



*University of Thessaly*  
*Department of Physical Education and Sport Sciences*

**Can physical activity enhance smoking cessation? A counseling  
intervention study**

by  
Evi Konstantopoulou

The present thesis is submitted as Partial Fulfillment of the Requirements  
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**Approved by supervising committee:**

Main Supervisor: Vasiliki Zisi, *Assistant Professor, University of Thessaly*

Supervisor 1: Yannis Theodorakis, *Professor, University of Thessaly,*

Supervisor 2: Maria Hassandra, *Lecturer, University of Jyvaskyla, Finland*

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## **Abstract**

The aim of the present study was to investigate whether the counselling intervention program promoting physical activity can lead to positive results in smoking cessation and adopting physical activity as a way of life. The participants were 5 men and 3 women, aged 35 to 66 years interested to quit smoking and the intention to participate in exercise sessions. Demographic characteristics, family health history, participant's smoking habit, and exercise experience were recorded. A combination of individual counseling sessions towards smoking cessation and supervised physical activity were held. A semi-structured interview was used before and after the program to evaluate the effectiveness. According to the results the combination of smoking cessation counseling and supervised physical activity, had positive affect with the 75% of the participants managed to adopt physical activity in their everyday life. Results support that supervised and structured exercise session were also efficient towards cessation.

Keywords: *smoking, counseling, physical activity, Transtheoretical Model*

## **CHAPTER 1:**

### **INTRODUCTION**

The World Health Organization (WHO) present smoking as the second most important risk of premature mortality, associated with about 1.6 million deaths each year. Smoking behavior has direct association with other unhealthy behaviors such as alcohol consumption, unhealthy nutrition and general unhealthy quality of life. Physical activity is defined as bodily movement produced by skeletal muscles that requires energy expenditure and produces progressive health benefits, whereas exercise is described as planned physical activity with bodily movements that are structured and repetitively performed for the purpose of improving or maintaining physical fitness. With the premature risk of mortality is connected with physical inactivity and its impact on health. WHO has included physical inactivity as the most important factor of noncommunicable diseases (Unwin & Alberti, 2006)

The percentage of children and adolescents who smoke is rising and as soon as someone starts smoking the more rapid will be the impact (Everson et al., 2005). In the research of Theodorakis and Kosmidou (2007) results show that in Greece in 41% adolescents over 14 years are smoking. Greece suffers from an enormous smoking-related public health problem due to 42% are smokers on a daily basis more than 20 cigarettes per day. Levels of physical inactivity and sedentary behavior are also high.

Many studies investigate the relationship between exercise and smoking. It seems that exercise may provide help in dealing with both physical and psychological aspects of smoking habit. Studies have shown that a moderate physical activity reduces the need to

smoke, might protect from withdrawal symptoms and dealing cravings for smoking. In a review of Theodorakis, Gioti and Zourmpanos (2005) it has been shown that participation in exercise programs may help reduce or quit smoking. A sedentary lifestyle is a behavior that leads to illness, poor quality of life and death. The percentage of adults who exercised regularly is very low (Janz, Burns, & Levy, 2005). A huge disadvantage is that people who smoke usually exercised less. All these elements make it necessary to develop effective intervention programs for smoking cessation. However, the development of such intervention programs is necessary to take into account several parameters related to the initiation and maintenance of smoking.

Engaging in regular physical activity may help to control body weight, develop a healthy cardiovascular system, and improve psychological well-being (Biddle, Gorely, & Stensel, 2004; Harsha, 1995). Moderate physical activity is easily incorporating into daily routine (Haskell et al., 2007). Nowadays, public health guidelines for sufficient activity recommend both minimum levels of vigorous exercise (i.e., 60 min per week) and moderate exercise (i.e., 150 min per week), the latter including activities such as transportation activity, leisure time activity, and household physical activity (Haskell et al., 2007)

### **Aims and Objectives**

The present research will fill in the knowledge and answer questions of whether supervised structures physical activity consultation has positive affect towards smoking cessation in adults. Similar interventions have studied the influence of counseling in the process of smoking cessation but only few of them have investigate how physical activity can improve and enhance smoking cessation. The current dissertation presents the influence of physical activity counseling session combined to supervised, structured and controllable physical activity in smoking cessation intervention program.

*Research Question 1:* Is counseling for adopting physical activity effective towards smoking cessation programs in adults?

*Research Question 2:* Does moderate, supervised and structured physical activity intervention enhance smoking cessation?

## **CHAPTER 2:**

### **LITERATURE REVIEW**

#### **1. Theoretical Background**

Health promotion - intervention programs can help to improve public health, reduce disease risks, manage chronic illnesses, improve the well-being and promote a good quality of life. Several theories have been used to understand behaviours towards physical activity and smoking. Behaviour change models are based in strategies in order to promote and/or monitor behaviour change. Some interventions are designed to promote smoking cessation

The theory of planned behavior (Ajzen, 1991) claims that the key factor that provides a specific behaviour is intention, Transtheoretical Model concerns individuals' readiness to change or attempt to change toward healthy behaviors (Diclemente & Prochaska, 1985), Health Belief Model (Rosenstock, 1974) addresses a person's perceptions of the threat of a health problem and the accompanying appraisal of a recommended behavior for preventing or managing the problem and social learning theory (Bandura, 1986) assumes that people and their environments interact continuously, are the major predictive models that were used in research for health behaviour. Self-efficacy and decisional balance are also key concepts of Transtheoretical model. They can explain why individuals want to change a health behaviour. Self-efficacy was taken from Bandura's (1986) social cognitive theory and reflects a person's confidence in performing the health behaviour change.



## 1.1 Planned Behavior Theory

Planned behavior theory is a social cognitive theory and the most validated model for understanding why people exercise. The certain theory proposes that a person's intention to perform a behavior is the central determinant of that behavior because it reflects person's level of motivation and willingness to exert effort. Intention is determined by attitude, subjective norm, and perceived behavioral control.

Perceived behavioral control has been defined as the perceived purpose of performing the behavior and can also predict behavior if it's an accurate reflection of the person's actual control over the behavior. Attitude is reflected as the evaluation of performing the behavior whereas subjective norm is intended to reflect the perceived social influence that individuals may feel to perform or not the specific behavior. Furthermore, the planned behavior theory proposes that attitude, subjective norm and perceived behavioral control are the key targets for interventions.

