The Low-Down on Low-Carbohydrate Diets

There are a number of weight loss diets that are currently gaining notoriety for their deviation from the widely recommended low fat-high carbohydrate eating regimen. These fad diets have a long list of followers including well-known Hollywood celebrities and media personalities. There is concern that people adopting these diets in the pursuit of weight loss are damaging both their short and long-term health.

Most of the claims made in these books are unproven and use pseudo-scientific terms and complex mathematical calculations to fool consumers into believing that they are based on scientific evidence. Contradictory information is often conveniently left out. These diets do not make sense physiologically and the “science” explaining the diet is usually unproven and, at best, shaky.

High Protein-low Carbohydrate diets

High protein, low carbohydrate diets are not new but have recently regained popularity. Every few years since the early 1950’s a new book has emerged based on this line of thinking. Dr Stillman’s diet and Dr Atkin’s diet, followed by the Scarsdale Diet and more recently the Zone diet are among such books. These diets advocate the restriction of grains, fruits and vegetables while emphasising milk, meat and fat.

The authors of these fad diets blame carbohydrate for causing fat gain due to increases in insulin, however, they fail to acknowledge that dietary protein also causes insulin levels to rise, and consuming excess fat and protein also leads to fat gain. In fact, it is more difficult to become overweight or obese from eating carbohydrate compared with fat. Carbohydrate contains 16 kilojoules per gram compared with 17 and 37 for protein and fat respectively. Several steps are required to convert dietary carbohydrate to body fat and up to 23% of the ingested kilojoules are burned in the process. The conversion of dietary fat to body fat, on the other hand, uses only 3% of the ingested kilojoules. In other words, more kilojoules are burned and fewer are stored when excess kilojoules come from carbohydrate than when they come from fat.

Carbohydrates are the only source of fuel for some vital organs and tissues of the body such as the brain, central nervous system, red blood cells and kidney tissues. In low carbohydrate diets, the liver is forced to produce the missing glucose (glucose that is made from carbohydrate) by breaking down muscle and other lean tissue to fuel the body. As fat ketones and these circulate in the body. This state is called ketosis. This is a condition that indicates mass body protein breakdown and is seen in starvation, anorexia, untreated absence of carbohydrate, body fat isn’t burned or oxidised completely as carbohydrate is needed for fat to be burned efficiently.

These diets cause weight loss solely through restricting kilojoules or energy, which basically starves the body of needed nutrients and causes major metabolic disturbances. There is nothing special about the proportion of protein to carbohydrate; it is the reduced kilojoule intake in these diets which causes the weight loss. By the same token, you could lose weight eating a diet of chocolate and Coca Cola if the overall kilojoule content was low.

People who go on these diets will notice rapid weight loss in the first few days due to the loss of stored carbohydrate or glycogen and its associated water. For every gram of glycogen lost, an associated 3 grams of water is lost. Little weight loss is from body fat. When a diet is resumed, some muscle tissue is rebuilt, water is restored and weight quickly returns, more than otherwise would be the case, mostly as fat. This contributes to the dangerous yo-yo effect of dieting.

These diets are very restrictive in what you can eat and can therefore become very monotonous. Although it appears that you can eat as much of certain foods such as cream and butter as you please, it is unlikely that you can eat large amounts of these, because bread and cereals are eliminated from the diet which restricts the foods you can eat the butter and cream with.
It is interesting to note that populations that consume largely plant-based diets have much lower rates of obesity, heart disease and cancer. In addition, vegetarians are also often leaner than people who eat meat-based diets so there is no basis to the theory that it is carbohydrate that makes people fat.

**Dr Atkin's Diet**
This is one of the original low carbohydrate diets and perhaps one of the most extreme. When following this diet, no more than 20 grams of carbohydrate is allowed each day during the first two weeks. Considering that a banana contains approximately 26 grams of carbohydrate, the diet is very severe. The author considers ketosis to be a necessary state for weight loss, however, it is a grossly destructive state that wastes the body's muscle and protein stores away.

**The Zone**
The Zone diet does not contain as much fat and protein as the Dr Atkin's diet and it doesn't restrict carbohydrate as severely. It advocates the ratio of energy from protein, carbohydrate and fat as 30:40:30. This is not a magical ratio that miraculously causes weight loss, and it is fairly similar to what is already eaten in Western countries where heart disease, hypertension, stroke and obesity are rife.

Katherine Ross, BSc (Hons) Grad Dip (Nutr Sci)