

MEDIA RELEASE

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The high protein advantage over metabolic syndrome

A new Australian study released by CSIRO today reveals the weight loss benefits of a high protein, low fat diet for those predisposed to metabolic syndrome.

Metabolic syndrome – also known as Insulin Resistance Syndrome, Syndrome X, the disease of the new millennium – is a topical issue because of growing alarm caused by the obesity epidemic and rise of diabetes worldwide.

Moreover, it is a threat because over half of Australians are at risk of developing the disorder.

Characterised by a cocktail of factors including abdominal fat, high triglycerides, low levels of HDL cholesterol, high insulin, high blood glucose and high blood pressure, the combination increases a person's risk of developing type 2 diabetes and cardiovascular disease.

Those predisposed to metabolic syndrome can prevent its development by managing their risk profile with weight loss, healthy eating and exercise.

Designed and managed by CSIRO, the controlled study compared the effectiveness of two different dietary programs – high protein / low fat versus high carbohydrate / low fat – with 100 overweight and obese women over a 12-week period.

The research study assessed the effectiveness of both diets in the amount of body weight lost and body composition in all participants. In addition, the impact of these diets on nutrient status and bone turnover markers, measures of heart disease and diabetes risk, were also monitored.

The results, released today, show that overweight women with high triglycerides – one of the key markers of metabolic syndrome – lost 25% more weight on a high protein, low fat diet than a high carbohydrate, low fat diet.

Moreover, much of this extra weight loss was in the abdominal area, which is crucial to improving their metabolic syndrome risk profile.

Importantly the actual body fat loss over the 12-week period significantly differed when comparing the two diets – a loss of 6kg in the high protein group as opposed to 3kg in the high carbohydrate group.

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The overall weight loss in the high protein group was 8kg compared to only a 6kg loss in the high carbohydrate group, with the amount of weight lost specifically from the midriff area twice as high on the high protein diet (1kg vs 500g).

In all the women, weight loss also helped to improve their risk profile in terms of lowering LDL cholesterol, lowering their triglycerides and reducing insulin and glucose. The effects of diet type was more apparent in the women with high triglycerides as the high protein diet lowered their triglycerides significantly by 28% compared to only a 10% fall in the high carbohydrate group.

The study also indicated that, as well as helping weight loss in the long run, the high protein, low fat diet helps to stabilise glucose and insulin production which may help to control hunger.

Protein-rich foods like lean red meat have a high satiety value which may explain why participants found the high protein, low fat diet easier to follow for a long period of time as people feel more satisfied and less hungry – a finding confirmed by the compliance rates on both diets. Drop outs on the high carbohydrate, low fat diet was three times greater than those on the high protein, low fat diet.

Dr Manny Noakes, Senior Research Dietitian at CSIRO Health Sciences and Nutrition, says she is confident that protein-rich diets like that in the research are a valid, safe and effective weight loss program for those people showing symptoms of metabolic syndrome.

Participants in the study ate 200g of lean red meat at evening meals and 100g of chicken / fish at lunch, as well as low fat dairy products, and still included some carbohydrates such as fruit and bread (see attached copy of diet plans used in the study).

“This study is significant because so little research has been done in the area. Diet books on the subject are centered on conjecture and recommendations are often based on hear-say,” she said.

“At CSIRO we’re excited by these findings that demonstrate in a scientific manner that the high protein, low fat approach to weight loss certainly offers an edge to conventional diets,” she says.

The high protein, low fat diet is an effective and perfectly valid and safe weight loss alternative – especially for women with high triglycerides,” she says.

The high protein diet used did not cut out any foods from the conventional food groups, as do some extreme low carbohydrate diets.

“When preparing the diet structure initially, we discovered the required nutrient intake was far easier to achieve with the high protein, low fat diet than with the high carbohydrate, low fat diet,” she says.

“The results prove that a high protein, low fat diet may be easier and more effective in achieving weight loss for people suffering from metabolic syndrome.”



Results Executive Summary

- **Weight loss:**
 - The high protein, low fat group lost 7.6kg over 12 weeks (45 subjects in this group lost more than 4kg over the 12 weeks of the study). *
 - The high carbohydrate, low fat group lost 6.9kg (39 subjects in this group lost more than 4kg over the 12 weeks of the study). *
 - Women with high triglyceride levels (>1.5mmol/L) lost significantly more weight on the high protein, low fat diet (8kg) than on the high carbohydrate, low fat diet (6kg).
 - Actual fat loss was 6kg in the high protein group and 3 kg in the high carbohydrate group. The amount of weight lost specifically from the midriff area was twice as high on the high protein diet (1kg vs 500g).
 - Compliance: there were 5 drop outs on the high protein, low fat diet compared to 16 on the high carbohydrate, low fat diet. At 3 months there were 3 further dropouts in the high carbohydrate group and none in the high protein group. Of those that continued, their weight loss was maintained on both diets. The higher satiety value of high protein foods may facilitate compliance in some individuals.

* see enclosed diet plans used in the study
- **Nutrient status:**
 - Vitamin B12 status increased significantly in the high protein, low fat group after 12 weeks on the diet compared to baseline and decreased on the high carbohydrate, low fat diet.
 - Haemoglobin levels improved more on the high protein, low fat diet and stayed the same on high carbohydrate, low fat diet.
 - It was much easier to ensure adequate nutrient intake in the high protein, low fat diet compared to the high carbohydrate, low fat diet due to the high nutrient density of red meat.
- **Bone turnover markers:**
 - Both diets were shown to be associated with increased bone turnover.
 - Calcium excretion went down on both diets.

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- **Cardio Vascular Disease risk:**

- Triglyceride levels fell by 13% with the high protein, low fat diet compared to 4% with the high carbohydrate, low fat diet (not statistically significant)
- Greater lowering of plasma triglycerides on high protein, low fat diet in those women with elevated TG (28% reduction on high protein, low fat diet compared to 10% on the high carbohydrate, low fat diet) – this diet effect is statistically significant
- LDL cholesterol fell by 4.8% overall with no difference between diets.
- HDL cholesterol fell by 7% on both diets.
- Glucose fell by 4% on both diets
- Insulin fell on both diets – 27% on high protein and 16% on high carbohydrate (not statistically significant)

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Study Diets

High Protein, Low Fat Meal Plan

- Cereal
- Low fat milk (250ml)
- Wholemeal bread (2 slices)
- Fruit (2)
- Beef / lamb 200g - dinner
- Chicken / fish / meat 100g - lunch
- Vegetables (2.5 cups)
- Diet Yoghurt (200g)
- Canola oil (3 tsp)
- Wine 2 glasses / week (optional)

34% protein
◆
20% fat
◆
46% carbohydrate

High Carbohydrate, Low Fat Meal Plan

- Cereal
- SKIM milk (250ml)
- Wholemeal bread (3 slices)
- Fruit (3)
- Chicken / pork / fish 80g
- Vegetables (2.5 cups)
- Canola oil (3 tsp)
- Pasta / rice 120g cooked
- Low fat biscuits (3)
- Wine 2 glasses / week (optional)

17% protein
◆
20% fat
◆
63% carbohydrate