The effects of physical fitness training on trait anxiety and physical self-concept of female university students

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Abstract

Objectives: To investigate the effects of participation in a physical fitness programme on anxiety and physical self-concept of female university students in Turkey.

Design: True experimental design with repeated measures.

Methods: 40 female university students volunteered to participate in this study and were randomly assigned to experimental (n=20; M_age=21.35±0.88) or control (n=20; M_age=21.20±1.67) groups. The experimental group participated in one aerobic and two step dance sessions per week for ten weeks at 60–80 % of heart rate reserve. During this period, the control group did not participate in any regular physical activity programme. The State-Trait Anxiety Scale (STAI) and Physical Self-Description Questionnaire (PSDQ) were administered to participants before, in the middle, and after the ten week treatment.

Results: Participants in the experimental group improved more in physical activity, coordination, sport competence and flexibility subscales of physical self-concept than the control group. In addition, there was a significant reduction in trait anxiety scores of participants in the experimental group in comparison to the control group.

Conclusions: A ten-week physical fitness programme was effective in reducing trait anxiety and strengthening the physical self-perceptions of female university students.

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Keywords: Physical fitness training; Anxiety; Physical self-concept

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Introduction

Exercise has been shown to be an important aspect of holistic health in which the individual is encouraged to take personal responsibility for establishing an enhanced level of well-being. Health not only refers to the absence of disease and infirmity but also to a state of complete physical, mental and social well-being (World Health Organization [WHO] 1948).

Physical activity is one way to improve physical and psychological aspects of health. The role of exercise in the reduction in risk of premature mortality due to coronary heart disease and other illnesses is widely accepted (Heyward, 1991). A growing number of experimental studies and the existence of several plausible theoretical explanations support the idea that regular exercise yields mental health benefits (Biddle, Fox, & Boutcher, 2000; International Society of Sport Psychology [ISSP], 1992). Many research reviews have clearly reported that exercise, especially aerobic exercise, is negatively associated with trait anxiety and depression and positively related to indices of mental health such as well-being and self-concept (e.g., McDonald and Hodgdon (1991); Fox (2000).

There is a consensus on the role of acute exercise in the reduction of anxiety in non-clinical populations (Berger and Owen, 1987, 1988; Taylor, 2000; Wilson, Berger, & Bird, 1981). Biddle and Mutrie (1991) and Francis and Carter (1982) indicated that although acute effects of exercise in anxiety reduction on the normal population is clear, chronic effects are less clearly demonstrated. However, some researchers have investigated the chronic effects of exercise. For instance, Labbe, Welsh and Delaney (1988); Long (1984); Long and Haney (1988); Nouri and Berr (1989); Jacobs (1984) and Boyll (1986) reported reductions in trait anxiety after participating in an exercise programme. A common feature of these studies is that they all employed aerobic exercises such as jogging, walking, swimming, cycling, aerobic dance and non-aerobic exercise (weight training). In contrast, the present study compared the effects of a combination of two exercise modalities—aerobics and step dance—on trait anxiety with no exercise control group using a repeated measures design. The underlying assumption of using step and aerobic dance as a form of exercise is their gender appropriateness (Matteo, 1986), providing more opportunities for social support for females and their rhythmical, continuous and musical nature. In addition, aerobic and step dance are very popular and many individuals choose to participate.

Besides changes in trait anxiety, the present study also addresses the effects of combinations of aerobic and step dance on physical self-concept. With the recognition of the multidimensionality of self-concept has come more detailed study of its component parts. The physical self has occupied a unique position in the multidimensional self-system because the body, through its appearance, attributes and abilities, provides the substantive interface between the individual and the world (Fox, 2000). Recently, two validated instruments namely, the Physical Self-Perception Profile (PSPP) (Fox and Corbin, 1989) and the Physical Self-Description Questionnaire (PSDQ) (Marsh, Richard, Johnson, Roche, & Tremayne 1994) have been developed to assess this important construct.

Caruso and Gill (1992) studied the effects of ten weeks of aerobic dance, strength training and other physical activities on the physical self-perceptions of 34 female undergraduates. They reported that physical self-perception changes over the ten week period, but improvements occurred independent of the exercise/activity group. In a second study, Caruso and Gill compared the effects of weight training and physical education activities on physical self-perception and
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