

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

**BENEFICIAL ASSOCIATIONS OF LIGHT-INTENSITY PHYSICAL ACTIVITY WITH
CARDIO-METABOLIC BIOMARKERS: NHANES 03-06**

Bethany Howard^{a,b}, Parneet Sethi^a, Elisabeth Winkler^c, Genevieve Healy^{a,c}, Neville Owen^{a-c}, David Dunstan^{a-c}

^aBaker IDI Heart & Diabetes Institute, Melbourne, AUS; ^bMonash University, Melbourne, AUS; ^cUniversity of Queensland, Brisbane, AUS; Email: bethany.howard@bakeridi.edu.au

Objectives

Light-intensity physical activity (LIPA) accounts for approximately 40% of adults waking hours, contrasting with less than 5% spent in moderate-to-vigorous physical activity. Despite the large volume, and contribution to overall daily energy expenditure, little is known about the relevant dose-response relationships or potential health benefits of engaging in LIPA. We examined the associations of differing intensities of objectively measured physical activity with cardio-metabolic biomarkers.

Methods

Cardio-metabolic biomarkers were measured in 4625 US adults (55±12yrs) who participated in the 2003–04 and 2005–06 National Health and Nutrition Examination Survey (NHANES) cycles. Multiple linear regression analyses examined cross-sectional associations of accelerometer-derived low-light (LLPA:100–761cpm), high-light (HLLPA:762–1951cpm) and moderate-to-vigorous (MVPA:≥1952cpm) physical activity (SD increment/day) with cardio-metabolic biomarkers, adjusting for potential socio-demographic, behavioural and medical covariates.

Results

Beneficial associations were observed for all intensities of activity with waist circumference, C-reactive protein (CRP), triglycerides, insulin, β -cell function and insulin sensitivity. Associations were consistently stronger for MVPA. Only some activities showed significant associations with systolic blood pressure (for LLPA), HDL-cholesterol, fasting and 2-hr plasma glucose (HLLPA, MVPA).

Conclusions

These cross-sectional study findings provide novel evidence for the potential benefits of increasing both LLPA and HLLPA, which are likely to offset the adverse effects of sedentary time. They also reinforce the established importance of MVPA – the mainstay of public health recommendations.