to be an active person. Please think about the activities you do at work, as part of your house work, to get from place to place, and in your spare time for recreation, exercise or sport.

Think about all the **vigorous** activities that you did in the **last 7 days**. Vigorous physical activities refer to activities that take hard physical effort and make you breathe much harder than normal. Think *only* about those physical activities that you did for at least 10 minutes at a time.

1. During the **last 7 days**, on how many days did you do **vigorous** physical activities like heavy lifting, digging, aerobics, or fast bicycling?

\_\_\_\_\_ **Days per week**

No vigorous physical activities → *Skip to question 3*

2. How much time did you usually spend doing **vigorous** physical activities on one of those days?

\_\_\_\_\_ **Hours per day**

\_\_\_\_\_ **Minutes per day**

Don't know/Not sure

Think about all the **moderate** activities that you did in the **last 7 days**. **Moderate** activities refer to activities that take moderate physical effort and make you breathe somewhat harder



than normal. Think only about those physical activities that you did for at least 10 minutes at a time.

3. During the **last 7 days**, on how many days did you do **moderate** physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking.

\_\_\_\_\_ **Days per week**

No moderate physical activities → *Skip to question 5*

4. How much time did you usually spend doing **moderate** physical activities on one of those days?

\_\_\_\_\_ **Hours per day**

\_\_\_\_\_ **Minutes per day**

Don't know/Not sure

Think about the time you spent **walking** in the **last 7 days**. This includes at work and at home, walking to travel from place to place, and any other walking that you might do solely for recreation, sport, exercise, or leisure.

5. During the **last 7 days**, on how many days did you **walk** for at least 10 minutes at a time?

\_\_\_\_\_ **Days per week**

No walking → *Skip to question 7*

6. How much time did you usually spend **walking** on one of those days?

\_\_\_\_\_ **Hours per day**

\_\_\_\_\_ **Minutes per day**

Don't know/Not sure

The last question is about the time you spent **sitting** on weekdays during the **last 7 days**. Include time spent at work, at home, while doing course work and during leisure time. This may include time spent sitting at a desk, visiting friends, reading, or sitting or lying down to watch television.

7. During the **last 7 days**, how much time did you spend **sitting** on a **week day**?

\_\_\_\_\_ **Hours per day**

\_\_\_\_\_ **Minutes per day**

Don't know/Not sure

## **THE HEALTH VALUE SCALE**

Indicate the extent to which you agree with the following four statements, using the scale below. Write the appropriate number in the blank box to the right of each statement.

*Strongly Agree*      *Moderately Agree*      *Moderately Disagree*      *Strongly Disagree*

1

2

3

4

5

6

7

- |  |                      |
|--|----------------------|
| 1. There is nothing more important than good health            | <input type="text"/> |
| 2. Good health is only of minor importance in a happy life     | <input type="text"/> |
| 3. If you don't have your health, you don't have anything      | <input type="text"/> |
| 4. There are many things that I care about more than my health | <input type="text"/> |

## **SUPPORT SERVICES**

If you have been affected by any of the issues raised within this questionnaire, please make use of the following resources.

### **HELPLINES**

- **Samaritans** – Helpline for those in emotional distress, offering multi-channel support. Tel: 08457 90 90, Email: [jo@samaritans.org](mailto:jo@samaritans.org), SMS text: 07725 909090
- **Bodywhys** - Bodywhys is the national voluntary organisation supporting people affected by eating disorders. Tel: 1890 200 444, Email: [alex@bodywhys.ie](mailto:alex@bodywhys.ie)
- **Aware** - Provide face-to-face, phone and online support for individuals who are experiencing mild to moderate depression. Tel: 1890 303 302, Email: [info@aware.ie](mailto:info@aware.ie)