Numerous researches have been adopting planned behavior theory as a predictor behavior and in interventions targeting health related behaviors as smoking cessation and exercise. In a review designed to investigate the utility of Planned Behavior Theory in predicting health behaviors of physical, healthy eating, smoking and drugs abuse. Natsis and Theodorakis (2000), suggested that the intention of the perceived behavioral control and past behavior were predictors for all behaviors and subjective norms played an important role.

Theodorakis and colleagues (2002), investigated the relation between predisposition factors of exercise and behaviors of healthy nutrition-eating fruits, unhealthy behaviors of smoking, drug use and participating in situations of violence, involving students as a team fan (n=882, aged 10-16 years) of primary and secondary Greek schools. Variables of Planned Behavior Theory such as attitudes, intention, perceived behavioral control towards behavior and behavior itself were examined. Results indicate positive correlation towards exercise and

healthy nutrition, negative correlation between exercise and smoking and drug use. Positive relation among exercise and healthy nutrition has been confirmed in the past by Johanson et al. (1999).

Planned behavior theory has been applied in the prediction of different health behaviors (Armitage & Conner, 2001). Many researchers examined the application of the Planned Behavior Theory in predicting the intention to quit smoking and exercise (Bozionelos & Bennett, 1999; Norman, Conner & Bell, 2010; Rise et al., 2008).

## **1.2 Transtheoretical Model**

Transtheoretical Model (TTM) has been an important theoretical advance in understanding when, how, and why people change their health behaviors. The most popular construct from the transtheoretical model are the stages of change which reflect the temporal dimension of health behavior change (Prochaska & Velicer, 1997). Six stages of change have been identified: precontemplation (not seriously considering a change), contemplation (seriously considering a change), preparation (making small changes), action (making changes to an appropriate level), maintenance (sustaining the change over time), and termination (eliminating the risk of relapse). It has been shown that 80% of smokers participating in cessation program are not ready to quit smoking directly. Multiple studies found that the application of Transtheoretical model in an individualized intervention program might reach an effectiveness of 22%-26% in smoking cessation (Prochaska et al., 1993; 2001; Velicer & Prochaska, 1999).

The central concept of the Transtheoretical model is to interpret how health behavior change occurs. Ten processes of change have been identified that consist strategies and techniques that people use to change their behavior (Prochaska, Velicer, DiClemente, & Fave, 1988). These processes include overt and covert activities that individuals use to modify their

experiences and environments in order to modify their behavior (Prochaska & Velicer, 1997). The 10 processes of change can be divided into two higher order factors labelled cognitive/experiential (i.e. consciousness raising, dramatic relief, environmental reevaluation, self-reevaluation, and social liberation) and behavioral/environmental (i.e. counterconditioning, helping relationships, contingency management, self-liberation, and stimulus control).

Researchers examined the relationship between smoking, physical activity and nutrition. A positive relation between stages of change and smoking and a weak correlation between physical activities and improving nutrition was found (Boyle et al., 1998; 2000; Garetti et al., 2004; Di Noia, Contento, & Prochaska, 2008).

Planned behaviour theory and Transtheoretical model have several similarities with planned behaviour being more comprehensive in explaining the reasons people change their health behaviours. Planned behaviour theory includes a global assessment of attitude that is theorized to capture and summarize all the individual beliefs which are held regarding a specific behaviour. Attitude is arguably the most fundamental construct in social psychology and is a strong determinant of behaviour (Ajzen, 1991), including exercise (Godin & Kok, 1996).

## **2. Physical Activity**

Physical activity has been defined as a movement produced by skeletal muscles and results in energy expenditure; it includes any kind of activity and movement (Caspersen, Powell & Christenson, 1985). Physical activity includes activities which involve bodily movement such as playing, working, active transportation, house chores and recreational activities.

Exercise and physical fitness are types of physical activity with similar terms but dealing with conceptual differences. Exercise, is a subcategory of physical activity that is planned, structured, repetitive, and purposeful in the sense that the improvement or maintenance of one or more components of physical fitness is the objective. Physical fitness is a general state of well-being and is generally followed by healthy nutrition and structured exercise and also the ability to carry out daily tasks without fatigue and with the energy to enjoy leisure time and to face emergencies (Caspersen, Powell, & Christenson, 1985).

All activities in moderate intensity have beneficial effects on individuals' health and any kind of activity that benefits health individuals and assures mental and physical integrity can be characterized as physical activity. Examples of moderate physical activity are cycling, walking and vigorous intensity physical activity involves sports, running, make people sweat and take out of breath. Physical activity can also be identified by the requirements of daily life, such as physical activity for active transportation and / or communication (eg. walking from one place to another, cycling) and physical activity for leisure time including non-organized leisure activities, walking for exercise etc. (Bauman et al., 2006; Caspersen, Powell, & Christenson, 1985).

Adopting a physically active lifestyle is the most important behavior that can influence a person's risk to develop a chronic disease. Active transportation or leisure time can provide multiple environmental and public health benefits, improving air quality, reducing contributions to climate change and improving quality of life.

## **2.1 The Importance of Physical Activity in Health**

Physical activity is an important determinant of health and it is generally acknowledged that regular physical activity decreases the risk of developing long term chronic conditions, and that improves perceived and actual health and overall well- being (Bauman, 2004;

Warburton, Nicol, & Bredin, 2006). Physical activity has been recognized as a key element in the development and maintenance of a healthy lifestyle since ancient times.

In primitive societies physical activity was essential for survival of humans and as a ritual process with different activities. The Greeks highly emphasized the benefits of physical activity for a complete and balanced development of body and mind.

Various health organizations and researchers at global, international, national and local levels developed health educational programs and intervention programs in order to promote physical activity, smoking cessation and healthy life style in public (schools, universities, seniors etc; WHO, 2010; Diggelidis et al., 2001; Christodoulos et al., 2008; Theodorakis et al., 2006; Hassandra et al., 2012).

Regular physical activity has been associated with reduced risk of developing chronic disease e.g. heart disease (Blair & Morris, 2009), respiratory disease, diabetes, metabolic syndrome and more (WHO, 2009; 2011). Blair and colleagues (1985) reviewed the relationship between physical activity and other health behavior. Their results showed that active individuals were more likely to engage in preventive health behaviors, health protection or health promotion behaviors. Other important benefits of physical activity are weight control, improved bone density and muscle strength, and also improvement of mental and psychological health.

