

**The effects of a less active generation on both physical and mental health in modern  
society**

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**Title:**

The effects of a less active generation on both physical and mental health in modern society

**Abstract:**

The overall aim of this study is to analyse the physical health, by testing body mass index, and mental health, by measuring anxiety and self-esteem levels, of two hundred participants. A quantitative research design was completed for this research and therefore each participant completed a questionnaire in which one hundred of these participants exercised regularly and one hundred engaged in little or no exercise. Correlations and t-tests were completed using SPSS 17 for windows in order to examine the BMI, anxiety and self-esteem levels of each participant. The results showed a significant difference that BMI levels and anxiety levels were higher and self-esteem levels were lower for those who did little or no exercise in comparison to those who exercised regularly. The results also concluded that an astounding quantity of participants were unhappy with their body image and an overwhelming amount of those who engaged in little or no exercise were overweight and suffering with obesity despite the fact that the majority of participants agreed that exercise could maintain and prevent this.

## **Introduction:**

With the previous, current and ongoing medical tests and research that are taking place in order to study and cure those who suffer with physical and mental health issues, these health risks remain to effect the lives of several individuals in modern society. Depression, anxiety and stress are three of various mental illnesses that could be somewhat or fully maintained with the help of exercise (Hays, 1999). High blood pressure, heart disease and obesity are just three of many extreme physical health risks that are rising in modern society yet could be maintained, avoided or prolonged by introducing an active lifestyle to all individuals (Weinberg & Gould, 2010). Although there are various causes for such medical issues, this research project will focus on the body mass index, anxiety and self-esteem levels of those who exercise regularly in comparison to those who engage in little or no exercise.

Individuals in modern society tend to live on-the-go stressful lives and often due to the attempts of balancing work, family, education and friends as well as finding leisure time. Although it can be very difficult for some people to find the time for extra physical activity, regular exercise improves the sense of well-being as well as mental health. Modern society has recently experienced an overwhelming increase in people suffering with anxiety disorders and depression and exercise can help such individuals to cope more adequately in everyday life (Weinberg & Gould, 2010). People tend to gain social skills and broaden friendships when involved in exercise programs and almost ninety percent of people who exercise regularly would rather do so with a partner or group (Carron, Hausenblas & Mack, 2007).

Exercise and physical activity can enhance an individual's self-concept, self-capability and self-esteem (Fox, 1997). Self-concept covers all features of what one thinks of oneself and is the most fundamental measure of psychological well-being. As regular exercise is bound to alter and improve one's body image, this increases self-esteem as well as self-concept. A study of middle aged and elderly women (Hardcastle & Taylor, 2005)

concluded that regular exercise correlated with positive changes in self-esteem as participants declared feelings of achievement, social interactions and a sense of belonging when exercising. Despite the social, health and personal assets of exercising, there remains to be a high percentage of people who do not exercise at all (Weinberg & Gould, 2010).

Body Mass Index relates to the physical health of an individual to a certain extent. According to Shils, Shike, Ross, Caballero & Cousins (2006), BMI is now internationally used as a means of identifying those who are overweight and obese. The risks of developing type-two diabetes, cancer, heart disease and mortality are higher as BMI levels increase (Shils et al., 2006).

Sport and exercise is considered to be an important measure of good health. There has been a lot of fear over whether there is a historical flow towards decreasing levels of exercise in the population as a whole, particularly in the adolescent age group. It is the domination of television and the computer that tend to take up more spare time in the lives of the average adolescent today (Cale & Harris, 2005). Coleman (2011) states that many adolescents tend to avoid exercise and sport due to limited improvement, a conflict of interest, peer pressure or lack of time. Many writers have dwelled on the relationship between well-being and engagement in exercise whilst considering that those with emotional health problems may improve by partaking in sport or other physical activity (Cale & Harris, 2005).

### **The importance of this present research topic**

This research topic is one that is in need of research as a household study was completed by the central statistics office in the third quarter of 2006 which reported that only sixty-three percent of individuals over the age of fifteen declared that they had engaged in physical activities for exercise in the previous year. Only fifteen percent of participants with a poor health status reported an association with exercise in comparison to the seventy-six percent of participants with good health who admitted that they participate in regular exercise (Central Statistics Office, 2007)

Whilst the overall female participation in physical activity equalled to sixty-four percent, males were slightly behind with an average of sixty-one percent (Central Statistics Office, 2007). It was found that that less time was committed to physical exercise due to a lack of free time with work obligations which was more the case for males than females on average. For females, the most average reason for not participating in exercise was due to a lack of motivation (Central Statistics Office, 2007). Finally, fifty-eight percent of those who exercise regularly do so in order to improve health and twenty-one percent of participants were motivated to exercise for the social element (Central Statistics Office, 2007).

The purpose of this research on the effects that exercise has on physical and mental health is not only to highlight the fact that the current generation of societies have become less active in their daily lives but to analyse and confirm the effect that this has on the physical and mental health of those living such lifestyles. A goal has been set to survey one hundred middle aged adults who exercise regularly and one hundred that engage in little or no exercise. These results will be used to produce a broad outlook on the different lifestyles that the average middle aged adult lives today and to analyse what may optimistically arise as the positive effects of an active lifestyle on mental and physical health as opposed to the negative effects of a less active lifestyle on mental and physical health.

**Physical and mental health:**

According to Mason (2010), physical health relates to the level in which the body is working properly in order to move, fight diseases, repair injuries and keep the mind in shape. In order to stay healthy, individuals need to exercise regularly (Mason, 2010). According to Faulkner & Taylor (2005), mental health relates to the emotional and spiritual adaptability which allows an individual to enjoy life and deal with hardships such as physical disability, stress and pain whilst coping with pain and sadness. It is a complacent sense of well-being as well as a primary belief in self dignity and worth as well as that of others (Health Education Authority, 1997).

Mental health is often conceived as fundamental to all health and well-being as it has been to have a significant affect on physical health. As well as this, physical activity and exercise may also be an original and productive way of improving the balance between physical and mental health. Physical activity is an overall term that refers to any movement of the body that concludes in energy investment over that of time spent resting (Caspersen, Powell, & Christensen, 1985). Exercise refers to physical activity whereby activity is engaged in with the aim of conserving or enhancing physical fitness or health (Faulkner et al., 2005).

## Literature Review

### *Exercise as a means of reducing levels of depression and anxiety*

Many studies on the topic of exercise and its effect on physical and mental health have been completed which also justifies the importance of the effects that exercise has on mental and physical health. According to Parker, Hetrick, Jorm, Yung, McGorry, Mackinnon, Moller, & Purcell (2011) in a recent article, mental illnesses such as depression and anxiety are rising between the ages of eighteen and twenty-four years. This article focuses on a study that took place in order to evaluate whether treatments such as exercise can improve and manage depression and anxiety as opposed to cognitive behaviour therapy. This trial took place on a large group of young adults between the ages of fifteen and twenty-five with mild levels of depression and anxiety. Four combined treatments for their illnesses included psychological intervention through the use of problem solving therapy and counseling and exercise intervention through the use of behavioural exercise and psychoeducation. After six weeks the participants were examined and it was discovered that simple intercessions such as exercise could be effective in reducing depression and anxiety related symptoms (Parker et al., 2011).

