


From the LDC Writing Group: This is our 8th  article published in August, not counting 2 further ones published online prior to appearing in print.

Congratulations to **Tom** and **Melanie** on their article using data from the NAVIGATOR Study, published together with colleagues from Oxford, Glasgow and the USA on 14th August in the online journal, **BMJ Open**, Volume 5, Issue 8, item e007901.



Prospective relationships between body weight



**and physical activity:
an observational analysis from the NAVIGATOR study**



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ABSTRACT

Objectives

While bidirectional relationships exist between body weight and physical activity, direction of causality remains uncertain and previous studies have been limited by self-reported activity or weight and small sample size. We investigated the prospective relationships between weight and physical activity.

Design

Observational analysis of data from the Nateglinide And Valsartan in Impaired Glucose Tolerance Outcomes Research (NAVIGATOR) study, a double-blinded randomised clinical trial of nateglinide and valsartan, respectively.

Setting

Multinational study of 9306 participants.

Participants

Participants with biochemically confirmed impaired glucose tolerance had annual measurements of both weight and step count using research grade pedometers, worn for 7 days consecutively. Along with randomisation to valsartan or placebo plus nateglinide or placebo, participants took part in a lifestyle modification programme.

Outcome measures

Longitudinal regression using weight as response value and physical activity as predictor value was conducted, adjusted for baseline covariates. Analysis was then repeated with physical activity as response value and weight as predictor value. Only participants with a response value preceded by at least three annual response values were included.

Results

Adequate data were available for 2811 (30%) of NAVIGATOR participants. Previous weight ($\chi^2=16.8$; $p<0.0001$), but not change in weight ($\chi^2=0.1$; $p=0.71$) was inversely associated with subsequent step count, indicating lower subsequent levels of physical activity in heavier individuals. Change in step count ($\chi^2=5.9$; $p=0.02$) but not previous step count ($\chi^2=0.9$; $p=0.34$) was inversely associated with subsequent weight. However, in the context of trajectories already established for weight (χ^2 for previous weight measurements 747.3; $p<0.0001$) and physical activity (χ^2 for previous step count 432.6; $p<0.0001$), these effects were of limited clinical importance.

Conclusions

While a prospective bidirectional relationship was observed between weight and physical activity, the magnitude of any effect was very small in the context of natural trajectories already established for these variables.

Trial Registration Number: NCT00097786.

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