Gorman and Ponser (1988) found that moderate physical activities in seniors produced tangible improvements in many physical and psychological parameters and in the decrease of health diseases, while evidence by other researchers showed that active people tend to live longer with less chances to die from heart failure (Lee, Paffenbarger, & Hennekens, 1997; Paffenbarger & Lee, 1996; Powell & Paffenbarger, 1985) a statement that was confirmed over the years where researchers (Adamu, Sani, & Abdu, 2006) made clear that physical activity reduces cardiovascular risk through lowering of blood pressure, improved glucose tolerance,

reduced obesity, improvement in lipid profile (Blair & Morris, 2009; Buchner, 2009; Gill, 2007; McGavock, Sellers, & Dean, 2007; Murtagh).

Due to a systematic review about the relationship between exercise or physical activity and other health behaviors, Blair and colleagues (1985) found that active individuals were more likely to engage in other preventive health behaviors, because “they are generally related to an orientation of health protection, promotion, or prevention”. Results revealed that regular physical activity was positively associated with better weight control and high caloric intake, because active people tend to eat healthier and more frequently due to high energy consumption associated with exercise.

In the comprehensive review about physical activity and health by the Department of Health and Human Services of USA (Physical Activity Guidelines Advisory Committee Report PAGAC, 2008) confirmed the role of physical activity in positive health benefits, including cardio respiratory health, metabolic health, mental health, musculoskeletal health, functional health, cancer prevention. Recently many systematic reviews reinforced the evidence on the important role of physical activity in prevention, psychological well-being enhancement and positive effects in physical and mental health, (Fratiglioni & Wang, 2007; Newton & Galvão, 2008,).

Physical activity is also considered a good antidepressant and it is used in the treatment of depression and anxiety disorders (Ströhle, 2009). Blumenthal and colleagues (2007) studied the association of physical activity and major depressive disorder (MDD), and discovered that patients that were allocated in an exercise intervention group had generally similar positive outcomes compared to patients receiving antidepressant medication.

World Health Organization (2010) recommend at least 150 minutes of moderate or intensity aerobic physical activity throughout the week, or do at least 75 minutes of vigorous or intensity aerobic physical activity throughout the week while other organizations and

researchers suggest the minimum of 30 minutes five days per week or vigorous intensity aerobic activity for a minimum of 20 min on three times per week (ACSM, 1995; 2007; Foster, 2000).

## **2.2 Physical inactivity 'as bad as smoking'**

A week of physical inactivity has similar health costs as smoking, a life of physical inactivity can be as deadly as smoking. Less physical active persons have 50% greater risk developing high blood pressure, cardiovascular disorders and facing similar consequences as smoking. Based on WHO (2009) physical inactivity has direct association with 25% breast and colon cancer, 27% diabetes and 30% ischemic heart disease and 30% of mortality. Sedentary life style combined lack of physical activity can increase levels of anxiety, stressed and depression with negative affect persons' mental health and well-being.

Physical inactivity may be as dangerous for the heart as smoking and can be characterized as one of the biggest preventable health problems of the century (Blair, 2009). According to WHO physical inactivity is the fourth leading risk factor of mortality causing 3.2 millions of death globally, between 65% and 85% of the world's population fail to take enough exercise, globally around 31% of adults aged 15 and over were insufficiently active (WHO, 2008).

The World Health Organization included physical inactivity as one of the most important factors developing non-communicable diseases; increasing the risk of as coronary heart disease (CHD), type 2 diabetes, and breast and colon cancers, obesity and shortens life expectancy.

Recently Lee and colleagues (2012) aimed to quantify the impact of physical inactivity on NCD by estimating how much disease could be averted if those inactive were to become active and to estimate gain in life expectancy, at the population level. Results

confirmed that physical inactivity is responsible for 6% of the burden of disease from CHD (range: 3.2% in South-east Asia to 7.8% in the Eastern Mediterranean region); 7% of type 2 diabetes (3.9% to 9.6%), 10% of breast cancer (5.6% to 14.1%), and 10% of colon cancer (5.7% to 13.8%).

Inactivity is responsible for 9% of premature mortality (5.1% to 12.5%), 57 million deaths that occurred worldwide in 2008. By eliminating physical inactivity, life expectancy of the world's population is estimated to increase by 0.68 (0.41 to 0.95) years.

The high rates of physical inactivity are due to insufficient participation in physical activity during leisure time, sedentary behavior, passive transportation, urbanization and environmental factors like violence, air pollution, lack of parks and outdoor facilities.

### **2.3 Physical activity and Psychological Well-being**

Early reviews and studies have been conducted to confirm the positive effects of exercise promoting mental health (Mutrie & Biddle. 1995; Martinsen, 1995; McAuley;1994). Most important benefits have been identified due to physical activity in leisure time. According to a meta-analysis from 36 studies regarding the relationship between physical activity and well-being, Netz and colleagues (2005) found that moderate intensity activities were the most beneficial with strongest effects on self-efficacy and improvements in cardiovascular status, strength, and functional capacity in addition to exercise which was less beneficial. In the same results Penedo and Dahn (2005), suggest that exercise and physical activity and its interventions have beneficial effects towards mental-health outcomes, individuals participating in any kind of regular activity and interventions show better health outcomes and related quality of life.

Participation in regular physical activity can increase self-esteem reduce stress levels and anxiety. Physical activity can prevent mental health problems and improve the quality of



life of those experiencing it. Positive correlation towards exercise and self-esteem, self-efficacy, psychological well-being, and cognitive functioning, and the negative correlation between exercise and anxiety, stress, and depression has been identified on McAuley's review (1994).

## **2.4 Physical Activity and Depression, Anxiety and Stress**

Aerobic and anaerobic exercise are equally effective as antidepressant with moderate physical activity found to improve mental health in particular anxiety, depression and general well-being (Morris et al., 1990; Salmon, 2000; Schmitz et al., 2004; Blumental et al. 2007).

Physical activity can be a treatment approach for depression, in the review of 24 studies Rimer et al. (2012) confirmed that physical activity is associated with therapeutic benefits among depressive individuals with major depressive disorders, while exercise is positive associated with clinical depression improvement.

Bernard et al., 2013 reviewed smoking cessation intervention programs for depressive smokers examining, the protective effect of exercise against relapse for smokers dealing major depressive disorders and the benefits of exercise towards withdrawal symptoms. Results suggest that exercise can reduce depressive symptoms following cessation and provide the possibility of addressing withdrawal symptoms in smokers facing major depressive disorders.

Daily physical activity have also positive results and protective effects towards stress and anxiety levels, even short period aerobic exercise of 5minutes, can reduced anxiety levels. Intervention studies on clinical and non-clinical population investigated the effects of physical activity where participants engaged in moderate or high intensity and supervised physical activity results showed reduced levels of anxiety (Wipfli, Rethorst & Landers, 2008; Conn, 2010).

