FACT SHEET

Low Carb Diets for Weight Loss in Athletes

The great diet debate

Controversy over the most effective, long-term weight loss plan continues. Effective weight loss can be achieved by any strategy that consistently results in a decrease in kilojoule (Calorie) intake, relative to the kilojoules (Calories) burnt. In principle this is simple, but in practice it can be challenging to consistently achieve the right energy balance and keep body weight and fat under control in the long term. Like any diet, low carb diets can produce weight loss in the short term but their track record is not good long term.

As desired body weight or fat levels in some athletes (e.g. gymnastics, ballet dancing, endurance running etc) are quite extreme relative to their natural physique, new, crash or fad diets that promise fast weight loss always seem attractive, even when common sense suggests the results are temporary. Unfortunately, this approach to weight management results in inadequate nutrient intake and weight cycling which has detrimental physical and mental effects leaving the athlete confused, depressed and defeated.

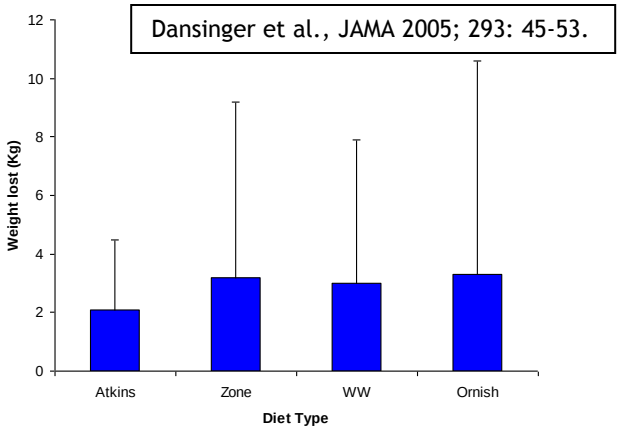
What are low carb diets?

Low carb diets typically provide less than 100g of carbs a day and the most popular in this category, The Dr Atkins Diet, recommends consumption of only 20g of carb a day in the initial 'induction' phase. Other low carb diets include the South Beach Diet and The Stillman Diet. The Zone Diet, also popular with athletes, would be more appropriately termed a moderate carbohydrate diet as it's less carbohydrate restrictive (recommending 40% of daily energy from carbohydrate).

Do low carb diets work?

Low carbohydrate diets usually result in rapid initial weight loss. This is due to depletion of glycogen and associated water stores resulting in a loss of 1-3 kg within the first few days. Although this is not fat loss, fast weight loss of any kind often appears encouraging. In the medium term these diets also seem to result in faster weight loss than traditional low fat, carbohydrate based diets up to around six months in obese individuals. Although this has been attributed to the induction of ketosis (rapid fat breakdown) by Atkins and other low carb diet programs, research does not find a link between the degree of ketosis and weight loss. Weight loss on low carb diets has been associated with eating less food and kilojoules. This has been attributed to the novelty, simplicity and monotony of the diet supporting tight compliance to the program in the initial phase. There is also evidence that the higher protein content of the diet enhances feelings of fullness or satiety.

Unfortunately, early weight loss results are not maintained and at twelve months, weight loss from lower carb diets (e.g. Atkins and Zone) is similar to that of other diets including low fat, higher carbohydrate programs (e.g. Ornish and Weight Watchers™ (WW)). The amount of weight loss is also not spectacular. As the figure indicates, weight loss over 12 months was only 2-3 kg in a research study comparing these diets in overweight and obese individuals with ample fat to lose. The US National Weight Control Registry which monitors strategies used by individuals maintaining substantial weight loss, reports that a low carb diet is used by only 1% of their cohort of successful weight losers.



Are low carb diets safe?

Participants following low carb diets usually report side effects including headaches, nausea, fatigue, poor concentration, constipation and halitosis (bad breath), particularly in the early days after starting the diet. These effects are easily explained by inadequate carb intake and the induction of ketosis or rapid breakdown of body fat. In the longer term there are serious concerns with low carb diets including a likely increased risk of cardiovascular disease (due to high fat intake, particularly saturated fat), cancer and nutrient deficiency. Low carb diets restrict intake of wholegrains, fruit and starchy vegetables, foods known to be essential to optimal nutrition and health. For athletes, inadequate carbohydrate intake reduces high intensity exercise capacity and this will compromise the quality of training sessions. This effect happens within days to a week and is not quickly reversed with ingestion of carbohydrate. Ultimately competition performance is compromised. Inadequate carb intake has also been linked with decreased immune function, increased risk of infection and delayed recovery in athletes. Adequate carbohydrate intake promotes maintenance (and increases) of lean mass which is important for muscle strength.

