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

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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 \pm S.D.: 45 \pm 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

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on exported Australian bees to pollinate their crops and environmental impacts including drought, tree felling and keeping hives 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 bees disease free. Pollination Australia, a joint initiative of bee and horticultural industries, has been formed to tackle this issue head. Australian dietitians 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.

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

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Scales are a key dietetic 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 (sideways, 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 –0.1 kg error occurred at 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.

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SHORT-TERM BODY WEIGHT FLUCTUATIONS AMONGST WELL-HYDRATED OLDER PEOPLE ADMITTED TO A GERIATRIC AND REHABILITATION UNIT (GARU)

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Short-term weight change is considered the most reliable indicator of poor hydration in the literature, however, the extent of natural weight fluctuation has not been published. This study aimed to explore short-term body weight fluctuations in older hospitalised people. Participants were >60 years, mobile, non-amputees with >4 day expected admission. Participants were confirmed as well-hydrated pre and post the weight collection period by one medical officer. Inability to provide informed consent and conditions influencing fluid status were excluded. Weights were recorded hourly over nine consecutive hours for three consecutive days. One author completed all weights on newly calibrated scales. A multivariate statistical model determined the effect of each time point, day and different participants on weight. ANOVA assessed group weight change at each time point over 3 days. Participants' age and gender (n = 13, 80.0 ± 4.6 yrs; 46.2% male) were not significantly different to the GARU population (71.6 ± 15.2 yrs; 51.5% male). Participant (p < 0.001), day (p < 0.05) and time slot (p < 0.01) had significant effects on weight fluctuations over time. Group analysis showed no significant daily weight variance at identical time points (p > 0.95). Approximately 39% (5/13) of participants had >2% weight fluctuation over the whole 3 day period, 17.9% (7/39) over any 1 day, and 3.1% (4/130) at identical time points. Short-term weight loss of 1–2% in athletes is considered an indicator of poor hydration. However, clinical appropriateness was not confirmed as weight fluctuations >2% were evident both within and across days amongst well-hydrated older hospitalised people.

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

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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 ± SD: 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,

25
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Abstracts

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

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