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## The effects of a 6-month exercise intervention programme on physical self-perceptions and social physique anxiety in non-physically active adolescent Swedish girls

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### Abstract

*Objectives:* To examine the effects of a 6-month exercise intervention programme (EIP) on physical self-perceptions (PSP) and social physique anxiety (SPA) of non-physically active adolescent Swedish girls.

*Methods:* A true experimental design with randomization into an intervention or control group was used. The empowerment based EIP, offered to the intervention group twice a week for 6 months, consisted of 45-min exercise sessions followed by 15 min of discussions regarding a healthy lifestyle. A variety of exercise activities, chosen by the participants themselves, were used. Twenty-seven participants in the intervention group and 35 in the control group completed the Physical Self-Perception Profile (PSPP) and the Social Physique Anxiety Scale (SPAS) at pre- and posttest and, in addition, physical fitness, weight and height were measured.

*Results and conclusions:* The intent to treat analysis showed no significant improvements in PSPP subdomains, but lower SPAS scores for the intervention group, compared to the control group. However, when using a less conservative analysis, including only those who completed assessments both pre- and post-intervention, the intervention significantly reduced both PSPP subdomain and SPAS scores. The changes in PSPP and SPAS scores were not linked to changes in physiological variables. The results are put in the context of previous longitudinal and review studies, theoretical frameworks and models. The direction of effects, possible mechanisms and limitations of the study are discussed along with practical applications linked to exercise and modern diseases.

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*Keywords:* Exercise; Intervention; Physical self-perceptions; Social-physique anxiety

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### The effects of a 6-Month Exercise Intervention Programme (EIP) on Physical Self-Perceptions and Social Physique Anxiety in Non-Physically Active Adolescent Swedish Girls

Physical self-perceptions (PSP) and self-esteem have been presented as core features of the pursuit of mental health and well-being (Fox, 1998; 2000a), both as mediators of other highly valued outcome variables such as happiness (Diener & Diener, 1995) and lack of mental illness (Baumeister, 1993), and as warranted outcomes (cf. Sonstroem, 1997; 1998; Sonstroem & Potts, 1996). In particular for girls/women, negative body image and low PSP have been linked to eating disorders, depression (see Cash & Pruzinsky, 2002; Levine & Piran, 2004; van de Vliet et al., 2002), and health-compromising behaviours such as smoking (Crocker et al., 2001). Hence, approaches to foster positive PSP and body image have been widely called for. In this context, exercise has been suggested as a significant and powerful instrument (Sonstroem, 1997; Sonstroem & Morgan, 1989).

Several cross-sectional studies have supported the association between PSP and self-reported levels of exercise (e.g., Fox and Corbin, 1989; Lindwall & Hassmén, 2004; Sonstroem, Harlow & Josephs, 1994). Unfortunately, as the majority of previous studies have employed ‘one-shot-cross-sectional designs’, important pieces of the puzzle of the complex dynamics of the physical self and the causal nature of effects between exercise and the physical self are still missing (e.g., Fox, 1998; 2000a). However, a longitudinal study investigating changes in PSP (perceived fitness) in adolescents over a 4-year period, demonstrated that, compared to a sedentary group, perceived fitness increased in physically active groups of girls over a 4-year period (Lintunen, 1995). Moreover, a review of exercise intervention studies, including 37 randomized controlled trials and 42 non-randomized trials, revealed that 78% of the studies indicated significant changes in self-perception and self-esteem outcome (Fox, 2000a). Well-designed intervention studies specifically focusing on the effects of exercise on PSP, however, are scarce despite the recommendations of several scholars (e.g., Fox, 1998; 2000a; 2000b; Sonstroem, 1997). Some studies have failed to find significant changes in PSP (Asçi, Kin & Kosar, 1998; Caruso & Gill, 1992), whereas others have found partial (Asçi, 2003) or clear support (Alfermann & Stoll, 2000; Page, Fox, McManus & Armstrong, 1993; Ransdell, Dratt, Kennedy, O’Neill, & DeVoe, 2001) for the effects of exercise on PSP. These previous studies also differed in design; some compared no exercise (control group) with exercise (e.g., Asçi, 2003) whereas others compared no exercise with different exercise programmes (e.g., Alfermann & Stoll, 2000), or different exercise programmes and/or lacked a control group (Caruso & Gill, 1992; Ransdell et al., 2001). The PSP-variables that have been identified as most susceptible to change through exercise are physical conditioning, physical strength and physical self-worth. Body attractiveness, in contrast, appears to be the subdomain least affected by exercise (see Fox, 1997; 1998). Supporting this notion, a recent prospective study found that changes in the physical condition subdomain predicted changes in physical activity in adolescent girls over a 12-month period (Crocker et al., 2003). In this context, the Exercise and Self-Esteem Model (Sonstroem & Morgan, 1989) and subsequently the expanded EXSEM (Sonstroem et al., 1994)—outlining how exercise and exercise interventions may affect PSP, thus leading to enhanced overall global self-esteem through increased physical self-efficacy—have been used as frameworks for describing the exercise-self-relationship (see Sonstroem, 1997; 1998).

Linked to the potential mechanisms of the exercise-PSP relationship, it has been suggested that changes in physiological fitness parameters are not necessary for enhanced self-perception through exercise, and that the mechanisms for change are likely to be psychosocial in nature (Fox, 2000b; Sonstroem, 1997; Taylor & Fox, 2005).

A widely investigated self-presentational concept that has also been related to exercise is social physique anxiety (SPA; Hart, Leary & Rejeski, 1989; Hausenblas, Brewer & Van Raalte, 2004; Leary, 1992).

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