## **2.5 Physical Activity Mood, Self Esteem & Quality of Life**

Physical activity is positively associated with mood effect with the ability to energize while deliver oxygen to tissues and help cardiovascular system work more efficient, act as an emotional lift by producing various brain chemicals that makes us feeling happier and more relaxed, reduced tension and psychological fatigue (Hamer, Endrighi & Poole, 2012). Higher levels of physical activity promote improved self-esteem due to better appearance, better weight control, and positive effects on self-worth, self-concept, and confidence. Physical activity is a mean to promote greater quality of life among persons facing or not mental disorders.

## **2.6 Physical Activity & Smoking Interventions**

According to the review of Lujic, Reuter and Netter (2005), the mechanisms of incentives people smoke due to the influence of social factors (friends, parents, advertising, etc.), but also because of their personality traits, and desire to improve their social profile. They like the habit of smoking, the smell and the taste of the cigarette. During smoking body secretes substances (dopamine, norepinephrine, beta - endorphin) and this causes feelings of wellness. Smokers state that smoking can help them deal with bad mood and or depression; low self-efficacy is one of the personality factors that lead to automatic smoking and smoking process is done automatically and unconsciously.

Another reason of smoking is based on social and psychological cause with the concern for their body weight and image to others. When people start smoking they are losing weight and most of the times the opposite happens when they manage to quit. Individuals claim that important reason of being smoker is to maintain their weight levels (Clark et al., 2004;

Perkins, Mitchell & Epstein, 1995). The fear of weight gain and change physical image is one of the most important reasons of smokers' denial to quit; people go on smoking despite the wide advertising of health hazards of smoking and even they are familiar with the consequences of the unhealthy habit (King, Matacin, Marcus, Bock, & Tripolone, 2000).

Dominant motivation factors of quitting health, example, aesthetics and mastery.

Individuals usually starts' smoking behavior in childhood and adolescence (Roosmalen & McDaniel, 1989), the dangers and risk of smoking increases as the age of smoking is younger. Leo Reeder examined sociocultural factors in different groups based on sex and age. The percentage of teenage boys who smoke remained stable over the past two decades. In contrast to Smoking behavior female adolescents increased more easily.

Researchers have indicated that exercise can enhance effectively smoking cessation (Ussher, West, Taylor, & McEwen, 2000) and that the negative relationship between smoking and exercise can be observed in adolescents and adults. Similar to this state Hassandra et al., (2009) investigate the applicability of smoking prevention program in school called "I do not smoke, I exercise" with the purpose to promote exercise as an alternative behavior instead of smoking. Knowledge about attitudes towards smoking and its effects on health where assessed. Sample consists of 210 children and evaluations were performed before, at the end and after 1 year of the program. The results showed that program succeeded in changing attitudes of students but the follow-up session showed that attitudes towards smoking and interest in information returned to levels at which it was before the program.

Attempt smoking cessation has been proposed with many techniques and concepts. It is known that as we getting older we reduced our involvement with any kind of physical activity and exercise, while smokers increase their daily cigarettes consumption and the opposite; as more engaged you are with physical activity the less cigarettes consumption. Negative correlation between smoking behavior and athletes' life style is encounter (Marti, Abelin,

Minder, & Vader, 1988). Due to other studies exercise has positive effect on smoking cessation or the abstinence from the behavior for a long period of time; physical active individuals tend to smoke less than those who do not exercise (Markus et al., 1999; Marti et al., 1989; Nelson, Giovino, & Shopland, 1995). Similar results were obtained on Godin's review (1989), who concluded that exercise helps smokers to reduce or even quit.

Research document that nicotine can affect brain function including changes in mood, stress relief, and craving when a smoker is deprived of nicotine (Laviolette and van der Kooy, 2004; Sallette et al., 2004). Due to this state Janse Van Rensburg, Taylor, Hodgson, and Benattayallah, (2009) examined the effect of 10minutes exercise after 15 hours of nicotine abstinence, MRI scan were used in order to brain capture. Results confirm the studies who revealed that a short session of moderate exercise can significantly reduce smokers' nicotine cravings. The team don't know exactly what cause their findings but they suggest that exercise increases dopamine and raises mood which might reduce the need of smoking. Another biochemical perspective is that exercise causes a shift in blood flow to areas of the brain less involved in anticipation of reward and pleasure.

As mentioned above exercise and smoking appear to have a competitive relation, smoking increases the risk of mortality, while exercise and healthy life style increase life expectancy, enables individual who experience in dealing with stressors. By engaging in a healthy life style with healthy nutrition and physical activity the chances of experiencing symptoms of depression or actual depression are dramatically low. From biochemical perspective it causes the secretion of substances (neurotransmitters) that cause positive feelings, of wellness (endorphins, serotonin, and norepinephrine).

It is clear that the desire to quit smoking is not sufficient to accomplish it. Most smokers the have made at least one attempt to quit in their life time with major barriers for most of

them are the psychological benefits and the pleasure from smoking and their personal way to deal with stress and daily difficulties even their own mood.

There have been numerous attempts from specialists to develop intervention programs to help smokers reduce or quit smoking without the use of drugs, but, mainly, with psychological support specialists. An interventional program involves changing attitudes, counseling, psychological learning skills, setting goals and use of materials, are some of the methods used in these programs.

In addition, there is some evidence to suggest that a counselling based intervention type of promoting healthy lifestyle and exercise can result in comparable increase exercise behavior as for a more structured and supervised exercise intervention (Dunn et al., 1998). In practice interventions of previous studies (Sevick et al., 2000) including supervised, structured and vigorous exercise sessions seems to be more less cost and effective than the interventions who are focused only in a healthy life style of typical exercise session.

In the review of Ussher, West, Taylor and McEwen 2000, examined the efficacy of supervised, vigorous intensity exercise in smoking cessation program. Three studies revealed significant benefits for participants who involved exercise program. In particular in the study of 1995, Marcus, Albrech and Niaura examined the effect of supervised aerobic exercise, lasting 30-45 minutes three times on weekly basis of maximal heart rate 70-85%. Results showed that participants who experienced the thrice weekly exercise intervention had seven day abstention from smoking compared to those who received only behavioral support. Few years after Marcus and colleagues (1999) examined the effect of twelve week vigorous supervised aerobic exercise (heart rate 60-85%) lasting 30-40 minutes, on in 281 female smokers (in contrast to 20 participants of the research in 1995). Results indicate that individuals who participated in the twelve months exercise treatment gained significantly less weight at the end of treatment and reported significantly less withdrawal symptoms and

cravings only in a period of nine weeks of the treatment. Abstinence rates doubled at the twelve months of the intervention.

