

## Taking the Pressure Off

Weight-loss has a significant impact on older, obese people with knee osteoarthritis



Danish researchers reported in June 2010 that patients with knee osteoarthritis using Cambridge formula diets showed not only significant weight-loss and weight maintenance, but also reduced symptoms and improved nutritional status.

The results of a randomised controlled trial of 192 people (which was the largest of its kind ever conducted) were presented at the recent European Rheumatology meeting in Rome. Sixty-four patients from the Parker Institute, Frederiksberg Hospital, Copenhagen achieved weight maintenance for one year using a Cambridge maintenance programme and just under 50 percent maintained good 'responder' status (Christensen R et al. 2010).

The report showed that a Cambridge Weight Plan dietary programme with a one-year maintenance programme used in older obese people with knee osteoarthritis:

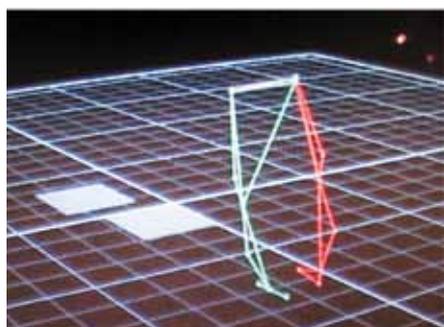
- reduced bodyweight effectively
- reduced symptoms (pain) effectively

- maintained body weight-loss for one year
- improved vitamin D status (at the end of the 16-week weight-loss programme)
- reduced knee load to a degree greater than expected from the weight-loss

After the initial 16-week treatment programme the subjects were re-randomised (into three groups, each of 64 subjects) to a one-year Cambridge maintenance programme, a knee exercise programme (a structured series of knee strengthening exercises) or a control programme (no active intervention, but these subjects continued to apply the information learned in 16 sessions held weekly with the dietitians, as did the subjects in the other two groups).

At one year the Cambridge Weight Plan treated group weighed an average 10.9kg less than at baseline (before initial weight-loss), while the knee exercise group weighed an average 6.3kg less than at baseline (weight-loss maintenance was significantly greater after the dietary programme than after the knee exercise programme). Interestingly, the control group weighed 8.2kg less than at baseline, suggesting that an effective initial weight-loss can be highly motivating. When associated with a strong education programme, providing an effective learning experience, it can give a good outcome despite no further intervention for one year.

All three groups showed maintenance of symptom improvement — there was no significant difference between the groups in this effect. At the end of one



Copenhagen weight-loss in knee OA trial: Effects of weight-loss on gait

year maintenance the patients were entered into one of two three-year active intervention Cambridge maintenance programmes, designed to determine the best way to achieve weight maintenance by diet alone in the longer term.

The 192 subjects had initially been treated with either a 415kcal/d or an 810kcal/d diet for eight weeks followed by a 1200kcal/d diet for eight weeks

**“Blood vitamin D levels at 16 weeks were about one-third higher than at baseline.”**

(with a series of weekly education sessions with a dietitian) (Riecke BF et al. 2010) and had achieved:

- significant weight reduction (mean 13.3kg and 12.2kg by 16 weeks in the 415kcal and 810kcal/d groups respectively — more than 12 percent of initial bodyweight in both groups)
- significant reduction of pain, enabling more activity.

The Danish team anticipate that their work may well change the management of ‘bad knees’; reducing the numbers going forward for surgery and therefore reducing treatment costs; getting some people back into work; improving mobility and quality of life.

Nutritional status may be impaired in older people through inadequate intake and reduced absorptive capacity, and among obese people, repeated cycles

of self-selected weight reducing diets with restricted food selection may result in poor nutritional status. Formula weight-loss products with bio-available components providing the full daily requirement have the potential to improve nutritional status, but this has hardly been investigated. In the study described above, blood samples taken at baseline, eight weeks and 16 weeks were analysed for vitamin D, vitamin B12 and ferritin. Results presented at ICO2010 in Stockholm showed that vitamin D levels at 16 weeks were about one-third higher than at baseline (Christensen P et al. 2010). Vitamin B12 was significantly raised by about 15 percent, and ferritin was slightly but not significantly raised. The raised vitamin D levels pose the interesting question of whether this would have any effect on muscle composition and strength.

A six-month vitamin D (cholecalciferol) supplementation study in 56 older Brazilians showed that strength in hip flexor muscles and in knee extensor muscles was statistically significantly increased (Moriera-Pfrimer et al. 2009). If the strength of knee extensor muscles had increased, this could help explain the findings of the bio-mechanical studies, which were also undertaken on 178 of the participants in the Copenhagen knee osteoarthritis study, and which were also reported at ICO2010 (Aaboe J et al. 2010). Three-dimensional gait analysis was undertaken using a 3D motion-analysis system using

six infra-red cameras and two force platforms embedded in the laboratory floor. Loads on the knee were calculated from the data collected; preliminary figures indicated that the reduction of knee-load exceeded that expected following the weight-loss. This greater than expected reduction of load on the knee may be explained by improved strength of knee extensors arising from

**“The reduction of knee-load exceeded that expected following the weight-loss.”**

increased physical activity following weight reduction and reduction of knee pain, though improved vitamin D status may play a small part.

Participants in the Copenhagen knee osteoarthritis trial have also been studied by magnetic resonance imaging following intra-articular injection with gadolinium in order to study the nature and change of knee cartilage at baseline and at one year after weight-loss. These results, which are awaited, may provide evidence for a retardation of cartilage degradation following weight-loss and maintenance.

#### References:

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**Anthony R Leeds, Medical Director, Cambridge Weight Plan, July 2010**



## Scots are not a healthy lot!

**Glasgow University researchers have concluded that nearly everyone living in Scotland is putting their health at risk.**

They analysed data from 6,574 people who contributed to a Scottish Health Survey.

