

The International 22nd Puijo Symposium
"PHYSICAL EXERCISE IN CLINICAL MEDICINE –
CRITICAL APPRAISAL OF SCIENTIFIC EVIDENCE"
June 24 - 28, 2014 Kuopio, Finland

ASSOCIATIONS OF PHYSICAL ACTIVITY, FITNESS AND BODY COMPOSITION WITH HEART RATE VARIABILITY BASED INDICATORS OF STRESS AND RECOVERY ON WORKDAYS

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Objectives

The purpose of this study was to investigate how physical activity (PA), cardiorespiratory fitness (CRF) and body composition are associated with heart rate variability (HRV) based indicators of stress and recovery on workdays. Additionally, we evaluated the association of objectively measured stress with self-reported burnout symptoms.

Methods

Participants of this cross sectional study were 81 healthy males (26–40 years). Stress and recovery on workdays were measured objectively based on HRV recordings. CRF and anthropometry were assessed in laboratory conditions. The level of PA was based on detailed PA interview (MET index [MET-h/day]) and self-reported activity class.

Results

PA, CRF and body composition were significantly associated with levels of stress and recovery on workdays. MET index ($P < 0.001$), activity class ($P = 0.001$), CRF ($P = 0.019$) and body fat percentage ($P = 0.005$) were associated with stress during working hours. Overall, 27.5 % of the variance of total stress on workday ($P = 0.001$) was accounted by PA, CRF and body composition. Body fat percentage, body mass index and CRF were significantly associated with indicators of night time recovery. Objectively measured work stress was associated ($P = 0.003$) with subjectively assessed burnout symptoms.

Conclusions

PA, CRF and body composition are associated with HRV based stress and recovery levels, which needs to be taken into account in the measurement, prevention and treatment of work-related stress. The HRV based method used to determine work-related stress and recovery was associated with self-reported burnout symptoms, but more research on the clinical importance of the methodology is needed.