In addition to Ussher's review another intervention study by Martin, Kalfas and Patten (1997) examined the effect of four week supervised exercise sessions from 15-45 minutes, heart rate 60-75% including three exercise sessions at home and the effectiveness of nicotine gum and behavioral support, or receiving a standard smoking cessation treatment, in 205 systematic smokers recovering from alcohol problem. Results showed that at the end of the four week treatment participants who participate in exercise session were significantly abstained from smoking than for those who received behavioral support and substitutes.

Exercise counselling also was examined aiming to increase smoking abstinence and reduce cigarette withdrawal and weight gain. In the research of Ussher et al., (2003) in a smoking cessation clinic with 299 participants examined the seven week cessation program of exercise counselling, health education advice. Results showed no significant difference between exercise and control group. Researchers did not find any difference in weight gain or smoking abstinence, but they observe positive effect on exercise level on the experimental group where participants reported less anxiety and stress levels, less tension and more happiness and an improvement in psychological symptoms.

Similar patterns of exercise counselling found in another intervention study named "Fit2Quit", examined the effectiveness of exercise counselling in cigarette smoking abstinence for 24 weeks in 906 adults participants who were insufficiently active and interested in quitting. A number of Ten exercise telephone counselling sessions were conducted including behavioral counselling sessions and nicotine replacement. Similar to Ussher's results no significant differences were found. Significant difference was observed for leisure time physical activity (Maddison et al., 2014).

Another noteworthy study aimed to evaluate smoking cessation programs providing psychological support in cessation and motivating participants to increase physical activity behavior developed by the Laboratory of Exercise Psychology and Quality of Life in the University of Thessaly Department of Physical Education and Sport Science with the slogan of “No More Smoking! It’s Time for Physical Activity”. The psychological support established based guidelines from the American Cancer Society (American Cancer Society, 2010). Participants were patients from five antismoking clinics, in four towns of Greece. Participants were asked to report how many times they do physical activities for more than fifteen minutes of their a typical week whereas smoking behavior estimated by the questions: “How many cigarettes did you smoke last week?” and “How many cigarettes did you smoke yesterday?” Participants indicated the number of cigarettes they smoked during the start and the end of the cessation program and during the follow-up sessions. Participants decreased significantly the number of cigarettes at the end of the intervention decreasing also the habits followed by smoking behavior. Thirty-six percent of the participants who started the program managed to stay off smoking for at least one year (Hassandra, et al., 2012).

## **CHAPTER 3:**

### **Methods**

#### **1. Participants**

Participants were recruited from the city of Trikala (Greece) and from the smoking cessation center. Ads were placed on the local news, local newspaper, radio station, electronic media etc. Information were provided from older participants to other people so the society get familiar with the intervention program.

A total of eight persons (Smokers willing to quit) 5 male and 3 female ranged from 35-66 years were enrolled. Prerequisite to participate in the intervention were the interest to quit smoking and the intention to participate in exercise sessions. The percentage of five persons was informed about the program from the Press Release published in local newspaper. From the social environment and from older participants were informed the other three.

Underage participants were excluded.

#### **2. Measuring Instruments**

A semi-structured profile interview was developed in order to collect demographic characteristics and to obtain basic information about participant's smoking and exercise history, family health history and factors directly related to smoking and exercise behavior.



At the beginning and the end of the intervention a semi-structured interview were also used in order to assess the effectiveness of the counseling intervention program as well as the capacity and efficiency of the counselor (Table 1).

*The table (1) below shows the questions were included at the evaluation interview: Exercise behavior*

<b>What do you think when you hear the word physical activity?</b>
<b>Do you think you could incorporate PA as a life style after the end of the program?</b>
<b>Would you characterize yourself as active person?</b>
<b>Did you ever think that PA can help you quit or reduce?</b>
<b>Do you think you can increase physical activity in your daily life?</b>
<b>Which are the major obstacles to integrate physical activity in your routine?</b>
<b>Which are the motives to integrate physical activity in your routine?</b>
<b>Do you believe that physical activity will benefit you?</b>
<b>Do you believe the program functioned as an ally in your efforts to adopt exercise as a lifestyle and therefore abstain from smoking?</b>

### **3. Process**

The intervention program included individual counseling sessions to smokers participating in ‘smoking cessation and exercise intervention program’. The current intervention program for smoking cessation and exercise behavior is a multifaceted intervention response to cigarette reduction, exercise behavior, nutrition, stress management

and organization of time and other behaviors and additionally has many objectives such as informing, awareness, motivation, support, change behavior from the unhealthy behavior of smoking and other, to a healthy lifestyle of exercise healthy nutrition and more. The present intervention program enables the counselor to practice, to familiarize and worked with several techniques constantly fulfilling many different sub-objectives.

#### **4. Individual Counseling**

Individual counseling is person-centered and based on the theory of Motivational Interviewing (Motivational Interviewing, Miller & Rollnick, 1991). The most recent definition of Motivational Interviewing (2009) "collaborative person- centered form of guiding to elicit and strengthen motivation for change".

A total of twelve individual counseling sessions were established whose frequency was one session per week duration of one hour. Each participant conducted 12 individual sessions until the completion of its participation in smoking cessation and exercise intervention program. All counseling sessions were held on "Physical Education and Sports Science Department"

At each counseling session weekly objectives were discussed and set out until the next meeting and all materials shared and discussed during the session. The same objectives, and other information were held on the counselors "Report Card", records were held from all sessions.

The goals were focused primarily on exercise behavior (physical activity), reducing cigarette and nutrition, stress or other psychological aspects management through techniques and organization of time.

Open-ended questions were used during the counseling sessions in order to give the opportunity to the participants and express their feelings, explore their selves. Open-ended

questions can help counselor and participant to communicate more and encourage participant to express in depth feelings and thoughts

Different studies suggest people who exercise they smoke less (Hill 1985; Marti, Abelin, Minder, & Vader, 1988; Marti, Salonen, Tuomilehto, & Pulska, 1988; Salonen, Slater, Tuomilehto, & Raurama, 1988; Tuomilehto et al., 1987), and that people who exercise are more likely to reduce and quit smoking (Godin, 1989). In contrast some other found weak or no relation between exercise and smoking behavior (Kaczynski, Manske, Mannell & Grewal 2008).

Regular physical activity using large muscle groups, such as walking, running, or swimming, produces cardiovascular adaptations that increase exercise capacity, endurance, and skeletal muscle strength. Habitual physical activity also prevents the development of coronary artery disease (CAD) and reduces symptoms in patients with established cardiovascular disease. There is also evidence that exercise reduces the risk of other chronic diseases (American Heart Association, AHA 2003).

