



Libraries and Learning Services

# University of Auckland Research Repository, ResearchSpace

## Version

This is the publisher's version. This version is defined in the NISO recommended practice RP-8-2008 <http://www.niso.org/publications/rp/>

## Suggested Reference

Christensen, P., Fogelholm, M., Westerterp-Plantenga, M., Macdonald, I., Martinez, A., Handjiev, S., . . . Raben, A. (2016). Metabolic outcomes after an 8 weeks low-calorie-diet in overweight, pre-diabetic individuals: the role of gender in the PREVIEW study. In *Obesity Facts* Vol. 9 (pp. 48). Gothenberg, Sweden: S. Karger AG. doi: [10.1159/000446744](https://doi.org/10.1159/000446744)

## Copyright

Items in ResearchSpace are protected by copyright, with all rights reserved, unless otherwise indicated. Previously published items are made available in accordance with the copyright policy of the publisher.

This is an open-access article distributed under the terms of the [Creative Commons Attribution NonCommercial NoDerivatives License](https://creativecommons.org/licenses/by-nc-nd/4.0/)

For more information, see [General copyright](#), [Publisher copyright](#), [SHERPA/RoMEO](#).

## Metabolic outcomes after an 8 weeks low-calorie-diet in overweight, pre-diabetic individuals: the role of gender in the PREVIEW study

[Pia Christensen](#)<sup>1</sup>, Mikael Fogelholm<sup>2</sup>, Margriet Westerterp Plantenga<sup>3</sup>, Ian Macdonald<sup>4</sup>, J. Alfredo Martinez<sup>5</sup>, Svetoslav Handjiev<sup>6</sup>, Jennie Brand Miller<sup>7</sup>, Sally Poppitt<sup>8</sup>, Wolfgang Schlicht<sup>9</sup>, Arne Astrup<sup>1</sup>, Kirsi Pietiläinen<sup>2</sup>, Mathijs Drummen<sup>3</sup>, Moira Taylor<sup>4</sup>, Santiago Navas Carretero<sup>5</sup>, Teodora Handjiev Darlenska<sup>6</sup>, Shannon Brodie<sup>7</sup>, Marta Silvestre<sup>8</sup>, Julia Thurn<sup>9</sup>, Thomas Larsen<sup>1</sup>, Anne Raben<sup>1</sup>

<sup>1</sup>University of Copenhagen, Frederiksberg, Denmark

<sup>2</sup>University of Helsinki, Helsinki, Finland

<sup>3</sup>Maastricht University, Maastricht, Netherlands

<sup>4</sup>University of Nottingham Medical School, Nottingham, United Kingdom

<sup>5</sup>University of Navarra, Pamplona, Spain

<sup>6</sup>Medical University of Sofia, Sofia, Bulgaria

<sup>7</sup>University of Sydney, Sydney, Australia

<sup>8</sup>University of Auckland, Auckland, New Zealand

<sup>9</sup>University of Stuttgart, Stuttgart, Germany

### Background & aims

Lifestyle intervention remains the corner stone in prevention and management of type-2 diabetes (T2D). The PREVIEW intervention study ([www.previewstudy.com](http://www.previewstudy.com)) is to date the largest, multinational study with the aim of preventing T2D among pre-diabetic individuals with a combination of diet, physical activity and behavior modification. Initially, all participants follow a formula low-calorie diet (LCD) to achieve a significant weight loss ( $\geq 8\%$  of initial body weight, BW). Although the majority of participants in LCD weight loss studies are women, very little attention has been paid to the role of gender.

### Objectives

To compare the effect of 8 weeks' LCD on weight loss and metabolic outcomes between pre-diabetic men and women.

### Material & methods

The participants received LCD [810 kcal daily] for 8 weeks (Cambridge Weight Plan®). Data from participants who achieved 8% weight loss were included in the analysis. Two-sided t-tests were used throughout. Linear regressions were applied to test correlations.

### Results

Of 2,326 individuals eligible for the LCD period, a total of 1,842 (79%) participants (1,225 women and 617 men) completed the weight loss phase successfully. At baseline, mean ( $\pm$ SD) age was  $51.6 \pm 11.6$  years, BMI  $35.3 \pm 6.5$  kg/m<sup>2</sup>, fasting plasma glucose  $6.2 \pm 0.7$  mmol/L, and fasting serum insulin  $13.4 \pm 7.8$  mU/L.

Average weight loss was  $10.6 \pm 4.0$  kg, with men losing  $12.7 \pm 4.2$  kg and women  $9.6 \pm 3.4$  kg (difference between gender,  $P < 0.001$ ). The men lost  $11.7 \pm 3.5\%$  of initial BW where the women lost  $10.2 \pm 3.1\%$  ( $P < 0.001$ ). Fasting plasma glucose decreased by  $0.57 \pm 0.7$  mmol/L in men, and by  $0.37 \pm 0.6$  mmol/L in women ( $P < 0.001$ ). Fasting serum insulin decreased by  $5.8 \pm 7.4$  mU/L in men and by  $3.8 \pm 5.4$  mU/L in women ( $P < 0.001$ ). The linear model showed an association of the weight loss percentage as well as gender on the changes in glucose and insulin.

### Conclusion

An 8 weeks' LCD intervention resulted in a marked decrease in body weight, fasting glucose and insulin among pre-diabetic subjects. Significantly larger decreases were seen in men versus women.

### Funding

EU FP7, grant agreement 312057; NHMRC - EU Collaborative Grant, AUS; NZ Health Research Council (14/191), UoA Faculty Research Development Fund; The Cambridge Weight Plan has kindly donated all LCD products.

**Keywords:** Prediabetes, Overweight, Prevention, Low-calorie diet, Gender, Metabolic outcomes

## Details

<b>Status</b>	: Saved Draft. Not Submitted Yet
<b>Presentation Type</b>	: Oral Presentation
<b>Abstract Category/Topic</b>	: Management » Behavioural and lifestyle interventions
<b>Language</b>	: English
<b>Saved:</b>	: 15.01.2016 14:13:16
<b>Submit:</b>	: