2010

Baseline characteristics of volunteers in the smart clinical trial: associations between habitual physical activity and lifestyle disease risk factors

Qingsheng Zhang  
*University of Wollongong, qz720@uow.edu.au*

Jane E. O'Shea  
*University of Wollongong, janeo@uow.edu.au*

Rebecca L. Thorne  
*University of Wollongong, beck@uow.edu.au*

Linda C. Tapsell  
*University of Wollongong, ltapsell@uow.edu.au*

Marijka Batterham  
*University of Wollongong, marijka@uow.edu.au*

*See next page for additional authors*

**Publication Details**

Baseline characteristics of volunteers in the smart clinical trial: associations between habitual physical activity and lifestyle disease risk factors

Abstract
Physical Activity has been suggested to have favorable effects on various cardiovascular risk factors, and may serve as an intervening variable in life-style intervention studies. We aimed to examine the relationship between habitual physical activity and selected cardiovascular markers at baseline in a sample of overweight women who participated in the SMART clinical trial [ACTRN12608000425392]. A sub-sample of eighty-six overweight/obese women (mean age ± S.D.: 45 ± 7.9 years) were included in this analysis. Anthropometric and fasting blood data was collected at baseline (t = 0). Habitual physical activity was assessed by a validated questionnaire (Baecke questionnaire). Associations were examined by Pearson correlation, and quartile differences by one-way ANOVA. The results showed that higher levels of habitual physical activity was associated with higher HDL cholesterol (HDL-C) (p = 0.031) and lower insulin logarithm value (p = 0.008). Women in the highest quartile of activity had a mean fasting HDL-C of 1.67 mmol/L and fasting insulin of 8.5 mU/L, compared with fasting HDL-C of 1.39 mmol/L and fasting insulin of 13.7 mU/L in the lowest quartile. Weight, body mass index, systolic blood pressure, diastolic blood pressure, fasting total cholesterol, low-density lipoprotein cholesterol, total triglyceride, or glucose levels were not significantly associated with habitual physical activity in this study. The findings suggest that habitual physical activity is likely to be an important intervening variable for fasting HDL cholesterol and insulin in this sub-sample of the clinical trial.

Keywords
activity, physical, habitual, disease, risk, factors, associations, lifestyle, between, smart, clinical, trial, baseline, characteristics, volunteers

Disciplines
Arts and Humanities | Life Sciences | Medicine and Health Sciences | Social and Behavioral Sciences

Publication Details

Authors
Qingsheng Zhang, Jane E. O'Shea, Rebecca L. Thorne, Linda C. Tapsell, Marijka Batterham, and Karen E. Charlton

This conference paper is available at Research Online: [http://ro.uow.edu.au/hbspapers/933](http://ro.uow.edu.au/hbspapers/933)
an exported Australian bee to pollinate their crops, and environmental impacts including drought, tree felling and keeping bees from national parks is reducing bee numbers. Biosecurity best practices are required to protect the Australian bee industry however all sectors accept that the arrival of *destructor* in Australia is a matter of when, not if since *destructor* is now present in New Zealand and other neighbouring countries. At present vigilant inspection of bee health and behaviour, farm hygiene and limited movement of hives is keeping Australian bee disease free. Pollinisation Australia, a joint initiative of bee and horticultural industries, has been formed to tackle this issue head on. Australian beekeepers need to be equipped with knowledge beyond just nutrition. Agricultural and environmental science and its impact on Australian fresh food production is now a vital string on our bow.

**Funding Source:** Nuts for Life

Contact author: Lisa Yates – admin@nutsforlife.com.au

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**ACCURACY OF BODY WEIGHT SCALES AFTER INCORRECT HANDLING SHORT-TERM AND CORRECT HANDLING LONGER-TERM**

**LILY YU**, **ANGELA VIVANTI**

*School of Public Health, Griffith University, Gold Coast, QLD 4222, Australia*

*Princess Alexandra Hospital, Brisbane, QLD 4102, Australia*

Scales are a key dietary practice tool, with weights commonly used in research and clinical settings. However, effects of varying intensity of scale usage on reading accuracy and scale durability between scale calibrations are not commonly reported. This study aimed to identify scale inaccuracy following rough and careful handling.

The G-Tech International GL6000-20 portable electronic scale (Max = 200 kg, Graduation = 100 g) was used for all weight measurements completed in a tertiary teaching hospital. The scale was professionally calibrated initially, after phase 1 (2 days, 360 weights) and after phase 2 (8 weeks, 368 weights). Weights were conducted by one author on hard flooring and short carpet within the hospital. During phase 1, scales were randomly carried (outside, face down, face up, with handle) and relocated on 36 occasions. During phase 2, scales were carried as prescribed by the carry handle and relocated after each occasion, and were inaccessible to others. During calibration, scale accuracy was measured at 20 kg increments between 0–200 kg. Following phase 1, −0.2 kg error occurred at 160 kg and 200 kg, and 0.4 kg error occurred in the remaining increments between 80–180 kg. No measurement error during calibration was found after phase 2.

Errors occurred after poor handling for 2 days compared with correct handling over several months. Whether measurement errors occur in a linear fashion or reduce (or increase) exponentially over time remains to be ascertained. This result has implications for both single and repeat weight measurements undertaken in both clinical or research endeavors.

Contact author: Angela Vivanti – Angela_Vivanti@health.qld.gov.au

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**BASELINE CHARACTERISTICS OF VOLUNTEERS IN THE SMART CLINICAL TRIAL: ASSOCIATIONS BETWEEN HABITUAL PHYSICAL ACTIVITY AND LIFESTYLE DISEASE RISK FACTORS**

**QINGSHENG ZHANG**, **JANE OSHEA**, **REBECCA THORNE**, **LINDA TAPPSELL**, **MARJUKA BETTERHAM**, **KAREN CHARLTON**

*Smart Foods Centre, University of Wollongong, NSW 2522*

Physical activity has been suggested to have favorable effects on various cardiovascular risk factors, and may serve as an intervening variable in lifestyle intervention studies. We aimed to examine the relationship between habitual physical activity and selected cardiovascular markers at baseline in a sample of overweight women who participated in the SMART clinical trial (ACTRN12608000135704).

A sub-sample of eighty-six overweight/obese women (mean age ± S.D. 45 ± 7 years) were included in this analysis. Anthropometric and fasting blood data was collected at baseline (t = 0). Habitual physical activity was assessed by a validated questionnaire (Baecke questionnaire). Associations were examined by Pearson correlation, and quadratic differences by one-way ANOVA.

The results showed that higher levels of habitual physical activity was associated with higher HDL cholesterol (HDL-C) (p = 0.03) and lower insulin (logarithm) value (p = 0.008). Women in the highest quartile of activity had a mean fasting HDL-C of 1.67 mmol/L, and fasting insulin of 8.5 mmol/L, compared with fasting HDL-C of 1.39 mmol/L and fasting insulin of 1.37 mmol/L in the lowest quartile. Weight, body mass index,
systolic blood pressure, diastolic blood pressure, fasting total cholesterol, low-density lipoprotein cholesterol, total triglyceride, or glucose levels were not significantly associated with habitual physical activity in this study.

The findings suggest that habitual physical activity is likely to be an important intervening variable for fasting HDL cholesterol and insulin in this sub-sample of the clinical trial.

Funding Sources: NHMRC Project Grant 514631 Tapsell, Batterham, Charlton

Contact author: Qingsheng Zhang – kiefer@uow.edu.au