The significant part of current intervention program we included various forms of physical activity, starting by walking, which is the easiest and the safest kind of physical activity. The frequency and duration of physical activity was not standard and same for every participant but was modulated for each one and planned individually for each participant. Counselor was physical education graduate and it was accepted to accompanied the practitioner during his/her physical activity session providing guidance during the activity and some exercise tips or even plan the exercise program for the smoker participant. If any participant were familiar with exercise, the objectives were chosen based on his potential and capabilities and habits, records after the exercise session were held.

Cognitive awareness about physical activity, participants' concerns, thoughts, feelings about physical activity and smoking, personal beliefs about physical activity and smoking

behavior, as well as their personal experience from physical activity, positive reframing from previous efforts to exercise or quit smoking, increase confidence and relaxation techniques, benefits of physical activity in the process of smoking cessation, the self-talk, converting negative thoughts into positive, the target-setting process, the nutrition counseling tips, techniques to deal stress management and any other kind of negative feelings and time management were also important.

The material that was used during the counseling sessions was based on the manual of «*Smoking and End Time for exercise. Ten steps to quit smoking* », adapted in exercise and physical activity with the purpose to meet the path of physical activity and exercise and what can be called as physical activity from another perspective, approved and modified by the team of the " Laboratory of Exercise Psychology and Quality of Life " of the Sports Science and Physical Education Department.

Individual counseling a process between counselor and an individual which helps the participant to gain an understanding about oneself its behavior in order to develop skills in dealing difficulties associated with the current situation. The process of individual counseling is based on trust and confidentiality. The purpose of individual counseling is to provoke thoughts and concerns through the discussion and whilst can guide participant to find solutions about those concerns. Basic skills is active listening in order to establish a positive environment, paraphrasing, summary, reflection of emotions, to clarify what the participant is saying, to gather information, offer support, encouragement and solution. Self-awareness and empathy appeared to be effective and helpful from counsellors' perspective in order to understand his own frame.

## 5. Supervised Physical Activity

Regular exercise was defined for all participants as activities performed at a vigorous intensity three or more times per week for at least 30 min each time (American College of Sports Medicine, 2000).

Supervised exercise sessions were conducted depending on the abilities of each participant separately. Exercise sessions took place on the biomechanics laboratory at the University of Sports Science and Physical Education at Trikala or at a place (Park, track and field stadium etc.) chosen by the participant.

Moderate intensity exercise program included aerobic exercise like 30 minutes walking, strength core exercises, and some stretching exercises so they could relax at the end. Sessions were designed in order to get familiar with different kind of activities and exercises so they could perform them independently after the program.

### Risks of Physical Activity

Physical activity and exercise training have risks that must be considered when recommending regular physical activity for the general population and for individuals with any kind of disease. Fortunately, several strategies are recognized as effective at reducing risk when recommending physical activity. The most common risk of physical activity in adults is musculoskeletal injury. The safety of participants were guarantee.

## **CHAPTER 4:**

### **Results**

#### RESULTS

Cigarette smoking leads to poor health, reduced quality of life, and premature death. Most smokers report that they would like to quit although have tried to quit in the past. The common barriers to quite are enjoyment of smoking, craving for cigarettes, stress handling or bad moods, fear of gaining weight after quitting, lack of coverage for smoking cessation treatments. The large percentage of 87.5% stated previous attempts to quit smoking with any kind of cigarette substitute but without physical activity (medicines, nicotine substitutes, acupuncture etc) without positive results.

Despite the desire to quit, most smokers struggle to maintain a regular exercise routine. A variety of factors contribute to this discrepancy; including a lack of motivation, time, access to facilities or equipment, energy, workout partner, and self-efficacy. Moreover, sedentary individuals often experience discomfort (e.g., pain or breathing difficulties) during initial attempts at sustained exercise, further discouraging them from making exercise part of their daily routine (Miller, Ogletree & Welshimer, 2002). In the present study all participants (n=8) believed that exercise somehow can reinforce their attempt to stop smoking but due to lack of knowledge none of them can understand how a moderate physical activity can enhance their effort and have positive effect towards smoking cessation.

Health is one of the major reasons that smokers decide to participate in the current program, money and changing life style and habits are secondary. Commonly most smokers decide to participate because of their concern to prevent any health issues or they already facing some that might have direct relation with smoking behaviour like cancer, sleep apnoea. In the present study only 25% were forced to participate because of a health problem, the rest 75% because of their intention to change habits and lifestyle.

Another reason to participate was significant others were involved at any kind of physical activity. The percentage of 62.5% (n=5) state at the acquaintance profile interview that, at least one significant family member (e.g. husband/wife, child or very good friend) are fond of physical activity and smokers feel disappointed from their own selves because they can follow their routine.

All participants aimed to quit smoking but some of them believed that they could adopt physical in their daily life

From the number of eight participants seven manage to complete the program, one drop out was due to serious health problem. The number of six managed to adopt physical activity. However is important to mention the case of a participant whose career obligations allow him attending the program but not participating at any kind of physical activity, before the end of the program. Particularly he attend to all counselling sessions for physical activity and he stated that only after the end of his working obligations he would practice what we have talked about. Two months after the intervention program on the follow up call communication he informed us that he manage to quit smoking and also he was exercising for 60 minutes three times per week.

## EVALUATION QUESTIONS AND ANSWERS

Answers are written as given by the participants.

Question

**What do you think when you hear the word physical activity?**

Before

Gymnastics, swimming, walking, jogging, sports, gym, weightlifting, Sweat, waste of time, fatigue, dyspnea, sweat, dirty clothes.

After

Pleasant feelings, relief, positive mood, fresh air, oxygen, joy, I like it, Excitement, Energy, health, appearance.

Question

**Do you think you could incorporate PA as a life style after the end of the program?**

Before

“no I don’t think so, challenging, tough, lack of time, I have no time, Perhaps, maybe, I don’t know, I work so I can’t, family and social issues”.

After

“Sure, I can. It’s helpful. Energy, better sleep, better time management.”

Question

**Would you characterize yourself as active person?**



Before

“Yes, housekeeping, gardening, enjoy hanging out with friends.”

After

“Walking for transportation or cycling, try to be more physically active, walking at the park, walking to exercise.”

Question

**Did you ever think that PA can help you quit or reduce?**

Before

“No, maybe, sometimes yes but I don’t know how. I don’t think so. To reduce yes maybe, not to quit. Smoking is like a disease.”