A study that took place in Finland in 2000 suggests that individuals who participated in exercise at least two to three times a week felt significantly less depressed, angry and stressed (Stathopoulou, Powers, Berry, Smits, & Otto, 2006) In addition, a cross-sectional study took place in Germany through a German National Health interview and examination survey in which approximately seven thousand participants were examined in relation to health-related quality of life and physical activity. The results of this study indicated that those who took part in high levels of physical activity were living a healthier life (Schmitz, Kruse, & Kugler, 2004).

According to Goodwin (2003), a population study in the United States evaluated a negative correlation between regular exercise and major depression and anxiety disorders. However, a study was conducted by Stathopoulou et al. (2006) on exercise interventions for mental health. Throughout this study it was concluded that exercise could be a compelling agency for clinical depression and anxiety whilst encouraging sufferers to also seek help from mental health professionals (Stathopoulou et al., 2006). It focuses on those who are suffering with levels of mental illness, from depression to anxiety. However, the study did not examine individuals whose physical and mental lives are affected due to a lack of exercise. Despite whether they are mentally ill or are slightly affected, physical activity as a means of maintaining a healthy mental well-being was not taken into consideration throughout this particular study.

### ***The effects of mental illness on physical well-being***

Further research examined the relationship between physical and mental health. Wand and Murray (2008) focused on the problems of physical health in mental health care and promotes steps that should be taken to prevent these issues. The affect of mental illness on physical well-being was brought to light by the World Federation for Mental Health (WFMH, 2004) report with the realization that mental illness and stress were having a negative effect on physical health.

It was reported that anxiety and depression double and often triple the chance of suffering from high blood pressure and males that suffer from depression are seventy percent more likely to develop heart disease (Wand & Murray, 2008). This information acts as a stem from which the research on a less active generation and its effects on mental and physical health will grow from. This article has focused on the idea that mental illness has a negative effect on physical health yet the aim of this current research on exercise and physical and

mental health is to develop the effects that a less active generation has on mental and physical health and the reasons for this.

### ***Exercise interventions as a means of therapy for psychosis***

Psychosis is the general term surrounding schizophrenia, bipolar disorder and severe depression with psychotic features (Ehmann & Hanson, 2002). Although medication is the official and dominant treatment for such mental illnesses, practitioners and researchers are examining other kinds of therapy as a substitute treatment (Ellis, Crone, Davey & Grogan, 2007). Cognitive behavioural therapy has become a well-known treatment for psychosis (Haddock & Lewis, 2005). However, exercise interventions have become just as effective as accustomed therapies such as behavioural counseling and psychotherapy and is a low cost way of maintaining or improving mental health issues (Craft & Landers, 1998).

A critical study was completed in 2007 in order to gather previous studies and conclude whether exercise should be used as an adjunct therapy for psychosis (Ellis et al., 2007). It was found that exercise interventions among the studies generally took place for approximately ten to twelve weeks, which included aerobic activities such as cycling, walking and swimming. The psychological outcomes evaluated in the studies included depression, self-esteem and anxiety. Connections with exercise programs were found encouraging and the average outcome in the studies used concluded that exercise had a positive effect on mental health (Ellis et al., 2007).

Although Ellis et al.'s (2007) study focused solely on the effects of exercise on psychosis, it manages to highlight the point that exercise has the ability to positively act with or alongside medication. The focus on psychosis in this study by Ellis et al. (2007) has limited the possible effects that exercise also has on general mental health. This particular study helps to prove the emphasis that exercise is so important in mental health yet this

should be applied to all forms of mental health as opposed to one form of mental illness. It is also important to study a random sample of individuals rather than those who have been diagnosed with a mental illness as it gives an ample view on how exercise can maintain a healthy well-being, whether used to distress, improve self-esteem or simply socialize with others.

In 2008, a study took place by Bredahl, Puggaard & Roessler (2008) in order to determine the short and long term progress of psychological cases in two distinctive exercises on prescription groups; the treatment perspective and the preventive perspective behaviour. The treatment perspective involved a sixteen-week administered training influence including motivational counseling whereas the preventive perspective involved motivational counseling and nothing else. The self-reported dimension defines physical activity, health-related quality of life, physical fitness, obedience with national instructions for physical activity and willingness to change. The treatment perspective aimed towards those with medically controlled lifestyle diseases. A preventive perspective, on the other hand, was directed towards healthy participants at risk of developing lifestyle diseases as a result of living an inactive life (Bredahl et al., 2008).

### ***The effects of exercise on self-esteem***

Another similar study involved the effects of physical training on general well-being and self-image in elderly people with intellectual disability. The study examined older adults with intellectual disability in residential care in Israel. Each participant was given a questionnaire with thirty-seven questions in relation to their health and lifestyle and a physical training program was carried out three times a week for ten months. Statistical analysis evaluated a positive relationship in terms of perceived well-being and physical

training between the experimental and control group used (Carmeli, Orbach, Zinger-Vaknin, Morad & Merrick, 2008).

The overall results showed no change in BMI levels but there was an incredible change in self-perception of well-being. This concluded the importance of physical training in order to improve the well-being and self-image that is perceived among older adults with intellectual disability (Carmeli et al., 2008). These results linked to the extent of how physical training relates to changes in self-perception and body image in older adults, according to McAuley, Blissmer, Katula, Duncan & Mihalko (2000), who found that an attractive body and better fitness lead to feelings of physical worth as exercise improves self-esteem perception. This study was limited to the elderly that suffer with intellectual disabilities and therefore future research may use an additional control group, a younger age group or focus on those with various other disabilities.

Hausenblas and Fallon (2006) completed a study in which they analysed previous published and unpublished literature in the topics of exercise and body image. With one hundred and twenty-one studies, the results were coded and meta-analytic procedures were carried out. The studies were grouped into intervention, single group, and correlational effect sizes. These small effect sizes displayed that those who exercised had more of a positive body image than those who did not exercise. Results also proved that exercise intervention participants signified a more positive body image in comparison to non-exercising control participants and finally, those who exercised had a major improvement in body image scores after completing an exercise intervention (Hausenblas & Fallon, 2006).

This study also led to the conclusion that a negative body image can be expensive, as many individuals tend to spend a lot of money on diets, cosmetic surgery, supplements and counseling services. It was evaluated that negative body image is a strong predictor of many health problems such as depression, eating disorders and obesity (Stice, 2002). Further

research on this topic may be to examine the effects that exercise has on reducing negative body image suffering using clinical trials for instance. This research was also limited to previous literature and therefore could be tested again for more up-to-date results and then re-evaluated. Finally, the relationship between exercise and body image may also be dependent on other factors such as body composition or health status.

