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Outlined below are some of the claims made about low carbohydrate diets and the reality behind these claims.

**Claim**

**You can enjoy all those forbidden foods and fat is not an issue.**

**Reality**

**These diets are extremely limiting.** The range of foods allowed does not extend much beyond meat, cheese, eggs, butter, margarine and other fats. In practice, since there is really nothing to eat along with the high protein and high fat foods, the diet will quickly become unappetising.

For example, cutting out carbohydrates means restricting the intake of bread, cereals, rice, pasta, starchy vegetables and milk not to mention high fat carbohydrate foods such as chips, cakes, biscuits, chocolate and pastry. The result is that a person will usually end up with a reduced total energy intake, which may cause some weight loss.

**Claim**

**Reducing carbohydrates will result in rapid weight loss.**

**Reality**

The body's preferred source of energy is glucose, provided by carbohydrate. Glucose is also necessary for functioning of the brain, nervous system and red blood cells. When carbohydrate is absent, glycogen supplies in muscle are broken down to provide glucose and fluid stored with the glycogen is lost at the same time. This may account for a 1 -2 kg weight loss. If a person continues to avoid carbohydrate, protein will be converted to glucose and lean body mass (muscle) will also be broken down to supply glucose and energy for the body. This break down of muscle leads to further fluid and weight loss. Therefore, the bulk of any weight loss is due to loss of glycogen, muscle and fluid while fat loss will be minimal.

**Claim**

**Cutting out carbohydrate forces the body to burn fat reserves.**

**Reality**

If the diet is extremely low in carbohydrate and the protein content is only moderate, conversion of protein to glucose may not be sufficient to meet overall energy needs. Fat will be a major source of energy in this relatively uncommon situation. However, normally when fat is broken down, glucose is also present and the two fuels are broken down together. Fat fragments combine with glucose fragments and this combination allows the fat to be broken down completely. Without glucose, fat fragments will combine with each other and will not break down totally, instead they form substances called ketone bodies. The accumulation of ketone bodies in the blood leads to ketosis, a condition that disturbs the body's normal acid balance. Symptoms that can occur with this process are headaches, nausea, light headedness and bad breath.

**Claim**

**Proponents of low carbohydrate diets state that a carbohydrate intake of 15-55g is sufficient for the body.**

**Reality**

**A carbohydrate intake of 100g is considered a safe amount to prevent ketosis although a higher intake is recommended for healthy body functions.** A low carbohydrate intake (less than 150g) can lead to glucose intolerance. Some low carbohydrate diets initially recommend an intake of 15 – 20g per day (the amount of carbohydrate in 1 - 2 apples). The National Nutrition

Survey showed that the daily median intake of carbohydrate was 305g for males and 214g for females. This highlights the drastic and unrealistic changes that would need to be made to a person's eating habits.

### **Claim**

Eating carbohydrate causes the body to produce too much insulin, which overwhelms the receptors for insulin. Therefore, the body is unable to take sugar into the cells and instead converts it into stored fat.

### **Reality**

High intakes of sugar will, of course, stimulate insulin release. However in well individuals the amount released is precisely matched to maintain blood glucose in the normal range. Some people develop insulin resistance and insulin therefore becomes less effective. Insulin resistance is not caused by too much carbohydrate but by other factors

### **(Low carbohydrate diets – cont.)**

including abdominal obesity. The insulin receptor works, however there is a defect in internal signalling in insulin target cells (situated in muscle, liver and fat) so there are less glucose transporter molecules and consequently glucose uptake into cells is reduced. As a result insulin levels rise, followed by a rise in glucose levels ultimately leading to diabetes. This does not mean glucose is stored as fat as, in this situation, fat cells share the resistance to glucose uptake.

### **Claim**

Low carbohydrate diets are the healthy eating option for our bodies.

### **Reality**

Apart from all the above effects on the body such diets will also be low in fibre, calcium, vitamin C, B vitamins and antioxidants. The high fat content will almost certainly mean a high saturated fat intake and the associated risk of raising cholesterol levels, which is a risk factor for coronary artery disease.

### **Summary**

Low carbohydrate diets are not recommended.

Weight loss, with these diets, will be due to loss of glycogen, muscle and fluid.

Such diets also fly in the face of evidence based nutrition and the hundreds of studies showing that people who eat most of vegetables, fruit, breads and cereals stay the healthiest with less heart disease, cancer, diabetes and high blood pressure.

Information on weight loss can be found in the Ministry of Health pamphlet "Healthy Lifestyles for a Healthy Weight" – available from Health Promotion resource units.