After

“I wouldn’t achieve anything without exercise, my motivation was my health, weight control, appearance. Generating positive emotion,, dealing with stress, anxiety, increased my confidence.”

From the first couple of questions it is obvious that participants were not aware of the actual meaning of physical activity. Negative thoughts and feelings about physical activity. Participants become more aware about the importance of physical activity in their life. Positive changes in attitude and behaviour are seen through the answers at the end of the intervention program, positive feelings towards physical activity and exercise were developed and a clear image about physical activity.

Question

**Do you think you can increase physical activity in your daily life?**

Before

“No I can’t, I don’t have time. I don’t want to. It can’t help me. I prefer to do something else. I don’t like to go to the gym. It’s pointless”

After

“Of course I can, I don’t believe that I couldn’t. I lost so much time on smoking. It’s very easy, walking only for 30 minutes and feel healthy. I feel happy.”

Question

**Which are the major obstacles to integrate physical activity in your routine?**

Before

“Laziness, get bored easily, lack of time, responsibilities, psychological stress oppression, health problems, weather.”

Question

**Which are the motives to integrate physical activity in your routine?**

After

“Health, the mood, not bored, commitment to my goals, improve quality of life, I can breathe, I feel good, I feel beautiful.”

Question

**Do you believe that physical activity will benefit you?**

Before

“I have read and hear from others that it can help me but I can’t figure out how. Treating anxiety, relief, health. Maybe a better life, oppression, obsession to smoke”

After

Yes, time without cigarettes, enhance resistance to smoke every day, better feelings, better psychology, health, less stress and problems. I feel alive, confident, better body weight and appearance. I Wouldn't achieve it without exercise. Finally I feel relaxed.”

Question

**Do you believe the program functioned as an ally in your efforts to adopt exercise as a lifestyle and therefore abstain from smoking?**

Before

“I do not know. I hope, I wish. Maybe. Some friends manage to quit with exercise, it might happen to me. I believe electric cigarettes, might have more positive results than exercise.”

After

“It helped me too. Healthy Lifestyle, better quality of life without the exercise I do not think I could do it. Maximum assistance from exercise and my will. Cigarette was like a disease, now I feel healthy and free.”

There is a distrust on the principle that the exercise would benefit them generally in smoking cessation and their lifestyle, there as an obvious differ on the that they understand and face physical activity, the differences with exercise. Smokers who start working out

intensively, gradually lose their desire to smoke and it is confirmed the aspect that moderate exercise can reduce the desire to smoke a cigarette.

Encouraging results of the effect of exercise on smoking cessation are seen through the diversification of responses before the program and after.

Participants developed a clear image on how they can adjust a moderate training session in their daily life and thus to replace the unhealthy behaviour of smoking and sedentary lifestyle to a healthy active one.

## **CHAPTER 5:**

### **Discussion**

Regular physical activity using large muscle groups, such as walking, running, or swimming, produces cardiovascular adaptations that increase exercise capacity, endurance, and skeletal muscle strength exercise reduces the risk of other chronic diseases (Knowler, Barrett-Connor, Fowler et al. 2002; Vuori, 2001; Wing & Hill 2001; Pollock, 2001). Research has shown that moderate exercise can help people who want to quit smoking and results confirmed the positive effect of exercise on smoking cessation. Exercise is reinforcement for their commitment to be healthy without cigarette. Sedentary adults should avoid isolated periods of vigorous physical activity and should follow the standard recommendation to increase physical activity levels gradually over time. There is no consensus as to when is a good time to increase the levels of physical activity but some activity is better than no activity.

A study from the University of Exeter found changes in brain activity, triggered by physical exercise that may help reduce cigarette cravings. The study shows how exercise changes the way the brain processes information among smokers, thereby reducing their cravings for nicotine (Janse Van Rensburg, Taylor, Hodgson, & Benattayallah, 2009)

Evidence suggests that exercise may be useful as an aid to smoking cessation. Researchers examined the efficacy of supervised, vigorous intensity exercise as an adjunct to

a behaviorally-based smoking cessation program and found significant benefits for those who took part in physical activity program (Ussher, West, Taylor & McEwen, 2000).

In addition, some other study suggest that a counseling intervention based on promoting a healthy lifestyle with physical activity can increases levels of exercise (Dunn, Garcia, Marcus et al. 1998)

The purpose of the present study was to investigate whether the counseling intervention program promoting physical activity can lead to positive results in smoking cessation and adopting a healthy lifestyle means of exercise. The current intervention program, combined individual counselling sessions and supervised physical activity, primary aims to determine whether can increase the levels of physical activity and secondary to enhance smoking cessation.

According to the results the combination of counselling sessions and supervised exercise, contributed positively in the process of smoking cessation with the percentage of 75% managed to adopt physical activity in their daily life increasing their participation to a physical activity from once a week (supervised exercise of the program) to three or even four times per week. However physical activity data in was based exclusively on self-reports and it is possible that participants were biased towards overestimation of their exercise levels. Equally important is that three participants manage to quit smoking and three to reduce smoking dramatically. Similar to this, older evidence support the efficacy of supervised exercise session (for example, vigorous-intensity, three times per week over 12 weeks) as an effective smoking cessation intervention (Marcus et al. 1999).

As mentioned above important contribution to the field is the recent study of Hassandra et al. 2012, were researchers examined the evaluation of an initial application of a smoking

cessation program promoting physical activity in antismoking clinics, with the purpose of psychological support and motivation to increase physical activity levels. Results revealed the effectiveness of physical activity promotion in a smoking cessation counseling program with thirty-six percent of the participants who started the program managed not to smoke for one year.

Worth noting that in the present research the largest percentage manage to change the unhealthy behaviours of sedentary life, smoking, unhealthy nutrition to a healthy one. The results lead us to the state that the more people deal with physical activity or general more healthy behaviors the less they smoke.

However is important to mention that participants who exercised more intensively in the past managed more easily to mobilized and participate to physical activity program. Individuals reported at the evaluation question as very helpful getting familiar with supervised exercise and make their process easier and that they prefer to have more supervised sessions per week instead of one.