### ***Cardiovascular fitness and quality of life for adolescents with diabetes***

Whilst the previous literature focused on mental health, Faulkner (2010) took on a study of adolescents with type-one or type-two diabetes and analysed the relationships between physical activity and health-related quality of life. Diabetes mellitus is one of the most life-threatening chronic diseases of childhood and adolescence (Dabelea and Klingensmith, 2008). Adolescents with diabetes self manage it with the use of insulin and / or medical nutritional therapy. In this study by Faulkner (2010), one hundred and fifty-one adolescents with diabetes participated and were asked to fast for ten hours prior to the study. Their body mass index was calculated, they were given a light breakfast and then took part in study questionnaires as well as an interview. The results established that the more physically fit a patient with diabetes type-one is, the more chance of maintaining their overall glucose levels as well as reducing serum lipids. Being more physically fit also had a positive effect on the mental side of living with diabetes as it gives individuals a positive health approach and the belief that they can exceed athletically despite their illness (Faulkner, 2010).

### ***Exercise as a relief to arthritis***

Rheumatoid arthritis is a systematic disease that affects the musculoskeletal system of those suffering with it. A study was completed by Uhlig, Fongen, Steen, Christie & Odegard (2010) in order to prove that exercise programs can improve physical performance in patients

with rheumatoid arthritis. This study by Uhlig et al. (2010) involved the use of Tai Chi, a Chinese martial art that integrates slow and mild movements with mental focus, as a group exercise in order to improve disease activity and physical function for those living with rheumatoid arthritis. Fifteen patients between the ages of thirty-three and seventy participated in Tai Chi exercise twice a week for twelve weeks and were assessed after the twelve weeks and again after another twelve weeks by means of physical performance tests (Uhlig et al., 2010).

Uhlig et al.'s (2010) analysis found that Tai Chi exercise resulted to improve lower-limb muscle function at the end of the twelve-week program. The results declared that patients experienced enhanced physical condition, balance, determination in moving as well as reduced levels of stress and less pain during exercise as well as in daily life (Uhlig et al., 2010). This in-depth study showed that exercise had a massive positive effect on physical health and the well-being of those suffering with this physical disease. However, a limitation to this study was that only fifteen patients were examined and there was no control group used which means that several other factors could be the cause of observed changes in the results. Despite this, those who participated were patients from a rheumatology out patient department seeking regular medical attention that provides a secure study on the reality of this disease (Uhlig et al., 2010).

### ***The power of exercise on obesity***

Leite, Milano, Cieslak, Lopes, Rodacki & Radominski (2009) developed a study that focuses on the effects of exercise and nutritional guidance on metabolic syndrome and obesity in teenagers. Metabolic syndrome is distinguished by the existence of cardiovascular risk factors associated with atherosclerotic cardiovascular disease and type-two diabetes. According to Leite et al. (2009), the domination of metabolic syndrome in children and

adolescents correlates with obesity. Regular exercise and nutritional guidance are the healthiest actions used to minimize metabolic syndrome in adults. Obesity is not just a disease in which an individual is extremely overweight but it also causes high blood pressure that can then be the cause of several health issues (Leite et al., 2009).

The experiment by Leite et al. (2009) involved sixty-four obese participants between the ages of ten and sixteen with a body mass index higher than the ninetieth percentile. The participants took part in a three-month exercise and nutritional program and were examined before and after the treatment. The exercise program involved one hundred and twenty minutes per week of moderate physical activity separated in three weekly sessions along with nutritional guidance (Leite et al., 2009).

The predominance of metabolic syndrome was forty-five percent among all the participants. This reduced to thirteen percent after the training. After twelve weeks, the obese participants with and without metabolic syndrome reduced their total body mass, waist size, fat mass and heart rate. The participants without metabolic syndrome also reduced their total body mass. This study by Leite et al. (2009) evidently confirms that exercise with the help of healthy eating has a positive result on obesity as a physical health issue. Physical activity has been proven to boost the insulin effect because of various flexible mechanisms in muscle, hepatic, adipose and endothelial tissues (Leite et al., 2009).

Leite et al. (2009) highlighted the importance of physical activeness and healthy eating as a way of preventing obesity for those who are not overweight or reducing obesity for those who are. Limitations within this study include the short period of the program and the few participants that were examined. As well as this, the program involved minimal exercise that active individuals would use to maintain a healthy weight and therefore a slightly more intense program may be more effective.

### *Exercise and body mass index*

It has been proven that there is a correlation with continual physical activity and a decreasing rate of weight gain as well as a smaller waist circumference through the examinations of genetic background and environmental factors (Waller, Kaprio & Kujala, 2008). A study took place in 2009 in which a longitudinal study of five consecutive birth cohorts of Finnish twins was completed. Participants completed a questionnaire and self-measurement of waist circumference in order to examine whether physical activity alters the genetic influences on BMI and waist circumference (Mustelin, Silventoinen, Pietilainen, Rissanen & Kaprio, 2009).

Results showed that physical activity considerably modified the genetic factors of BMI and waist circumference, with a high level of physical activity declining the additive genetic components in BMI and waist circumference. It was found that physically active participants were leaner than those who did not engage in physical activity and physical activity was proven to reduce the influence of genetic factors to develop an unhealthy BMI and waist circumference. Above all, this study suggests that those at greater risk for obesity would benefit the most from physical activity (Mustelin et al., 2009).

An interesting result in this study showed that the interaction of genes and physical activity could evolve as individuals aged. Heitmann et al. (1997) studied BMI change in relation to past physical activity and discovered that the genetic influence on BMI change in men was encountered at medium and high physical activity levels only. However, although physical activity may lessen the effects of genes on body size, the future course of weight change may be more affected by genes than environment in physically active subjects (Mustelin et al., 2009). Karnehed et al. (2006) found that twins genetically susceptible to obesity were more likely to have a large waist circumference if they were sedentary.

Limitations in regards to this study involve the slight insecurity that the data on BMI, waist circumference and physical activity are based on self-reports which can often result in the over-reporting of height and under-reporting of weight and therefore an inaccurate estimation of BMI. Future research may involve the same study on young or old individuals as opposed to the focus on twins. A focus on middle-aged women or young men, for example, may also result in significant outcomes.

Smith, Griffin and Fitzpatrick (2011) evaluated that there is a positive and effective correlation between exercise and obesity after a study on one hundred and seventy-five individuals over the age of forty whose BMI exceeded twenty-five. The participants completed a questionnaire which measures their current level of exercise during leisure time in which regular exercise was determined as planned activity in order to increase fitness levels. The results showed that twenty-three percent of participants had exercised regularly for over six months and thirty-nine percent claimed that they exercised regularly. As well as this, the majority of the participants admitted that the pros of exercise dominated the cons and as the pros increased, so did the tendency to exercise more.

This study proves that exercise has a positive effect on physical health in terms of BMI levels yet there are several limitations with this particular research. For instance, only thirty-five percent of participants met the recommendations for exercise whereas half the American population exceeds this recommendation and therefore the sample was very minimal. In addition, the overweight participants were more likely to engage in exercise than those who were obese and the age group of those over forty was very broad.

### ***The effects of exercise on feelings of energy and fatigue***

Many individuals, mainly due to diet and lifestyle, tend to suffer with low levels of energy and fatigue, which has become a major public health problem according to Puetz,

O'Connor and Dishman (2006). This led them to complete a study whereby they measured the effect of chronic exercise on feelings of energy and fatigue. Chronic exercise refers to any form of physical activity that is planned, repeated or structured and enhances body composition, flexibility or cardiorespiratory capacity (Caspersen, Powell & Christenson, 1985).

