

Assessing the evidence on weight loss strategies

Weight loss and weight management is of utmost importance in our current climate of increasing rates of overweight and obesity and of associated diseases like type 2 diabetes. Here the evidence on weight loss strategies, in people with and without type 2 diabetes, is examined.

The Nurses' Health Study I and II and the Health Professionals Follow-up Study provided valuable insight regarding predictive factors for weight gain and loss. Greater than average increase in weight was associated with potatoes and French Fries, sugar-sweetened beverages, red meat, alcohol, TV watching, short or long hours of sleep (<6 or >8hours/night) and quitting smoking. And lower than average weight gain was associated with a high consumption of vegetables, whole grains, fruit, nuts, yoghurt and physical activity. The National Weight Control Register associated frequent self-monitoring of body weight and food intake, consistency of food intake, always eating breakfast, low variety of food, low fat, low fast food intakes and high levels of regular physical activity (10-11mJ/week) as key lifestyle factors to weight maintenance. Once these successful dietary and lifestyle factors have been maintained for 2-5years the chances of weight maintenance increases significantly.

Altering the macronutrient profile of the diet has been studied to determine effects on weight loss. High protein weight loss diets take advantage of the increased thermic effect of protein, which keeps the subject full for longer and may be beneficial in promoting weight loss, but are difficult to maintain long-term. High fat/low carbohydrate diets dramatically reduce carbohydrate, ultimately omitting major food groups, which makes long-term adherence difficult without intensive support. Low fat/high carbohydrate diets can be useful for weight loss as they heavily reduce the overall calorie load and produce greater satiety effects, as well as reducing calorie content to the human via faecal energy loss. Also, an increased intake of dietary fibre, specifically oligofructans, alters the microbiome improving inflammatory markers and blood glucose levels.

Meal replacements diets and very low calorie diets (VLCDs) provide mostly protein, with a small amount of carbohydrate and fat, but also provide a very structured controlled intake. Significant weight loss and weight loss maintenance can be achieved with support, including for people with type 2 diabetes. A major issue with long-term caloric reduction is our body's adaptive metabolic and behaviour response, increasing the desire to eat and reduced energy expenditure, ultimately limiting weight loss or weight maintenance. Intermittent energy restriction consists of short periods of VLCD (1-4 days of 500-800 kcal/d) interspersed with habitual eating. Weight loss is usually similar to daily energy restriction, with some studies showing possible superiority using some methods. There is also evidence of usefulness in people with type 2 diabetes albeit no better than daily restriction.

The Mediterranean diet has shown positive weight loss effects compared to low fat and low carbohydrate diets and positive effects for reduction to HbA1c in people with type 2 diabetes. Combining diet and lifestyle changes can also be beneficial. The Look Ahead Study, which used both calorie restriction and lifestyle exercise intervention, achieved good results for both weight loss and HbA1c reduction in people with type 2 diabetes.

Weight loss occurs with many different diets and there are no clear conclusions on the optimal diet apart from the diet that the individual can stick to long term, whatever the composition. It is important to note that

medication management is required for people with diabetes using medication likely to cause hypoglycaemia and they should discuss this with their medical practitioner before attempting a weight loss diet.

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