Atkins and the new diet revolution: is it really time for regimen change?

Weight loss occurs in the short term, but not enough is known to recommend long term use

After health professionals have promoted a low fat, high carbohydrate model of eating for more than 20 years, the prevalence of overweight and obesity in Australia (as elsewhere) has climbed. 1 Very few people are able to attain and maintain a truly low fat eating plan, but that has not stopped the low fat orthodoxy being blamed for the obesity epidemic. 2 Yet, it is not sufficient to focus on a single aspect of diet — low fat diets are not intrinsically “healthy”, especially if they contain high levels of simple sugars, low levels of complex carbohydrates and are nutrient poor.

In contrast to the low fat, high carbohydrate diet, a popular approach to weight loss is the Atkins diet, 3 a “controlled carbohydrate” dietary regimen. One of the many reasons for its popularity is that, as society has become increasingly concerned about body image and weight, the Atkins regimen promises quick weight loss without hunger, allows a wide range of foods and has simple “rules”. All this is supported by consumer “how-to” books, celebrity endorsement, and food product innovation and marketing.

The Atkins diet — “kerbing the carbs”

Atkins’ theory rests on a belief that a high intake of refined carbohydrate, especially simple sugars, causes overstimulation of insulin and results in uncontrolled hunger and eating, while the excess insulin also favours fat storage. Thus, the Atkins diet relies primarily on controlling carbohydrate intake and progresses through four phases. The strict induction phase, intended to produce ketosis, allows only 20 g of carbohydrate a day for a minimum of 2 weeks. Fruit, bread, grains, starchy vegetables or dairy products other than cheese, cream or butter are eliminated. Sugar and alcohol are not allowed, and caffeine is discouraged. Mineral and vitamin supplementation, dietary fibre, and eight glasses of water a day are recommended. During this restrictive phase, weight loss is rapid. While this initial weight loss may be due in part to water loss as body glycogen stores are depleted, low carbohydrate diets also result in a reduced caloric intake. 4,7 Factors contributing to the lower caloric intake may be the satiating effect of a high protein diet, a lower absolute fat intake due to restricted food choice, and possibly appetite suppression due to ketosis. 8-10 However, the exact mechanisms of the weight loss are as yet unknown. 10 The second and third phases of the diet allow a gradual liberalisation of food intake by an incremental increase in total carbohydrate: fruits, nuts, more vegetables and some cereal foods are added. The final, maintenance phase is intended to be permanent, and aims to keep daily dietary carbohydrate intake to a known (relatively low) amount.

Does the Atkins diet work?

If weight loss is the goal, the answer appears to be a qualified “yes”. For obese people, it works a little better than a low fat diet over 6 months. Recently, four randomised controlled trials in obese men and women (two lasting 6 months, two lasting 12 months) compared a low carbohydrate diet to a conventional low fat weight-loss diet. 5-7, 11 Although the studies differed in design and had different subjects, in each study the weight loss at 6 months was 4–6 kg greater for the low carbohydrate group than for the low fat group. However, the weight loss difference between groups at 12 months was no longer statistically significant. 5,11 The dropout rates in all of the trials were high (21%–43%), with a general non-significant tendency for better retention in the low carbohydrate group. So, in the long term, low carbohydrate diets do not necessarily offer better weight control than lower fat, higher carbohydrate diets.

Is the Atkins diet safe?

During weight loss, a low carbohydrate regimen appears to have no adverse effects on cardiovascular risk factors such as serum lipid levels (total and low-density lipoprotein cholesterol) or blood pressure, or on fasting glucose and fasting insulin levels. 6,7 In fact, randomised controlled trials comparing a low carbohydrate diet with a low fat diet up to 12 months consistently indicate a beneficial effect on serum triglyceride and high-density lipoprotein cholesterol concentrations. However, the low carbohydrate regimen is associated with a greater incidence of constipation, headache, halitosis, muscle cramps, diarrhoea, general weakness and rash. 8 Strictly limiting carbohydrates could also reduce intake of plant-based foods rich in phytochemicals, bioflavonoids, carotenoids and other micronutrients now regarded as important in a healthy diet. 12 The regimen developed by Atkins 3 encourages fruit and vegetable intake, and minimally processed food, so a low carbohydrate diet should not necessarily imply an intake low in fibre and low in plant-based food. Low carbohydrate diets may also be beneficial by removing simple sugars and sugary foods, including fructose sweeteners, which could be responsible for excess energy intake. 8