This research by Puetz et al. (2006) involved seventy studies of six thousand eight hundred and seven subjects in order to quantify the significance of the effect of chronic exercise on feelings of energy and fatigue using meta-analytic methods. The results of this vast study showed that chronic exercise was in fact associated with an improvement in levels of energy and fatigue. These results, according to Puetz et al. (2006), portrayed to be more effective than those reported for stimulant drugs and other substances. This is an extremely positive outcome in terms of the cost of medication for such individuals as opposed to using chronic exercise in order to increase energy levels and decrease these fatigue feelings.

This research was limited, however, as it clarified how the effects of chronic exercise on feelings of energy and fatigue differ depending on the type of control condition used and the distinctiveness of the exercise intervention. Future research could include a focus on those who experience the largest and smallest increase in feelings of energy and decrease of fatigue after chronic exercise as well as experiments that highlight the extent to which chronic exercise correlates with other therapies for feelings of low energy and fatigue.

## **Conclusion of literature reviewed**

Although there are still a large number of people who exercise on a regular basis, whether it is enjoyed or done to maintain a healthy balance, there is most certainly a decrease in the amount of people who exercise regularly which leads to negative consequences that affect both physical and mental health (Franzoi, 2010). The above literature covers a variety of aspects on the positive effects that exercise has on both mental and physical health such as minimising BMI levels (Mustelin et al., 2009), preventing and maintaining depression (Parker et al., 2011) and overall prolonging life (Franzoi, 2010). The effects of an inactive lifestyle has been thoroughly discussed which indicates that exercise can reduce levels of depression as well as more extreme mental illnesses such as psychosis (Ellis et al., 2007). In terms of physical health, exercise can help maintain or prevent diabetes (Faulkner, 2010), arthritis (Uhlir et al., 2010) and obesity (Leite et al., 2009).

It has been made clear that such health risks are increasing and treatments are constantly under investigation and study. Although medication is often necessary in some cases, those who remain with an ability to participate in physical activities should be encouraged to exercise regularly in order to help cope with such illnesses and diseases. Each study that has been reviewed above involved a short period of examining participants but resume to highlight the reality of the mental and physical health issues that exist and can be somewhat helped with regular exercise. The literature review has given an introduction to the background of how important this topic is and has been for a long time. Each study reviewed differed in participants, analysis and results yet they all persist that physical activity can only act as a positive outcome on physical well-being and mental health.

**Aims of the present study**

With the knowledge of past studies that have been carried out in relation to this topic on the effects of a less active generation and its effects on physical and mental health, it is the aim of this present research project to focus merely on the declining activeness of this generation and the effects that this is having on the mental and physical health of middle aged adults. The objective is to produce an insight to the lifestyles of middle-aged adults, those who exercise regularly and those who do little or no exercise, and determine why there is a lack of motivation for those who do not and if this is having an effect on their mental and physical health.

It is hypothesized that the participants who do exercise regularly will have a healthy BMI, low levels of anxiety and high self-esteem. Furthermore, it is hypothesized that those who do not exercise regularly will have unhealthy BMI levels, higher levels of anxiety and a lower self-esteem. Finally, it is hypothesized that those participants that exercise regularly will show the positive effects that exercise has on their physical and mental health in comparison to those who do little or no exercise.

## **Methods**

### ***Design***

It was decided that quantitative research was more appropriate and suited for this research as the aim was to explore approximately one hundred young adults who partake in regular exercise as opposed to approximately one hundred young adults who do little or no exercise and then apply the effects of such lifestyles to their mental and physical health. A quasi-experimental research design was used. The independent variable was lifestyle i.e. whether participants led an active lifestyle by exercising or choosing not to exercise. The dependent variable was the participants' health. The means were tested for BMI, anxiety and self-esteem for those who do little or no exercise and those who exercise regularly. The exercise variable was split in to those who exercised regularly and those who did little or no exercise and correlational analysis' and t-tests were completed for exercise and BMI, self-esteem and anxiety in which the predictor variables referred to the calculation of the BMI percentage, anxiety and self-esteem and the criterion variable referred to the existence or lack of exercise.

### ***Materials***

The participants completed a short booklet of questionnaires containing questions about their gender and age followed by questions related to their height and weight in order to calculate their Body Mass Index percentage. In addition, participants also completed questions based on shared characteristics such as living an active lifestyle or living an inactive lifestyle. For instance, general questions were asked in relation to health problems e.g. 'Do you have any of the following health problems?' to which responses included 'diabetes' or 'high blood pressure'. Questions were also asked in relation to activities e.g.

‘Which of the following activities do you like to do most in your spare time? To which responses included ‘Watch television’ and ‘Play computer games’.

Moreover, questions were also asked in relation to socialisation e.g. ‘When you socialize, which of the settings do these tend to take place?’. Responses to this question included ‘The cinema’ and ‘Going for a drink’. Responses on the above lifestyle questions included a check all that apply and were given an additional option for ‘other’ or ‘not sure’, depending on which was more appropriate. In addition to the lifestyle questions, participants also completed an anxiety questionnaire (Leary, 1983) and finally a self-esteem questionnaire (Rosenberg, 1965), both with points along a scale that reflect their opinions toward each statement by choosing the point that best reflects their attitude.

Anxiety was measured by the revised, brief version of ‘The Fear of Negative Evaluation Scale’ (Leary, 1983). This 12-item scale measures an individual’s apprehensions about other’s evaluations, distress over their negative evaluations, and the expectation that one would be evaluated negatively, e.g. “I often worry that I will say or do the wrong things”. Items are answered on a 5-point scale, (1, not at all characteristic of me; 5, extremely characteristic of me). Scores range from 12 (lowest fear of negative evaluation) to 60 (highest fear of negative evaluation).

Self-esteem was assessed by ‘The Self-Esteem Scale’ (Rosenberg, 1965), which measures global feelings of self-worth or self-acceptance. This 10-item scale is scored using a 4-point response format (1= strongly agree; 4 = strongly disagree) to statements such as “I feel that I have a number of good qualities”. Scores range from 10-40, with higher scores indicating higher self-esteem. See appendix one for a copy of the questionnaire booklet.

### ***Participants***

The experimental group of participants were middle-aged adults that exercise regularly as opposed to the control group of middle-aged adults that engage in little or no exercise and choose to spend their spare time doing other things that do not involve being active. Two hundred participants between the ages of twenty and forty years (the mean age was thirty and the standard deviation was five) were given questionnaires to complete. Participants were chosen from a local gym, three neighbourhoods and several work places. Consent was sought from the local gymnasium and several work places in order to have participants offered the questionnaire.

### ***Procedure***

Participants voluntarily completed the questionnaire in their own time and were given as much time as they needed to complete it. Each questionnaire took approximately ten minutes. Afterwards, respondents were thanked and given the opportunity to obtain further information regarding the nature of the study by contacting the researcher named at the end of the questionnaire booklet. When the data was collected, the BMI of each participant was calculated using their height, weight and age and scores on the anxiety questionnaire (Leary, 1983) and self-esteem questionnaire (Rosenberg, 1965), scales were reversed, so that higher scores would indicate higher anxiety and higher self-esteem. All negative answers were recoded, and then scores computed to give total scores. All statistics were computed with SPSS 17 for Windows.

