

# The Skinny on Popular Diets

Robert Dent, MD, CM, FRCP(C)

As presented at the College of Family Physicians of Canada Meeting, Toronto, Ontario.

Many of the current popular diets are carbohydrate-restricted, which is in sharp contrast to the fat-restricted diets of Health Canada's official diet recommendations. It is troublesome that the intent of many of these popular diets is not good nutrition and that they conflict with diet principles aimed to lower cardiovascular risk. There is, however, evidence suggesting carbohydrate-restricted diets may actually lower cardiovascular risk factors by raising high-density lipoprotein cholesterol and lowering triglycerides; thus the low-carbohydrate diet can no longer be dismissed.

## *Understanding obesity and its treatment*

### *1. What's the relationship between genetics and obesity?*

The 2003 Update of the Human Obesity Gene Map describes more than 430 genes, markers and chromosomal regions that have been associated or linked with human obesity phenotypes.<sup>1</sup> This genetic tendency to be overweight can be mediated through:

- the appetite centre and its sensitivity,
- metabolic rate and adaptive mechanisms that may be present,
- the tendency to do and enjoy exercise and
- the facility with which fat cells can take on fat.

When persons have the genetic tendencies to be overweight or obese they have to work harder than those who do not to manage their weight. These genetic tendencies

### FACT

There are many genes influencing a person's weight, suggesting that there are many different types of overweight and obesity. Each of these types of obesity is likely to have different risks and require different treatments.

### FACT

It is important for practitioners to understand that some patients will be truly diet-resistant and require special empathy and understanding.

### FACT

Diet or lifestyle modification with respect to food intake is one of the long-term interventions for the treatment of obesity. To be effective the diet must be sustainable.

## Often missed factors

- **Alcohol use:** May be a major contributing factor. If this is the case, the therapeutic focus might have to be on dealing with the alcohol.
- **“Binge in a Bottle”:** A term used to refer to the consumption of litres of sugar-containing soda per day. Many people who do this have no idea of the high calorie count of this practice.
- **Coffee additives:** For persons drinking many cups of coffee per day with double cream, double sugar, switching to black coffee can make quite a difference in calorie intake.
- **Fancy coffee beverages:** Many of the coffee shops have specialty beverages that have 600 or more calories.
- **Skipping meals:** Patients do this to manage their weight, but this practice usually results in weight gain and more intense food cravings.

can be so powerful that the person may never achieve a normal weight.

### 2. Does diet resistance exist?

Traditionally, when patients were not responding to diets they were considered to be under-reporting their food intake. Under-reporting does occur, but there is now evidence suggesting that some obese patients are diet-resistant. Muscles are dual fuel machines, and some appear to lack the ability to switch from a very efficient form of energy generation to a less efficient form, thus wasting excess energy.

### 3. If obesity is genetic, why is its prevalence increasing?

Today, there is an unprecedented availability of food 24-hours a day and physical activity has been largely

Dr. Dent is Director of the Weight Management Clinic, Ottawa Hospital, Ottawa, Ontario.

leached from our modern life.

### 4. How does obesity compare to hypertension?

- Both are chronic medical conditions
- There is no cure for either one
- Both can be managed with long-term interventions
- There are many long-term interventions (medications) available to treat hypertension
- There are only three long-term interventions to treat obesity:
  - i. Lifestyle modification (behaviour modification) with respect to food intake (diet) and energy burn-off (physical activity)
  - ii. Medication
  - iii. Surgery to alter gastrointestinal physiology to limit food intake and decrease the absorption of nutrients

### Popular diets and their evidence base

There is some evidence that each of the following diets work in some people. When considering the large number of genes that can be associated with obesity, it is highly unlikely that one diet will work for everyone.

#### Moderate-fat, balanced-nutrient reduction diets

These diets are defined as 20% to 30% fat, 15% to 20% protein and 55% to 60% carbohydrates. Many patients have already tried these diets and find them hard to sustain. There are many examples in this group, including Canada's Food Guide, Canadian Diabetes Association Good Health Eating Guide, Novartis Nutrition Clinics (post meal-replacement) and Weight Watchers.

Low-calorie diets can reduce total body weight by an average of 8% within three to 12 months. Although lower-fat diets without targeted caloric reduction help promote weight loss, lower-fat diets coupled with total

Table 1

**Low-carbohydrate, high-fat diets: Evidence as of 2001<sup>3</sup>**

- Overweight patients consume fewer calories and lose weight (Category C)
- Short-term: > loss of body water than fat; long-term: loss of body fat (Category C)
- Nutritionally inadequate and require supplementation (Category C)
- Result in ketosis (Category B)
- If weight loss, decreased lipids, glucose, blood pressure (Category C)

Table 2

**Low-carbohydrate, high-fat diets: Evidence as of 2004**

- Overweight patients consume fewer calories and lose weight (Category C → Category B)
- Short-term: > loss of body water than fat; long-term: loss of body fat (Category C → Category B)
- Nutritionally inadequate and requires supplementation (Category C)
- Result in ketosis (Category B)
- If weight loss, decreased lipids, glucose, blood pressure (Category C → Category B)

caloric reduction produce greater weight loss than lower-fat diets alone (Evidence Category A).<sup>2</sup>

*Low-glycemic index diets*

These diets may be more sustainable and many are considered less radical than the low-carbohydrate/high-fat diets. Some of these diets are actually variants of the low-carbohydrate/high-fat diets, but instead of reducing carbohydrate intake, they encourage the intake of carbohydrates that are slowly absorbed.