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Why are low carb diets popular with athletes?

In athletes, low carb diets seem a bit radical and intriguing as they are opposite to what sports dietitians and scientists have been recommending for health and performance enhancement over many years. Athletes are also attracted to these diets by the lure of the "all you can eat" fatty food regimes. Despite the high protein and fat intake, weight loss in athletes is mainly due to:

- Restriction of carbohydrate causing a drop in glycogen, promoting water loss (first 2-3 kg weight lost is mainly water);
- Avoidance of high sugar foods that are also high in fat like biscuits, cakes, pastries and take-away foods;
- Greatly reducing the variety of foods, therefore reducing the number of kilojoules eaten;
- Reducing intake of sports foods and drinks which are energy dense and can be over-consumed by some athletes; and
- High protein foods tending to be filling, making you less likely to over-eat.

Testimonials of rapid weight loss from other athletes add to the fascination with low carb diets. Often athletes espousing the benefits of low carb diets are not following these programs exactly, but rather choosing to consume less sugary foods/drinks, carbohydrate-containing fast food, and confectionery. A reduction of these would be recommended in any healthy eating plan and would be expected to promote weight loss.

A moderated approach?

Some athletes do actually consume too much carbohydrate with the misconception that they can eat unlimited amounts of food as long as it has little fat. Some get excessive carbohydrate from sports foods and drinks which are less filling and easier to over consume. While sports foods and drinks are useful and convenient, they need to be included thoughtfully within an athlete's energy budget. Athletes consuming too much energy need to modify all kilojoules, including those from carbohydrate to be in balance with training needs, not cut carbohydrate all together. Carbohydrate intake needs to be 'periodised' or varied according to training intensity and duration and be reduced when training is stopped or limited due to 'off season' periods, competition tapers, injury or illness.

The type of carbohydrate is also important. Carbohydrate foods which are lower in glycemic index (GI) and/or higher in dietary fibre tend to be more filling and this prevents over consumption. Use of the higher fibre, low GI approach results in inclusion of healthier carbohydrate choices such as wholegrain breads and cereals, fresh fruit and vegetables and low fat dairy foods. These wholesome carbohydrate choices can be incorporated into meals or snacks pre and post training to aid preparation and recovery and decrease the need for less filling sports foods. Inclusion of protein based foods at these times will also keep hunger at bay while supporting the maintenance or gain of lean mass.

The bottom line is that carbohydrates are a fuel and need to be matched to energy requirements. Low carb diets can produce short term weight loss not because of ketosis, magical metabolic effects or because carbohydrate is fattening, but merely because they a means of reducing kilojoules. Carbohydrates are an important fuel and athletes benefit from including them in the right amount based on individual and sporting needs.

Low carb diets – bottom line

- Low carb diets are just another take on a low kilojoule diet.
- Low carb diets may produce faster weight loss initially, but in the long term these diets produce the same weight loss as low fat, higher carbohydrate diets.
- Side effects such as headaches, fatigue, decreased concentration, constipation and halitosis (bad breath) are associated with low carb diets.
- Long term use of low carb diets may increase the risk of cardiovascular disease, cancer and nutrient deficiency, as they promote a higher intake of total and saturated fat and restrict intake of wholegrains, fruit and starchy vegetables strongly linked with positive health benefits.
- Too much carbohydrate may result in weight or fat gain but too little carbohydrate will result in fatigue, possibly increased risk of illness, lean mass loss and decreased training capacity. Ultimately athletic performance is compromised if habitual carbohydrate intake is inadequate.
- Carbohydrate is an important fuel for athletes but it is important that intake is balanced with individual and sporting needs. These needs may change from day to day depending on training intensity and duration and will be reduced in the 'off season', training tapers and when training is reduced due to illness or injury.
- Successful weight management requires a consistent and long term approach. See the following fact sheets for additional information: Body Fat Control and Making Weight; Monitoring Body Composition; Glycaemic Index and Sports Performance; Eating and Drinking During and After Sport; and Fat – Does it Help Performance?

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