

The first PREVIEW paper was published last night (7/8th August 2018)

'Men and women respond differently to rapid weight loss: Metabolic outcomes of a multi-centre intervention study after a low-energy diet in 2500 overweight, individuals with pre- diabetes (PREVIEW)' Christensen P et.al. 2018 Diabetes Obes. Metab. <https://doi.org/10.1111/dom.13466>

The paper is on open access at: <https://onlinelibrary.wiley.com/doi/epdf/10.1111/dom.13466>

This paper describes the use of Cambridge Weight Plan Low energy liquid diet (800kcal/d) as an initial intervention to achieve weight loss in people with pre-diabetes based in eight centres around the globe*. The initial weight loss was intended to prepare subjects prior to a three year weight maintenance and lifestyle intervention intended to prevent diabetes.

Of 2224 (of whom 1504 were women) participants who were overweight (BMI >25 kg/m²) with pre-diabetes (according to ADA** criteria) who commenced the dietary programme 204 dropped out (10.1% of women, 7.2% of men). The overall mean weight loss after 8 weeks was 10.7 ± 0.4kg (10.8% of body weight). After eight weeks women lost 10.2kg and men 11.8kg body weight on average of which 3.2kg (31%) and 1.9kg (16%) were fat free mass respectively (FFM – lean mass).

After 8 weeks 35% of participants were no longer 'pre-diabetic' but among those with slightly higher baseline blood glucose levels (using WHO criteria*) and who achieved a 'successful' weight loss of 8% or more, nearly two-thirds were no longer 'pre-diabetic'.**

Systolic blood pressure was 'normalised' in women, down 7 mmHg from 127mmHg and nearly normalised in men, down 8mmHg from 133mmHg. Blood lipid profiles were largely improved, fasting blood glucose and insulin were reduced and insulin sensitivity was significantly improved. Metabolic syndrome was less severe in the group as a whole after 8 weeks LED diet.

Adverse events were reported in detail, 7.6% of participants complained of constipation despite the advice to avoid this from the beginning by using bulk laxatives, 2.0% complained of dizziness and no cases of gout occurred in any of the women, but six cases in men. Establishing meaningful rates for low-frequency adverse events requires that large subject numbers be studied and this data-set enables meaningful rates to be quoted (see table).

After the initial weight loss period those who achieved 8% weight loss were entered into a randomised trial of higher and lower dietary protein intake, higher and lower dietary glycaemic index levels and higher and lower physical exercise levels for three years. The results of the three year maintenance outcomes will be presented at the European Diabetes meeting (EASD) in Berlin in October 2018.

Commenting on the results Professor Anthony Leeds, medical director of Cambridge Weight Plan said ***'This large observational study of Cambridge Weight Plan Low energy diet (800kcal/d LED) shows for the first time, in a global context, that this is a safe, effective way to begin diabetes prevention programmes. Compliance was high (90%) and the average weight losses of >10% were close to the American endocrinologists' 10% weight loss targets (see reference) for diabetes prevention. Metabolic and blood pressure changes were good as expected, and adverse event rates were low. Taken in conjunction with other published clinical trials showing weight maintenance after LED for up to four years, this first PREVIEW paper is a substantial offering in the global fight against the tsunami of diabetes that will shortly overwhelm health care providers.'***

Key points:

- **After 8 weeks of Cambridge Weight Plan Low Energy Liquid Diet women lost an average 10.2kg and men 11.8kg;**
- **Loss of lean mass was 31% in women (consistent with previous findings) and 16% in men;**
- **Compliance was high (>90% completed the 8 week programme);**
- **Systolic blood pressure was 'normalised' in women (average values);**
- **There was a low frequency of adverse events; and**
- **This paper reports the results of the largest observational trial of total diet replacement in overweight people with pre-diabetes.**

* The centres were located in Denmark, Finland, The Netherlands, Spain, Bulgaria, the United Kingdom, Australia and New Zealand.

*American Diabetes Association (ADA) criterion for impaired fasting glucose (IFG) 5.6 to 6.9 mmol/l

**World Health Organisation criterion for impaired fasting glucose (IFG) 6.1 to 6.9 mmol/l

Reference:

AACE/ACE Guidelines

AMERICAN ASSOCIATION OF CLINICAL ENDOCRINOLOGISTS AND AMERICAN COLLEGE OF ENDOCRINOLOGY

COMPREHENSIVE CLINICAL PRACTICE GUIDELINES FOR MEDICAL CARE OF PATIENTS WITH OBESITY

W Timothy Garvey et al ENDOCRINE PRACTICE Vol 22 (Suppl 3) July 2016 1 DOI:10.4158/EP161365.GL see: <https://www.aace.com/publications/guidelines>

Adverse events – data from Christensen P et.al. 2018 Diabetes Obes. Metab.

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	Frequency	Of adverse	events	Events	Expressed	As probability
	all	women	men	all	women	men
number	2224	1504	720	2224	1504	720
	%	%	%			
Constipation	7.6	8.6	5.6	1 in 13	1 in 12	1 in 18
Muscle weakness	5.0	5.1	5.0	1 in 20	1 in 20	1 in 20
Headache	3.0	3.7	1.4	1 in 34	1 in 27	1 in 72
Dizziness	2.0	1.8	2.4	1 in 51	1 in 56	1 in 42
Diarrhoea	1.5	1.7	1.1	1 in 65	1 in 58	1 in 90
Dry skin	1.0	1.1	0.8	1 in 97	1 in 88	1 in 120
Hair loss	0.9	1.2	0.1	1 in 117	1 in 84	1 in 720
Gout	0.3	0	0.8	1 in 371	<1 in 1504	1 in 120