Information about health, reasons to quit or not, some people claim that they smoke in order to keep the weight at this level (Clark et al., 2004; Perkins, Mitchell & Epstein, 1995). Exercise is proposed as an alternative technique dealing the typical unhealthy habits. Reasons to exercise was the appearance, body weight control and reasons not to exercise was the lack of time, equipment, social and family obligations. Important aspect of the research was to develop the ability to recognise the benefits of physical activity, especially participants facing health issues report improvement on their quality of daily life. Emphasis were given to physical and mental benefits of physical activity enhanced by stress management, relaxation techniques, recognition on mood variations as well as mental health before, after and during the supervised exercise sessions. Weight control, strengthen muscles, improvement of their

ability to do daily activities, better balance, better mood, feeling healthier, facing positive feelings during the day, improve quality of sleep, feel more confident are some of the benefits that were recognised from the participants during the intervention program.

Exercise counselling assists in organizing daily activities and routine, to guide individuals to use exercise as a treatment technique towards the desire to smoke and its symptoms such as sleeping disorders, of concentration, depression and irritability. Improving physical condition it is not requested, engaging at any kind of activity and being physically active and healthy is worthy.



## **CHAPTER 6:**

### **Conclusions**

Over the last years, researchers have developed numerous interventions in order to improve the knowledge and the effectiveness of physical activity and exercise adoption and maintenance, evidence suggest that physical acitivity and exercise interventions can increase exercise levels 50%-60%, with the most effective to contain behavior modification strategies, emphasized lower intensity activities (Dishman & Buckworth, 1996).

A minimum 30 minutes a day of moderate-intensity or vigorous intensity activity presented by the European network for the promotion of health-enhancing physical activity and American College of Medicine (HEPA 2000; 2006 & ACSM, 2007) are enough to benefit health. While American College of sports medicine. The 30 minutes per day formula are more than enough to benefit health (Foster, 2000)

In the present study it is confirmed that the combination of physical activity counseling and smoking cessation had positive affect in adopting physical activity as a life routine. Results support that physical activity has been adopted by participants in leisure-time including activities, sports, walking for exercise, 62.5% of the participants adopts physical activity as active transportation walking or cycling to work in order to accomplish the liabilities of everyday life. Results also indicate that supervised and structured exercise session were efficient towards cessation. Supervised exercise session committed their participation to the intervention program and having as a results smoking abstinence.

Further research studies are needed to determine the minimum levels of exercise and exercise intervention required to result in significant long-term increases in smoking

abstinence rates. Researchers should develop laboratories in order receive counselling sessions to adopt physical activity with more vigorous intensity supervised exercise sessions combined to the control of person's aerobic capacity VO<sub>2</sub>max. Based on research Interventions should last more than six months in order to be more effective and to prevent smoking withdrawal and to maintain the abstinence.

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# APPENDIX A

## Consent Form

### 1. Title of the study

Emotional intelligence and rehabilitation from severe athletic injury

### 2. Aim of the Study

To explore the role of emotional intelligence (EI) in rehabilitation and coping of injured athletes. Emotional intelligence is the ability to perceive, utilize, understand and manage emotions in self and others.

### 3. Description of research activities

You will be asked to fill two questionnaires, one after another, and to participate in further interviewing if you are willing to share personal experiences.

### 4. Risks/ discomfort involved

There are no risks involved in this study whatsoever. However, if you get uncomfortable sharing information about your emotions, thoughts and acts please let me know and I will withdraw the question(s).

### 5. Expected impact

The findings from this study can point out another valuable facet of sport injury recovery. It could also illuminate the importance of EI in sport setting - hence provide new implications for practitioners.

### 6. Dissemination of results

Pseudo-names will be used instead of real ones. All data obtained will be kept in the researcher's PC and nothing will be published without the interviewees' approval. Please choose your pseudo-name here: .....

### 7. Further Information

Do not hesitate to make questions regarding the aim of this study or the implementation of study design. If you have any doubts or questions, do ask us for clarifications.

### 8. Freedom of consent

You are a volunteer participant. You are free to withdraw your consent now or later.

### Participant Declaration

I read this form and I understand the procedures involved. I agree to participate in this study.

Date: \_\_/\_\_/\_\_

[Name and signature  
of participant]

[Name and signature  
of researcher]

[Name and signature  
of witness]

## **APPENDIX B:**

### **Interview Guide**

1. What is the number of cigarettes that you smoke? (Before and After)
2. Was there an earlier attempt to quit?
  - a. How did you confront it?(before the program)
  - b. How did you confront the current attempt? (After the program)
3. How did you experience the last attempt? (before the program)
  - a. How did you experience this attempt through the program? (After the program)
4. What were the dominant feelings and thoughts that dropped you back? (before the program)
  - a. What were the dominant feelings that motivate you to continue during this program?  
(After the program)
5. What is your relationship with exercise?
  - a. Did you tried in the past to exercise? (before the program)
  - b. What is your relationship with exercise now? (After the program)
6. Do you think that exercise has beneficial effects for someone who wants to stop smoking?  
(before the program)
  - a. Do you think the exercise helped you reach the point where you are now? (After the program)
7. What do you think will complicate your current the process and make difficult your integration in an exercise program?(before the program)
  - a. What made difficult your integration into the current exercise program? (After the program)
8. What are your thoughts and your feelings about the exercise? (before and after the program)

9. Do you believe the exercise counseling sessions will enhance your effort? (before the program)
- a. Do you believe that exercise counseling sessions enhanced your effort? (After the program)

## APPENDIX C

## Table of Emotions

Name of Interviewee:

	Not present at all		.....		Very much present
Frustration	1	2	3	4	5
Depression	1	2	3	4	5
Anger	1	2	3	4	5
Tension	1	2	3	4	5
Fear	1	2	3	4	5
Relief	1	2	3	4	5
Rage	1	2	3	4	5
Irritability	1	2	3	4	5

Instructions: Circle your answer or bold the chosen answer if you are completing this on a PC.



## APPENDIX D

### Brief Emotional Intelligence Scale (BEIS-10)

A number of statements which people have used to describe themselves are given below.

Read each statement and then blacken in the appropriate circle to the right of the statement to indicate how you feel *right now*, that is, *at this moment*. There are no right or wrong answers.

Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1. I know why my emotions change	1	2	3	4	5
2. I easily recognize my emotions as I experience them	1	2	3	4	5
3. I can tell how people are feeling by listening to the tone of their voice	1	2	3	4	5
4. By looking at their facial expressions, I recognize the emotions people are experiencing	1	2	3	4	5
5. I seek out activities that make me happy	1	2	3	4	5
6. I have control over my emotions	1	2	3	4	5
7. I arrange events others enjoy	1	2	3	4	5
8. I help other people feel better when they are down	1	2	3	4	5
9. When I am in a positive mood, I am able to come up with new ideas	1	2	3	4	5
10. I use good moods to help myself keep trying in the face of obstacles	1	2	3	4	5