### ***Ethical considerations***

Throughout this research, several ethical issues have been taken into consideration. Each participant was informed on the reasons for this research and what it will be used for

and were then given the choice to take part or refuse to do so. Those who chose to take part were met with a strong level of anonymity in which their identity will remain unknown throughout the research. The questionnaires included fairness and equal respect with no signs of sexism, discrimination or stereotyping. The questionnaires were also punctual and brief in order for all participants to take part with no major problems in dissecting the questions involved. Finally, each participant was appreciated for giving up their time and verbally thanked accordingly.

## Results

### *Descriptive Statistics*

It is the aim of this present research project to focus merely on the declining activeness of this generation and the effects that this is having on the mental and physical health of middle-aged adults. Two hundred participants volunteered in the questionnaires in which one hundred were those who engage in little or no exercise as opposed to the remaining one hundred participants that exercise on a regular basis. Overall, the Body Mass Index of each participant was calculated in terms of their physical health as well as an evaluation on their self-esteem and anxiety in relation to their mental health. The following table below reports the mean and standard deviation for each of these variables for both groups of participants:

**Table one: Means and Standard Deviations for BMI, Self-esteem, and anxiety for participants who exercised little (or none) and for those who exercised regularly.**

NewExercise	N	Minimum	Maximum	Mean	Std. Deviation
Little or no exercise BMI	100	18.30	59.20	27.3426	6.22314
TotSE	100	13.00	40.00	29.1900	6.08143
TotANX	100	16.00	58.00	37.4700	10.33622
Valid N (listwise)	100				
Regular exercise BMI	100	18.70	65.55	25.0964	6.32640
TotSE	100	17.00	61.00	33.0300	6.83345
TotANX	100	12.00	60.00	31.8800	9.26957
Valid N (listwise)	100				

As can be seen from table one above, the mean BMI level for those who exercise regularly is twenty-five in comparison to a mean of twenty-seven for those who do little or no exercise. Therefore, those who exercise regularly show a more healthy BMI level overall. In addition, the mean for self-esteem is higher for those who exercise regularly which suggests that self-esteem levels are lower in those who do little or no exercise. As well as this, the mean

anxiety level is higher for those who do little or no exercise and therefore anxiety levels are lower for those who exercise regularly.

Of the one hundred participants who do little or no exercise, only twenty one of those were happy with their body, sixty five were not happy with their body and fourteen were not sure. However, of the one hundred participants who exercise on a regular basis, sixty six were happy with their body whilst just twenty three were not and eleven were not sure suggesting that hypothesis three was accepted in that participants that exercise regularly showed this positive effect that exercise has on their physical and mental health. When all participants were evaluated in terms of B.M.I. type, results showed that sixty-five percent of those who exercise regularly were of normal B.M.I., twenty-six percent were overweight and nine percent were obese. However, thirty-six percent of those who do little or no exercise were of normal B.M.I., thirty-eight percent were overweight and twenty-five percent were obese.

In addition to supporting hypothesis three, various health issues appeared more existent for those who do little or no exercise. For instance, eleven percent of those who do little or no exercise affirmed that they were diabetic as opposed to the two percent of those who exercise regularly. As well as this, thirteen percent had high blood pressure in comparison to just five percent of those who exercise, twenty-five percent suffer with stress whereas fourteen percent of those who exercise suffer the same and finally, eleven percent of those who do little or no exercise are dealing with depression compared to just six percent of those who exercise regularly. Finally, of all the two hundred participants who were asked if exercise can help prevent such health risks, one hundred and eighty seven agreed and just thirteen disagreed.

### *Inferential Statistics*

Hypothesis one predicted that the participants who do exercise regularly will have a healthy BMI, low levels of anxiety and high self-esteem. Hypothesis two stated that those who do not exercise regularly will have unhealthy BMI levels, higher levels of anxiety and a lower self-esteem. Finally, hypothesis three suggested that those participants that exercise regularly will show the positive effects that exercise has on their physical and mental health in comparison to those who do little or no exercise. There was a statistically significant small negative correlation between exercise and Body Mass Index suggesting that the more exercise that an individual does leads to a lower and healthier BMI ( $r = -.28$ ,  $n = 200$ ,  $p < .01$ ) (Cohen, 1988). However, when participants were split in terms of gender there became a statistically significant moderate negative correlation for males in terms of exercise and BMI ( $r = -.30$ ,  $n = 106$ ,  $p < .05$ ).

The mean BMI score for those who do little or no exercise was 27.34 (SD = 6.22). This was slightly higher than those who exercise regularly which was 25.10 (SD = 6.34). An independent samples t-test was conducted to compare BMI levels for those who engage in little or no exercise and those who exercise regularly, and showed that there was a significant difference in mean scores for those who do little exercise and those who exercise on a regular basis  $t(198) = 2.53$ ,  $p < .05$ . As the mean BMI levels were higher for those who do little or no exercise, and the difference was significant, this indicated that BMI levels are higher for those who do less exercise as opposed to lower BMI levels for those who exercise regularly which supports hypothesis one and two in terms of BMI.

There was a statistically significant small positive correlation between exercise and self-esteem suggesting that self-esteem measures increase with the increase of exercise ( $r = .29$ ,  $n = 200$ ,  $p < .01$ ). There was a statistically significant small negative correlation

between exercise and anxiety levels which suggests that anxiety levels decrease when exercise levels increase ( $r=-.28$ ,  $n = 200$ ,  $p<0.01$ ).

In regards to self-esteem, as can be seen from table one above, the mean score for those who do little or no exercise was 29.19 (SD = 6.08), which was lower than the mean score for those who exercise regularly was 33.03 (SD = 6.83). An independent samples t-test was conducted to compare self-esteem scores for those who do little or no exercise and those who exercise regularly, and showed that there was a significant difference in mean scores for those who do little or no exercise and those who exercise regularly  $t(198) = -4.20$ ,  $p<.01$ . As the mean self-esteem score was higher for those who exercise regularly, and the difference was significant, this indicated that those who exercise regularly had higher self-esteem in comparison to the lower self-esteem of those who engage in little or no exercise. This too supports hypothesis one and two in terms of self-esteem.

In regards to anxiety, as can be seen from table one above, the mean score for those who do little or no exercise was 37.47 (SD = 10.34), which was higher than the mean score for those who exercise regularly was 31.88 (SD = 9.27). An independent samples t-test was conducted to compare anxiety scores for those who do little or no exercise and those who exercise regularly, and showed that there was a significant difference in mean scores for those who do little or no exercise and those who exercise regularly  $t(198) = 4.03$ ,  $p<.01$ . As the mean anxiety score was higher for those who do little or no exercise, and the difference was significant, this indicated that those who exercise regularly had lower anxiety levels in contrast to higher anxiety levels for those who do little or no exercise. Therefore this supports the remaining of hypothesis one and two in regards to anxiety.

Therefore, hypothesis one was accepted in that those participants who exercise regularly had low and healthy BMI levels, low levels of anxiety and high self-esteem. Hypothesis two was also accepted as those participants who do little or no exercise had

higher and less healthy BMI levels, higher levels of anxiety and lower self-esteem. Finally, hypothesis three was accepted as those participants that exercise regularly showed the positive effects that exercise has on their mental and physical health in comparison to those who do little or no exercise.

