

Although there is adequate evidence for the positive effects of exercise in health, the aetiology and interpretation of the psychological and physiological mechanisms that contribute to this positive effect is not clear (Landers & Arent, 2007). The present proposal focuses on the effect of the exercise and psychological support in order to prevent, reduce or quitting smoking and alcohol consumption. The project approaches the problem of the habits of smoking and alcoholism interdisciplinary, through promising scientific areas, among which there was no coordination previously. These scientific areas are exercise physiology, biochemistry, psychology and counselling.

EXERCISE, SMOKING, & ALCOHOL: INVESTIGATION OF MECHANISMS, & INTERVENTIONS FOR PREVENTION, CESSATION & AWARENESS- ESCAPEE

The objectives of the project were: (1) To develop a theoretical and applied framework of support and self-regulation for smokers and alcoholics in order to aid cessation, (2) To investigate the effects of different exercise intensities on the psychological, physiological and biochemical factors contributing to prevention of smoking and alcohol consumption, (3) To investigate the effects of important psychological, physiological and biochemical mechanisms which are activated during exercise in smokers and alcoholics, and (4) To develop, implement and evaluate exercise programs based on optimal levels of exercise intensity that have the most beneficial effects on smokers and alcoholics regarding abstinence. The exercise programs will be combined with counseling and psychological support techniques in order to encourage exercise engagement and discourage cigarette smoking and alcohol consumption.

In the first experiment heavy smokers exercised for 30 min on a bicycle ergometer. Results showed that smoking urge was significantly lower immediately after exercise. Urge to smoke reverted back to baseline levels 30 minutes post-exercise. Smokers exhibited an enhanced preference for self-selected intensity of exercise compared to a preset – intensity

In the second experiment the effects of two different exercise intensities, moderate vs. vigorous intensity exercise, on smoking behavior were examined. Results showed significant differences between the control and the moderate intensity condition, and between the control and the high intensity condition, but not between the moderate and high intensity conditions. In the control condition participants smoked their first cigarette earlier than in the two exercise conditions. Furthermore, the analysis showed a preference for the moderate intensity exercise protocol and

that exercise can have a positive impact on smoking delay.

In the third study an exercise intervention program coupled with psychological self-regulation strategies aiming at quitting smoking was developed and implemented. The exercise program took place in a recreation park or in the gym. Exercise sessions lasted for 20-30 minutes per session and gradually increased to 60-70 minutes. In considering the self-regulation strategies used during this intervention, participants were instructed in each training session to complete specific forms for personal goal setting for exercise, personal goal setting for daily number of cigarettes, and to focus on breathing during exercise, on positive self-talk and on specific coping strategies to quit smoking. Results showed that participants increased significantly the total physical activity participation per week. The majority of them quit smoking and the rest of them reduced smoking.

In the fourth experiment the acute effect of an exercise program combined with psychological self-regulation strategies on smoking delay was examined. A group of smokers participated in a 30 min exercise protocol on a bicycle ergometer in two moderate intensity exercise conditions; one of them included self-regulatory strategies. Results indicated that 30 minutes of moderate intensity exercise combined with self-regulatory strategies (goal setting, breathing and self-talk) reduced smoking desire and delayed smoking for 32 minutes.

In considering the effects of exercise on alcoholics, our group performed a review of literature and the search showed that only eight studies examined the effect of exercise on alcohol consumption and related outcomes. According to findings, six of those studies have concluded that exercise may have a positive impact on abstinence rates or urge to drink. One of those studies also indicated that one bout of exercise affects the endogenous opioids, which might relate to the urge to drink. Despite limited research data and often contradictory results, there is some early promising evidence for the role of exercise as an adjunctive tool in the treatment of alcoholism. Therefore, in the fifth experiment of this project, the effects of low intensity exercise on beta endorphin (β -E) levels and urge for alcohol in alcoholic patients were examined. Data analysis revealed that exercise resulted in significant increases in β -E and in a decrease in alcohol urge in alcoholic patients. These results indicate that one bout of low intensity exercise affects the endogenous opioids in alcoholic patient.

Finally, our qualitative studies revealed a positive effect on mood, self-esteem, and anxiety control when smokers or alcoholics participated in an exercise program. Furthermore, respective health education programs for prevention and awareness were designed. Future analyses of the above experiments should examine the effects of psychological, physiological and biochemical factors contributing to smoking and alcohol cessation. These preliminary

results of our project shows the importance of exercise programs coupled with psychological support techniques in order to discourage cigarette smoking and alcohol consumption.