The findings suggested that 97 percent of Scots identified at least one of five possible risk factors to health. These included smoking, drinking, poor diet, physical inactivity and obesity. The report found that 55 percent of the population had three or more risk factors and 20 percent had four or all five.

**For more information see:**

[http://www.biomedcentral.com/imedia/1776926214316402\\_article.pdf?random=364514](http://www.biomedcentral.com/imedia/1776926214316402_article.pdf?random=364514)



## Adult obesity continues to rise

**Data recently released from the National Heart Forum suggests that obesity levels are expected to rise further over the next ten years.**

Analysing English health survey figures from 1993 to 2007, the report predicts that by 2020, 41 percent of men aged between 20 and 65 will be obese. The figure is 36 percent for woman within the same age range. It also predicts that by then 40 percent of the adult male population will be overweight as will 32 percent of the female population.

The report expects that there will be higher incidences of diabetes, strokes and heart disease. It concludes that over the next few years “government will have a large challenge just to arrest the growth in obesity” and that the effect of rising obesity levels will have “substantial resource implications for both the NHS and the wider society.”

**The full report can be found at:**

[http://www.heartforum.org.uk/downloads/NHF\\_adultobese\\_short\\_170210.pdf](http://www.heartforum.org.uk/downloads/NHF_adultobese_short_170210.pdf)

## Research based Weight Plan

**Dietary programmes for weight-loss and weight maintenance must be evidence based, affordable and have a defined, acceptable safety profile, says leading obesity expert.**



Professor Anthony R Leeds

**Professor Anthony R Leeds**, Medical Director of Cambridge Weight Plan believes that it is vital for weight-loss and weight maintenance programmes to demonstrate their efficacy and benefit, and to provide a safety profile.

He said: “It is acknowledged around the world that randomised controlled clinical trials are the gold standard when it comes to showing how effective weight management programmes can be. Since 2007, Cambridge Weight Plan has collaborated with research teams in Copenhagen, Stockholm and London. Studies have included investigations on sleep apnoea (Karolinska Institute, Stockholm); knee osteoarthritis (Parker Institute, Copenhagen); gastrointestinal hormone responses during pre-operative weight-loss before bariatric surgery (University of Copenhagen); inflammatory markers in psoriasis (University of Copenhagen); and optimal treatment conditions for pre-operative

weight-loss before bariatric surgery (Imperial College, London).”

Professor Leeds also believes that it is vital to have a programme of research designed to obtain high quality evidence for efficacy and therapeutic benefit, followed by weight maintenance studies to provide much needed evidence to determine how best to achieve long-term benefit.

He said: “Cambridge Weight Plan now has data collected during a range of clinical trials, which is contributing to a safety profile. Other important questions, such as body composition changes and nutritional status improvement during weight-loss, have also been addressed.

It is vital that we collaborate with centres of excellence in order to confirm the efficacy of Cambridge programmes and contribute to meeting the need for effective solutions in obesity management at all levels, including severe and complicated obesity.”

# What is Cambridge Weight Plan?



Cambridge Weight Plan is a nutritionally balanced formula food available as shakes, soups, bars and porridges. Trained Independent Cambridge Consultants in the UK can work in partnership with healthcare professionals to deliver effective weight-loss and maintenance. Until the beginning of 2010, the Plan was referred to as 'The Cambridge Diet'.

The term 'Cambridge Diet' is synonymous in the minds of many healthcare practitioners with Very Low-Energy Diets (VLEDs). It was developed by Dr Alan Howard as a formula VLED and indeed this remains the greater part of its present day usage.

However, about ten years ago it evolved into a more flexible series of dietary energy intake levels (1500, 1200, 1000, 810, 615 and 415 kcal/d), allowing titration of energy intake against the client or patient's response. This is interesting historically because

in the late nineteenth century a step-wise titration upwards of dietary energy was offered to people with diabetes following a fast to clear the urine of reducing sugars.

Now, this remarkably precise titration process (precise because it includes formula food products rather than non-formula foods alone) can be applied with a step-wise reduction or increase of energy intake according to need. VLEDs give the most effective weight-losses but sometimes a part formula and part food diet can achieve remarkable weight-loss.

Dietary adherence tends to be less good at the higher energy intake levels and patients tend to be more hungry but, nevertheless, energy intake levels above 800kcal/d can give good results.

The gradually accumulating scientific literature on the efficacy of VLEDs indicates that it is highly likely that the potential applications of VLEDs and part-food, part-formula food Low-Energy Diets (LEDs above 800kcal/d) will be more widely appreciated.

## Very Low-Energy Diets: Health benefits with effective weight-loss

A satellite symposium discussing Very Low-Energy Diets (VLED) was held in association with the International Congress on Obesity on Sunday 11 July 2010 in Stockholm.

Entitled: Very Low-Energy Diets: Health benefits with effective weight-loss, the symposium set out to review the history of VLEDs and Low-Energy Diets, and discuss the possibility of their applications in the areas of osteoarthritis, sleep apnoea and diabetes.

Three presentations of clinical review papers of obesity associated with these three conditions were presented by staff from Copenhagen, Stockholm and Glasgow.

Three case presentations looked at the role of weight management in the treatment of osteoarthritis; adequate and effective weight reduction when dealing with sleep apnoea; and formula VLEDs and LEDs in the management of diabetes mellitus.

**The symposium was sponsored by Cambridge Weight Plan.**

**For more information see:** <http://ico2010.org/documents/Cambridgesatelliteshortdescriptionforweb.pdf>

The symposium papers will be published.