## Discussion

The aim of this research was to examine the physical and mental health of those who do little or no exercise and those who exercise on a regular basis in order to evaluate the effects that exercise has on both mental and physical health. The results showed that those B.M.I. levels were lower and healthier, anxiety levels were lower and self-esteem levels were higher in those that exercised regularly which supported the first hypothesis. This relates to the similar results found by Mustelin et al. (2009) in that physical activity considerably modified the genetic factors of BMI and waist circumference. Although this refers to the genetic factors of BMI and waist circumference, it highlights the importance of exercise and the major effects that it can have. In regards to anxiety, Weinberg and Gould (2010) found that modern society has experienced an increase in people suffering with anxiety disorders and that exercise can help cope with this mental illness. Finally, according to Fox (1997), exercise can enhance an individual's self-esteem which links to the results of this present study in that those who exercised regularly had a high self-esteem.

In addition, the results supported the second hypothesis which indicated that those who engaged in little or no exercise had an unhealthier BMI, higher levels of anxiety and lower-self esteem. These findings support the concept of Mason (2010) that individuals need to exercise regularly in order to stay healthy, both physically and mentally. In regards to the third and final hypothesis, this too was supported in that those participants that exercise regularly showed the positive effects that exercise has on their physical and mental health. For instance, those who engage in little or no exercise were a lot less happy with their bodies, which is in line with the findings of Hausenblas and Fallon (2006), and suffered more with health issues such as diabetes, high blood pressure, stress and depression in comparison to those who exercise regularly.

Various other interesting aspects, however, appeared throughout the results which will be focused on. Several appropriate implications will be discussed in relation to this topic and the results will be linked to previous similar results and literature. Lastly, the limitations of this research will be evaluated followed by suggestions for future research in the area of exercise and its effects on mental and physical health.

### *Similarities to previous research*

Obesity was a clear issue with many of the participants throughout this research in which sixty-four percent of the two hundred participants were overweight and thirty-four percent were obese. One hundred and eighty seven of the participants agreed that exercise can help maintain or prevent major physical and mental health issues which links to the fact that exercise and healthy eating has a positive result on obesity as a physical health (Leite et al., 2009).

The BMI levels of each participant was evaluated and which resulted to prove that those who exercised regularly tended to have a healthy BMI in comparison to the overweight and obese BMI levels of the majority of those who did little or no exercise. According to Mustelin et al. (2009), physically active individuals tend to be leaner and have a smaller waist circumference than those who do not engage in physical activity. Such results were very correspondent to this research in terms of the positive effects of exercise on physical health.

Previous research also evaluated similar results in relation to unhealthy BMI levels and exercise levels. Smith et al. (2011) found a positive correlation between exercise and obesity after a study on one hundred and seventy five individuals with BMI levels that transcended twenty-five. Those who exercised regularly, which was only thirty-nine percent of the participants, admitted that there were several pros to exercising and individuals tended to exercise more as these pros increased. This study also showed that there remains to be a

severe lack in those who exercise regularly as well as the fact that those who do exercise and experience the benefits are more likely to continue this lifestyle.

Bas, Bozan and Cigerim (2008) completed a study on the eating disorders among overweight adolescent girls. Although this present study focused on their dietary lifestyle as opposed to exercise, results remained to show that those overweight participants who admitted to starving themselves or struggling with binge eating disorder portrayed low self-esteem and high levels of anxiety. It can be a viscous circle for some in that an unhealthy diet and lack of exercise can lead to high BMI levels which often result in low self-esteem and high levels of anxiety which in turn prevents such individuals from exercising and eating healthy.

Stathopoulou et al. (2006) completed a similar study on exercise and mental health with the main focus on anxiety and depression. It was assessed that exercise is an extremely positive agency for clinical depression and anxiety which links in with the results of this present research in that those who exercise regularly have lower levels of anxiety and higher self-esteem in terms of mental health. In addition, the theory that fitness and exercise improves self-esteem perception, according to McAuley et al. (2000), links in to the results of this present research.

According to Weinberg and Gould (2010), modern society has begun to experience an overwhelming increase in people suffering with anxiety disorders and exercise can help those suffering to cope more adequately in everyday life. This links to the findings of this present study that shows that those who exercise regularly had lower anxiety levels than those who did little or no exercise. Fox (1997) agreed that exercise can enhance the self-concept, self-capability and self-esteem of those who tend to exercise on a regular basis. Hardcastle and Taylor (2005) took on a study of middle aged and elderly women in order to test for a correlation between exercise and self-esteem. It was concluded that regular exercise resulted

in positive changes in self-esteem as participants showed feelings of achievement, social interactions and a sense of belonging when exercising. These studies relate to the results of the present study that showed higher self-esteem levels in those who exercise regularly in comparison to those who do little or no exercise

Carmeli et al. (2008) took on a parallel study to this current research in order to examine the effects of physical training on general well-being and self-image in elderly people with intellectual disability. This present study differs in the fact that exercise did not decrease BMI levels for these elderly participants yet exercise did in fact enhance their sense of well-being and self-image. This links in with the aspects of this present research that shows that those who exercise regularly had a higher self-esteem than the majority of those who do little or no exercise. Although the study completed by Carmeli et al. (2008) was focused on the elderly who suffer with intellectual disabilities, the results similarly found that participation in physical activity can improve one's outlook on life and provide a 'feel good' feeling.

This current study on exercise and physical and mental health resulted to show that those who exercise regularly had a higher self-esteem than those who do little or no exercise. As well as this, only twenty-one of those who do little or no exercise were happy with their body in comparison to sixty-six of those who exercise regularly. These results were similar to those of Hausenblas and Fallon (2006) as they found that those who exercised more had a more positive body image than those who did not exercise and those who exercised had a major improvement in body image scores after completing an exercise intervention.

Those who engage in little or no exercise appeared to have various health issues such as high blood pressure, obesity, stress and depression in this present study. Stice (2002) also evaluated that a negative body image is a strong predictor of many health problems such as depression, eating disorders and obesity. Not only is this a very alarming issue that so many

people are unhappy with their body image, this level of dissatisfaction with body image is linked to other mental and physical health issues such as depression, eating disorders and obesity (Stice, 2002).

For this present study it was more difficult to find participants who exercised regularly than those who did little or no exercise which somewhat suggests that less people tend to exercise regularly nowadays. Although many people between twenty and forty have other priorities in their lives such as work, family, children, chores and socializing which tend to prevent people from exercising, the majority of people do not make exercise a priority in this present study. According to Cale and Harris (2005), it is the domination of television and computers that tend to take up more spare time in the lives of the average adolescent today. In addition, Coleman (2011) believes that many adolescents tend to avoid exercise and sport due to limited improvement, a conflict of interest, peer pressure or lack of time.