Overall, however, the safety of low carbohydrate diets beyond 12 months is largely unknown, and there is speculation that the regimen may have adverse health implications for cardiovascular disease, renal function (through an observed cross-sectional association of high dietary protein intake with proteinuria) and bone

Advice for patients wanting to follow the Atkins diet

- While low carbohydrate diets appear to work for weight loss in the short term (6 months), not enough is known to recommend them in the long term.
- All weight-reduction diets are difficult to follow over a long period of time and have limited long term success.
- Follow the complete Atkins plan (not only parts of it), including regular physical activity, vitamin and mineral supplementation, a daily fibre supplement, eight glasses of water a day, and minimally processed foods.
- Maintain a high daily intake of fruit and vegetables (at least two serves of fruit and five serves of vegetables from the “allowed” foods) and avoid saturated fats.
- A dietitian can help with your dietary intake plan if you are having difficulties.
health (through relatively low calcium intake and the association of high protein intake with hypercalciumia). Information is also lacking on the long term effect of a low carbohydrate regimen for the young, the elderly, people of normal weight (or for people who are not losing weight), and those with chronic conditions, such as diabetes or cardiovascular disease.

As with many dietary regimens, the nutritional quality of low carbohydrate diets varies according to how the dietary rules are applied. The Atkins diet calls for a drastic dietary reduction of foods with a significant starch and sugar content — in doing so, the intake of many energy-dense but micronutrient-poor foods is reduced. There is the potential for these to be replaced with foods that are moderate in energy intake, and rich in fibre and micronutrients. However, in any regimen to reduce or control weight, particular attention should be given to ensuring that the reduced food intake is of high nutritional quality. A sensible way to follow an Atkins diet is to include plenty of the allowed fruits and vegetables, and to prefer food sources of unsaturated fat over those with saturated fat.

Malcolm D Riley
Head, Nutrition and Dietetics Unit, Department of Medicine
Monash University, Clayton, VIC
Malcolm.riley@med.monash.edu.au

John Coveney
Co-ordinator, Graduate Studies in Primary Health Care
Department of Public Health, Flinders University, Adelaide, SA

Guidelines from the National Health and Medical Research Council are now available

A recent World Health Organization report on the burden of musculoskeletal conditions in 2002 noted that these were a major cause of morbidity throughout the world. While much of this burden of disease is due to chronic arthropathies such as rheumatoid arthritis and osteoarthritis, the commonest problems by far involve acute musculoskeletal pain in the back, neck and large joints. “Acute” is defined as duration of symptoms not exceeding 3 months.

There is a perception that the management of acute musculoskeletal pain is poor, and mainly driven by individual experience, clinical consensus, and descriptive studies. The absence of an accessible and rigorous evidence base has led to variations in practice, unnecessary investigations and imaging, and inappropriate and ineffective treatments with their potential for increasing morbidity, and unnecessary costs.

Choosing best clinical practice in the care of acute musculoskeletal pain has been made easier with the recent release of guidelines for managing acute musculoskeletal pain by the National Health and Medical Research Council (NHMRC). Five multidisciplinary review groups were formed to address draft guidelines developed by the Australian Faculty of Musculoskeletal Medicine. The groups involved representatives from such diverse disciplines as general practice, rheumatology, orthopaedics, chiropractic, physiotherapy, pain medicine, rehabilitation, sports medicine and consumer groups. This wide representation was deliberate and aimed to minimise possible bias of different craft groups. The brief for each group was to formulate guidelines based on the best available evidence for management of acute musculoskeletal pain in the lower back, thoracic spine, the neck, shoulder or anterior aspect of the knee. The methods of the evidence review were based on NHMRC standards, and the Cochrane proposal of rationalisation of diagnostic and therapeutic intervention. Where no good evidence existed, consensus statements were made by a steering committee, or no recommendation was made, except to signal the need for research to gain appropriate data.

For each site of pain, the guidelines provide information on diagnosis, prognosis and interventions. Three pertinent questions which arise from all the guidelines are discussed below.

How can we use the guidelines? Management of patients with acute musculoskeletal pain has to be individualised, and tailored to patients’ response and compliance. This will obviously vary between patients and locations depending on resources and availability of services. However, the delineation of the treatment options in the NHMRC guidelines will improve knowledge and, it is to be hoped, enhance standards of care. As patients seeking help may find their condition altered by the diagnostic and therapeutic approach, and