

Institutionen för kost- och idrottsvetenskap

Physiological responses to acute  
physical and psychosocial stress  
- relation to aerobic capacity  
and exercise training

av

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## Abstract

Title: Physiological responses to acute physical and psychosocial stress - relation to aerobic capacity and exercise training

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Exercise training is an effective method to promote health and to prevent development of disease. Both physical and mental health have been shown to benefit from exercise training. It has also been speculated that physical exercise might affect responses to acute psychosocial stress. In an acute stress situation, several physiological systems respond as a way to ensure survival, and it is suggested that exercise training may influence these stress systems.

The main purpose of this thesis was to study physiological responses to acute physical and psychosocial stress and possible associations with aerobic capacity and exercise training. The thesis is based on four papers, analysing data from a randomized controlled trial (RCT). The participants were healthy individuals who reported themselves as untrained at screening. The RCT included testing of acute physical and psychosocial stress. Before and after the tests, hormonal and autonomic responses were assessed. After initial testing, the participants were randomized to either an intervention- or a control group. The intervention consisted of regular aerobic exercise training conducted for six months. At follow-up, the same tests were repeated for both groups.

The main findings were that most participants showed an increase in the studied variables in response to acute stress. Aerobic capacity did not seem to have any relation to hormonal or blood pressure responses to acute psychosocial stress. Neither did the subjective perception of stress at the psychosocial stress test correlate with the actual physiological response. Due to methodological issues, it was not possible to evaluate the effects of exercise training.

Thus, in healthy individuals, the stress systems seem to respond adequately to acute stress, irrespective of level of aerobic capacity or type of stressor.