This current research portrayed that forty-six of those who exercise regularly watched television in their spare time as opposed to sixty-seven of those who do little or no exercise. As well as this, forty-six of those who exercise spend time in their computer during spare time in comparison to sixty-nine of those who do little or no exercise. Finally, fifty-five of those who exercise regularly engage in physical activity when they have free time whereas only sixteen of those who do little or no exercise engage in physical activity during spare time. Weinberg and Gould (2010) concluded that there remains to be a high percentage of people who do not exercise at all despite the social, health and personal assets that one experiences through exercise.

### ***Implications for this research***

This research has highlighted the positive effects of exercise on both physical and mental health, particularly in areas of BMI levels as physical health as well as anxiety levels and self-esteem levels as mental health. It was found that the majority of those who did little to no exercise exceeded a healthy BMI level which draws attention to how inactive this generation is becoming and the negative effects of such a lifestyle. According to Leite et al. (2009), obesity is not just a disease based on body size but also the frequent cause of high blood pressure and other several health issues. Obesity is becoming a major health issue throughout this generation that must be brought to the attention of the health system in Ireland in order to minimise this health issue and create practices in order to prevent the next generation from such health risks. Leite et al. (2009) also highlighted the importance of physical activeness and healthy eating as a way of preventing obesity for those who are not overweight and reducing obesity for those who are which needs to be more more cautiously highlighted as a health warning to such individuals.

For instance, more government spending should be placed on resources for those suffering with obesity in order to increase their levels of exercise and provide nutritional information for such individuals. Another option would be to use the media in order to powerfully advertise the dangers of obesity and encourage individuals to live a healthy active lifestyle. With a rise in exceeding BMI levels in young children, it must be a necessity to educate them from a young age in regards to the importance of exercise as some parents that lack in healthy living tend to continue this lifestyle in the lives of their children.

According to Parker et al. (2011), mental illnesses such as anxiety are rising between the ages of eighteen and twenty-four years. As this research too has found that those who exercise regularly have lower levels of anxiety and higher self-esteem, exercise should be prescribed to those suffering with anxiety or low-self esteem. Although this may not benefit

all of those suffering with such issues, it may have an immense positive effect on some. Stathopoulou et al. (2006) found that exercise can be a compelling agency for clinical anxiety disorders whilst encouraging sufferers to also seek help from mental health professionals. It should be encouraged for such sufferers in modern society to engage in physical activity in order to seek these benefits also. The results displayed that the majority of participants were not happy with their body that signifies that an increase in exercise may also increase self-esteem and improve body image to the extent that such individuals will feel more comfortable with the way that they look.

Only eighty-seven of the two hundred participants were happy with their body, which is definitely an issue that must be dealt with. It is unhealthy for the mental and physical health of those who have such an appalling dissatisfaction with body image. Hausenblas and Fallon (2006) researched previous literature on exercise and body image and then analysed the data further to find that those who exercised signified a more positive body image in comparison to those who did not exercise. There should be more research carried out in order to discover the reasons behind this occurring issue, whether it may be due to lifestyle and exercise or perhaps genetics, and then to provide help for those who are suffering from these negative feelings.

According to Wilkosz, Chen, Kenndey and Rankin (2011), the Western culture has developed a fascination with thinness as an image of beauty and health which is one cause as to why adolescents are at a higher risk for psychological consequences associated with body dissatisfaction. With an extreme increase in internet use and a powerful mass media, it is so important to portray a healthy perception of weight, body image and general health in order to promote healthy living and the importance of a healthy lifestyle in order to look and feel good.

Increased physical activity is often condoned for psychological and mental health benefits and an improvement on such recommendations are based on the available scientific evidence (Morgan, 1997). The more research that is taken on to highlight the positive effects for exercise on both physical and mental health will eventually lead to educating individuals of the true importance of exercise and may lead the government to promote this through the media, for instance, and fund programs in order to encourage people to exercise more.

Ireland is in the midst of an economic drought at the moment which is also causing high stress levels for those who are unemployed, in jobs with reduced hours or pay and with bills and mortgages that cannot be paid. One in four workers are experiencing work-related stress in times of recession (Jones, 2004). Stress can lead to other physical and mental health issues such as eating disorders, high blood pressure, anxiety, depression and low self-esteem. This is where the government must step in and provide health and care systems for those who are suffering as well as encouraging ways to cope with such stress to a certain extent. Although exercise may be the last thing on the minds of such individuals, it must be brought to their attention that exercise may prevent and decrease high levels of stress.

Finally, it is important to promote exercise as a means of preventing and maintaining both physical and mental health issues such as depression, stress, high blood pressure and diabetes. Whilst medication is often a need for major sufferers, doctors and health practitioners should always encourage patients to exercise regularly as a means of reducing such health issues as well as prolonging life and maintaining a healthy lifestyle. For instance, Faulkner (2010) completed a study which proved that the more physically fit a patient with diabetes type one is, the higher their chances are of maintaining their overall glucose levels as well as reducing serum lipids. As well as this, Faulkner (2010) proved that being more physically fit had a positive effect on the mental side of living with diabetes as it gives individuals a positive health approach and the belief that they can exceed athletically despite

their illness. Parker et al. (2011) also found that exercise was effective in reducing depression and anxiety related symptoms.

### ***Limitations of this research***

*Sample size:* The sample size for this research was two hundred participants between the ages of twenty and forty. One hundred of these engaged in little or no exercise and the remaining one hundred were those who exercised regularly. This sample size was rather small and limited in order to compare results with the wider society and results may have differed with participants of a smaller age range or focus on elderly people, similar to the research by Carmeli et al. (2008) which focused on exercise and its effect on the self-image of elderly people. Participants were chosen at random from a local gymnasium, three different neighbourhoods and several work places yet results may have varied if participants were chosen from one particular area or a much wider population. For instance, a wider sample may have led to more significant results that could be used as referring to the general public to a certain extent. Finally, if the focus was put on one of the two groups used, such as two hundred of those who do little to no exercise, the results may have been more precise or brought about completely different results.

*Choice of questions and possible answers:* There was a limited amount of questions chosen for the questionnaire in order to minimize the time taken to complete it as well as specific answers in order to complete accurate results yet providing answers that would suit each participant. For instance, when asked ‘how much exercise do you do on a weekly basis?’, the choice of answers included ‘none’, ‘one-two hours’, ‘three-four hours’ and ‘more than four hours’. This covers those who do little or no exercise and those who exercise regularly yet does not specify the intensity of the exercise that is being carried out, whether walking or

more intense exercise, or how many hours are carried out for those who do more than four hours.

*Methods used:* The questionnaire involved calculating the BMI of each participant in order to evaluate their physical health as well as their anxiety and self-esteem levels to examine their mental health. Although this questionnaire was confined to the calculation of BMI levels, the evaluation of several other aspects of physical health, such as diabetes or high blood pressure, may have brought an entirely different aspect to the research and results. For instance, exercise may have had a different influence on those with diabetes and lack of exercise may have had a different result on those with high blood pressure. This questionnaire was limited to Leary's anxiety questionnaire and Rosenberg's self-esteem questionnaire although the use of other measures of anxiety and self-esteem may have altered the results. The use of the Liebowitz social anxiety scale test, for instance, may have resulted in different results in anxiety with different questions and scales used.

