Low carbohydrate diets are *not* more effective for weight loss than balanced diets, so what does this mean?

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A recent systematic review combining the findings of 19 clinical trials in 3 209 people found that low carbohydrate diets result in similar weight losses over 2 years compared to diets containing a recommended balance of carbohydrate, fat and protein [1]. This review included overweight and obese people with and without diabetes. Little or no difference was detected for known heart disease and diabetes risk factors over 2 years. But what does this mean for the general public wanting to lose weight, maintain the weight loss, as well as be healthy?

1. Low carbohydrate diets are NOT more effective for weight loss than balanced diets

- **The review confirms that reducing overall energy (kilojoule) intake over a period of time will result in weight loss.** Low carbohydrate (<45% of energy from carbohydrates) diets and balanced diets both produced similar weight loss [1], confirming that the proportion of carbohydrate, fat and protein in the diet does not influence weight loss, only the total energy intake itself.

- **Adherence to a reduced energy intake is key for successful weight loss.** In most trials included in the review [1], subjects struggled over time to adhere to energy, carbohydrate, fat and protein goals, irrespective of the type of diet. This illustrates that people's ability to adhere to a diet over time is one of the most important determinants of successful weight loss [2, 3].

- **The fundamental issue is not so much losing weight, but maintaining the weight loss.** Different weight loss diets work for different people as long as they are able to achieve a reduction in energy intake [4]. Diets that are popularised in various ways, for example by celebrities or the diet industry, often result in the misconception of a "magic bullet" solution, with one diet being claimed to be the answer for all. This misconception also undermines the truth of the need for permanent dietary (and other lifestyle e.g. physical activity) changes to ensure long-term healthy weight management. A diet may help people to lose weight over the short term, but when the diet is stopped weight is often regained. Therefore, once weight is lost, it is important for people to adopt eating habits that make maintaining weight loss easy and that are linked to better health over the long-term.

2. Uncertainty still remains over the long-term safety and effects on health of low carbohydrate diets

- **The review showed little or no difference in effect on heart disease and diabetes risk factors with low carbohydrate diets and balanced diets over 2 years** [1]. The effects of eating a low carbohydrate diet over the long-term on heart disease and diabetes remain uncertain, as no eligible studies longer than 2 years were found in this review [1].

- **Any diet recommended to the general public as a short or long-term choice should be safe.** The recommended balanced diet, based on quality food choices, along with a healthy lifestyle over the long-

term, is associated with a lower risk of chronic lifestyle diseases such as heart disease, stroke, diabetes and certain cancers [5-8]. The effects of eating a low carbohydrate diet on health over the long-term remain unknown. Some recent preliminary studies have indicated an increased risk of death and heart disease risk with low carbohydrate diets [9-12]. Also, eating large amounts of unhealthy fats over the long-term, as advised with some of these diets, is concerning [13, 14]. Low carbohydrate diets are often high in protein. Diets higher in protein have been linked with increased risk of poorer kidney function [15-17] and various cancers [18]. Based on current best evidence low carbohydrate diets cannot be recommended to the public as part of a long-term healthy lifestyle.

- **Researching people on a diet for two years is too short to provide a clear-cut picture of long-term effects.** Chronic lifestyle diseases like heart disease, stroke, cancer and diabetes develop over many years of exposure to risk factors. An unhealthy diet is also only one risk factor for these conditions. Other risk factors include smoking, obesity, high alcohol intake and inactivity, as well as a family history (genetic predisposition) for these conditions. Thus, developing these conditions is not dependent on diet alone.

- **Weight loss in itself improves risk factors of heart disease and diabetes.** In the short term, weight loss will generally improve heart disease and diabetes risk factors, regardless of how the weight is lost. Weight loss of at least 2.5 kg (or 2% of body weight) is linked to improvements in blood pressure, blood cholesterol and diabetes risk [4, 19-21]. These improvements need to be sustained with a healthy lifestyle in order to reduce long-term risk.

3. A healthy balanced diet is about quality food choices and eating the right amount for a healthy weight.

- **A healthy diet is not only about the quantity and proportions of carbohydrate, fat and protein**. While weight loss is only dependant on overall quantity (total energy of the diet), the quality of the diet (types of carbohydrates, fats and proteins) is important for health. It is well known that the types of carbohydrates and fat in the diet influence heart disease and diabetes risk factors [14].

- **Fat and carbohydrate are good, but quality is key**. Different types of fat and carbohydrate found in foods have different effects on health. Reducing saturated and *trans* fat (animal and processed fats) and replacing them with unsaturated fats (plant fats and oils) reduces the risk of heart disease [22-24]. Removing saturated fat and replacing it with refined carbohydrates may be harmful [25]. Carbohydrates should be eaten as unrefined grains and cereals, beans, lentils, peas, fruit and root vegetables rather than as refined carbohydrates and added sugars.

- **Overall, the combination of foods and nutrients we eat (our dietary pattern) influence our health, not any single food, nutrient or food group on its own.** We can vary the intake of one component in our diet and not alter diet quality or health. A healthy dietary pattern, (as described below) has been linked consistently with reduced risk of disease [26, 27], demonstrating how foods and nutrients work together for health, for example, the Mediterranean dietary pattern [28, 29].

- **Healthy dietary patterns emphasise quality food choices, and are explained in the South African Food Based Dietary Guidelines (FBDGs).** These guidelines were developed to address existing public health problems in South Africa and are in line with current evidence on eating for health. The FBDGs [30] encourage us to eat a variety of foods, plenty of vegetables and fruit, choose unrefined starchy foods, eat beans, peas and lentils regularly, have dairy products every day and use vegetable oils rather than hard fats. Fish, chicken, lean meat or eggs can be eaten daily. Sugar, salt and foods high in these should

be used sparingly. This includes highly processed foods such as cookies, cakes, pastries, chips, snack bars, ready-to-eat savoury or sweet snacks and sweetened drinks.

- **To maintain a healthy weight, one should aim to balance the amount of food eaten (total energy) with activity levels.** Eating more energy than you use over a period of time will result in weight gain.

4. Affordability and sustainability

The majority of South Africans follow diets that are based on affordable carbohydrate-rich staple foods. Aside from the health implications, a diet low in carbohydrates and high in fat and/or animal protein is likely to be more costly. Adopting costlier diets will not be affordable or practical for most South Africans, impacting negatively on food security, especially in resource-scarce settings. The impacts of populations adopting low carbohydrate diets on sustainability of food systems and the environment, as well as the ethical implications thereof, should be considered. The cultivation of meat products versus carbohydrate-rich staple foods places a greater burden on the environment and global food supply [31].

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