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

MUSCLE INACTIVITY TIME IS ASSOCIATED WITH CARDIO-METABOLIC BIOMARKERS INDEPENDENT OF PHYSICAL ACTIVITY

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Objectives

The purpose of this study was to examine associations between muscle inactivity patterns and cardio-metabolic biomarkers in healthy individuals.

Methods

150 healthy individuals (female n=85, male n=65, age=38.8±10.6y, BMI=23.8±3.1kg/m2) were measured during 1-3 typical weekdays with shorts measuring muscle activity (EMG). After normalization inactivity threshold was defined as an EMG level below that required during standing. Cross-sectional associations between muscle inactivity patterns and fasting glucose, HDL and LDL cholesterol, and triglycerides were analysed by linear regression models. Adjustments were made for age, gender, education and measurement time (model1) and additionally for waist-circumference (model2) and physical activity (muscle activity amplitude and self-reported METh at >3 METs during previous year, model3).

Results

Muscle inactivity time was negatively associated with HDL cholesterol (standardized b=-0.16, P<.05) and positively with triglycerides (standardized b=0.23, P<.01) and both associations remained significant after further adjustment for waist and physical activity. Mean inactivity period duration was positively associated with triglycerides (standardized b=0.20, P>.05) and association remained significant independent of waist but not physical activity.

Conclusions

Muscle inactivity time is associated with triglycerides and HDL cholesterol independent of waist circumference and physical activity in healthy people.