In addition, there are various other aspects of mental health that could have been examined such as depression, eating disorders and personality disorders that may be prevented or maintained with increased levels of exercise. According to Otto and Smits (2011), individuals suffering from depression are two and a half more likely to live stressful lives and four out of five episodes of depression are caused by a stressful life event in which exercise helps to maintain or benefit such negative life events.

*Lack of focus on diet:* The focus throughout this study was on exercise and how it affects the mental and physical health and well-being of those who do and do not exercise. Although the results have been significant and quite fascinating in many aspects, there was no focus on the diet and nutritional lifestyles of the participants. It has been shown that exercise plays a

powerful role in both physical and mental health yet diet too plays a major role in mental and physical health (Thurmon, 2009). According to Thurmon (2009), certain foods enhance healthy cognitive function and other foods do not. An introduction of healthy diet dietary programs can control eighty percent of all cases of diabetes mellitus (Hillier & Barrow, 2010). Good nutrition in early life is linked to health and well-being later in life and therefore a healthy diet should also be promoted, along with exercise, as a means of healthy living.

### ***Directions for future research***

Future research on the topic of exercise and health could involve a larger sample size in general, as the sample size in the present study was confined to two hundred participants, or focus on one particular group, either those who do little to no exercise or those who exercise regularly, and evaluate their mental and physical health. Moreover, the focus on a particular age group, such as young adults or the elderly, may result in more accurate and interesting outcomes as the data would be analysed with a focus on a smaller age range.

The study could be repeated on one gender in particular, which may affect the final results also as the data would be focused on either males or females and implications could apply to the chosen gender in particular. Lastly, the research could be replicated with the focus on a different physical health, such as diabetes, and different mental health issues such as depression. For instance, Faulkner (2010) focused on exercise and diabetes and found that the more physically fit a patient with diabetes type-one is, the more chance of maintaining their overall glucose levels as well as reducing serum lipids.

An interesting angle for future research would be to discover the role of genetics throughout this research. According to Waller et al. (2008), there is a correlation with continual physical activity and a decreasing rate of weight gain through the examinations of genetic background and environmental factors. Therefore a similar study of this present

research with a focus on whether genetics plays a part in BMI levels and whether self-esteem and anxiety levels can be genetically determined would be interesting. It may be intriguing to focus on those who consider themselves to be overweight or suffering from anxiety due to genetics and examine whether exercise can modify this thinking by reducing BMI and anxiety levels of such participants that blame genetics. For instance, Mustelin et al. (2009) focused on the influence of genetic factors in the development of an unhealthy BMI and waist circumference and found that physical activity modified the genetic factors of BMI and waist circumference. This present study could be repeated with a focus on the genes of individuals with higher BMI levels in order to test for a correlation between the two.

## **Conclusion**

In conclusion, it has been found in this present study that there is a sincere lack of exercise among this generation and that this is having major effects on both the physical and mental health of those who do not exercise. Those who do exercise regularly have shown to be physically healthy in terms of a normal weight for their height and age as well as a positive mental health in terms of lower levels of anxiety and a higher self-esteem. The results suggested that there are a high number of individuals who are unhappy with their body image, particularly those who do little or no exercise, which is also a factor in low self-esteem and poor mental health. Several implications were mentioned in order to highlight the importance of this research and ways to use the results in order to promote exercise as a means of healthy living. Ultimately, future research should be continued in the area of exercise and health with a larger sample and focus on the suggestions that have been acknowledged.

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Which of the following activities do you like to do most in your spare time?

- Watch television
- Play computer games
- Surf the web
- Exercise
- Socialise with friends
- Other  Please Specify \_\_\_\_\_

When you socialise, which of the settings does this tend to take place?

- At home
- The cinema
- Eating out/going for coffee
- Going for a drink
- Whilst exercising
- Social networking
- Other  Please Specify \_\_\_\_\_

**INSTRUCTIONS: Please read the following statements and indicate how much you agree with them by circling the appropriate number to the right of the statement as follows:**

- 1 = strongly agree  
 2 = agree  
 3 = disagree  
 4 = strongly disagree

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

**INSTRUCTIONS:** Read each of the following statements carefully and indicate how characteristic it is of you according to the following scale:

If this is '*not at all characteristic of me*', circle

1   2   3   4   5

If this is '*slightly characteristic of me*', circle

1    2   3   4   5

If this is '*moderately characteristic of me*', circle

1   2    3   4   5

If this is '*very characteristic of me*', circle

1   2   3    4   5

If this is '*extremely characteristic of me*', circle

1   2   3   4    5

1. I worry about what other people think of me even when I know it doesn't make a difference

1   2   3   4   5

2. I am unconcerned even if I know people are forming an unfavourable impression of me

1   2   3   4   5

3. I am frequently afraid of other people noting my shortcomings

1   2   3   4   5

4. I rarely worry about what kind of impression I am making on someone

1   2   3   4   5

5. I am afraid that others will not approve of me

1   2   3   4   5

6. I am afraid that people will find fault with me

1   2   3   4   5

7. Other people's opinions of me do not bother me

1   2   3   4   5

8. When I am talking to someone, I worry about what they may be thinking of me

1   2   3   4   5

9. I am usually worried about what kind of impression I make

1   2   3   4   5

10. If I know someone is judging me, it has little effect on me

1   2   3   4   5

11. Sometimes I think I am too concerned with what other people think of me

1   2   3   4   5

12. I often worry that I will say or do the wrong things

1   2   3   4   5

If you are concerned with or affected by any of the raised issues please do not hesitate to contact the following organisations.

Eating Disorder Resource Centre of Ireland	01 4953577
Reach Out	01 7645666
Bodywhys	1890 200 444 (Lo Call)
Aware	01 6617211

I would once again like to thank you for taking part in this study and would remind you that all information given here will remain strictly confidential. If you would like to know more about this study, please do not hesitate in contacting me at the address below.

If you require any further information concerning this research, please contact me Sinead McAuley [1311855@mydbs.ie](mailto:1311855@mydbs.ie) or my research supervisor, Dr Bernadette Quinn [bernadette.quinn@dbs.ie](mailto:bernadette.quinn@dbs.ie).

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Monastery Park  
Clondalkin  
Dinlin 22  
0857083532  
sinead-mcauley@hotmail.com

23/01/12

Shane Lynch  
Citywest Leisure Centre  
Saggart  
Co Dublin

Dear Mr Lynch,

My name is Sinead Mc Auley and I am currently a final year student in Dublin Business School, where I am studying Social Science. As part of course requirement as a final year student I must complete a thesis.

As I have a particular interest in the effects of exercise on the physical and mental health of individuals in modern society I decided to focus on this area for my thesis. I wish to measure BMI, anxiety and self-esteem levels of middle-aged adults. I propose to disperse approximately eighty questionnaires in City West gym.

I have spoken to you approximately three weeks ago in relation to the distribution of these questionnaires, and you authorised me to send a copy of the completed questionnaire directly to you. I have attached a copy of the completed questionnaire with this letter.

All results and findings from this study are confidential, and are just for the purpose of the thesis. If you have any further queries please do not hesitate to contact me on the phone number or e-mail address above. I would be sincerely grateful if you could confirm that I may go ahead with the distribution of these questionnaires.

I look forward to your response,

Yours sincerely,

Sinead Mc Auley