Many make use of the glycemic index to rank foods based on their immediate effect on blood glucose. Carbohydrates that are absorbed quickly have the highest glycemic indexes and blood sugar response to them is fast and high. Carbohydrates that break down slowly, releasing glucose gradually into the blood stream, have low-glycemic index values. Low-glycemic index foods, which are usually the less processed carbohydrate foods, result in less insulin release and this is thought to cause less hunger and less storage of nutrients. Diets that make use of the glycemic index include the gastrointestinal diet, The Glucose Revolution and The South Beach Diet.

It is important to note that most of these diets do not encourage a high-fat intake, but a moderate to low intake of heart-healthy fats.

*Low-carbohydrate, high-fat diets*

These are defined as 55% to 65% fat and less than 100 g of carbohydrates per day. Included in this category are the Dr. Atkins Diet Revolution 1972, Dr. Atkins New Diet revolution 1992, Protein Power, The Carbohydrate Addict's Diet, Life Without Bread and the Montignac diet.

At the time that Freedman, King and Kennedy did their evidence-based analyses of diets in 2001, there was not much to support the use of these diets. The evidence statement for 2001 (Table 1) was very negative, which made it very easy to discourage patients from using them.

## Notes to the GP

- A positive and respectful attitude is important when caring for overweight patients. These patients are often fragile because in the past, obese patients were blamed for their weight and were often scolded by health-care workers.
- Position diet with the other long-term interventions for obesity. Encourage physical activity and drugs when appropriate in combination with diet. For some patients surgery is the treatment of choice if other treatments are ineffective.
- Discourage rapid and drastic weight loss. Rapid weight loss often means that muscle mass is being lost. This results in a decreased metabolic rate that may result in rebound weight gain greater than that lost.
- Discourage "quick-fixes."
- Encourage sustainable diet practices. Remember that obesity is a chronic medical condition that requires long-term intervention.

Since 2001, there have been clinical trials providing evidence that these diets do result in weight loss and, in many cases, improvements in lipid profiles. Although these studies are short-term, the resulting evidence means these diets can no longer be discounted—even though they are completely

### *Low fat diets promote a fat intake of 11% to 19%.*

against traditional teaching about cardiovascular risk reduction (Table 2).

It is recommended to monitor lipid profiles every six months and compare them with pre-diet levels. If there is improvement in the lipid profile,

there is reason to continue; if there is deterioration, there is reason to discontinue.


### *Low-fat and very-low-fat diets*

Very low-fat diets advocate an intake of less than 10% fat, and include diets such as Dean Ornish and Nathan and Robert Pritikin. Low fat diets promote a fat intake of 11% to 19%.

Overweight patients consuming low-fat, high carbohydrate diets eat fewer calories, lose weight and lose body fat (Evidence Category A).<sup>3</sup>

### *In conclusion...*

There is evidence supporting the efficacy of each of the above diets in some people. Considering the large number of genes that can be associated with obesity, it is highly unlikely that one diet will work for everyone.

Presently, we lack the key to direct the obese person to the diet that is right for them. For now, we take the position that patients with metabolic syndrome may benefit more from the low or modified carbohydrate diets. 

#### References

1. Bouchard C, Perusse L, Rankinen T, et al: The human obesity gene map. *Obesity Res* 2004; 12(3):381-490. (<http://obesitygene.pbr.c.edu>)
2. Feedman MR, King J, Kennedy E: Popular diets: A scientific review. *Obesity Res* 2001; 9:Suppl 1:1S-40S.
3. Sondike SB, Copperman N, Jacobson MS: Effects of a low-carbohydrate diet on weight loss and cardiovascular risk factor in overweight adolescents. *J Pediatr* 2003; 142(3):253-8.

#### Resources

1. Samaha FF, Iqbal N, Seshadri P, et al: A low-carbohydrate as compared with a low-fat diet in severe obesity. *N Engl J Med* 2003; 348:2074-81.
2. Foster GD, Wyatt HR, Hill JO, et al: A randomized trial of a low-carbohydrate diet for obesity. *N Engl J Med* 2003; 348:2082-90.

Cover photograph: Healthy eating (Firstlight Images®).