



Diet Dilemma

An Examination for CAD

Maintaining knowledge on the abundant diets available today can prove fruitless. Here is an examination of some of the most recent and most popular diets regarding their efficacy and their relation to obesity, diabetes and hyperlipidemia.

Jean G. Dumesnil CQ, MD, FRCPC, FACC

Obesity has reached epidemic proportions in North America and is well-recognized as a major risk factor for Type 2 diabetes and coronary artery disease (CAD). Among modifiable risk factors (hyperlipidemia, hypertension, smoking) obesity is the only one that is completely out of control and for which health professionals do not agree on the proper prescription. The official guidelines for nutrition (*i.e.*, American Heart Association [AHA] or Canadian or American Food Guides) have changed very little in the last 30 years and have been fraught with failure, considering the exponential rises of obesity and Type 2 diabetes.

It is not surprising that a surplus of new dietary approaches have become available, generating a lot of confusion as well as much debate with regards to their safety and efficacy.

Low-calorie diets



To lose weight, caloric intake must decrease. This scientific principle has never been disproved, but it carries a strong sense of restriction since, for most people, it entails decreasing food intake significantly. Weight Watchers® and other similar diets are typical of this approach but because of their restrictive nature, long-term success is very low. It is impossible for most people to imagine they will keep counting calories and be hungry for the rest of their lives.

What's the drawback ?

These diets often result in temporary or on-off dieting, whereby people alternately lose and gain weight. In the end, people are often left heavier than when they started.

Low-fat diets



Low-fat diets were developed based on two empirical assumptions:

- fat intake contributes to hyperlipidemia and
- restricting fats is efficient for weight loss since 1g of fat yields 9 calories versus 4 calories for 1g of protein or carbohydrate.

It is on these assumptions that the New England Common Assessment Program (NECAP) and the AHA education programs have based their diets over the last 30 years.

These programs have resulted in an overall reduction of fat intake (from 42% to 34% of total calorie intake) and a 10% reduction in the total blood cholesterol levels. This change in nutritional habits has been accompanied by exponential rises in the prevalences of obesity and Type 2 diabetes.

The effect on the lipid profile is very modest given that the decrease in total cholesterol occurs partly at the expense of high-density lipoprotein (HDL)-cholesterol and is accompanied by a significant rise in triglycerides.¹ The most likely explanation for these shortcomings is that the lower intake of fats has been replaced by a higher intake in refined carbohydrates, which procure less satiety and tend to increase total calorie intake. Refined carbohydrates increase insulin secretion which deteriorates the metabolic profile and increases susceptibility to Type 2 diabetes.

The Ornish diet:

The epitome of low-fat diets is the Ornish diet, which restricts fat intake to 10% or less of total calorie intake. It has been shown to have modest effects on the progression of coronary artery disease and on the metabolic profile.

What's the drawback ?

Replacing fats with refined carbohydrates decreases satiety, increases total calorie intake and deteriorates the metabolic profile. Very restrictive versions, such as the Ornish diet, may have benefits, but are inapplicable long-term for the general public.

About the author...

Dr. Dumesnil is a professor of medicine, Université Laval and staff member, Institut de Cardiologie de l'Hôpital Laval, Ste-Foy, Québec.



Low-carbohydrate diets



The forerunner of these diets is the Atkins diet. Atkins advocates that the main culprit for obesity is increased insulin secretion and that the remedy is to greatly limit carbohydrate intake. Fats (even saturated) however, can be eaten at will. Because this is in complete opposition to the official guidelines, it has long been considered irresponsible and dangerous, but recent scientific evidence suggests the Atkins diet might not be as deleterious as previously thought.^{2,3} It is more efficient than low-fat diets for losing weight.

What's the drawback?

Long-term compliance to this diet is low due to poor palatability. Like the Ornish diet, it can be considered extreme and not suitable for the general public.



Low-glycemic index (GI) diets



These diets are based on the same rationale as the Atkins diet; however, instead of banning all carbohydrates they use the concept of glycemic indices to modulate carbohydrate intake and eliminate only those carbohydrates that result in significant increases of glucose and insulin levels. That is why carbohydrate sources with a high-fibre content are privileged (*e.g.*, whole grain cereals, fruits, vegetables), whereas food high in sugar, refined flour or starches are discouraged (*e.g.*, most processed foods). The GI concept was first developed by Dr. D. Jenkins for patients with diabetes and then applied to weight loss by M. Montignac.

A study on a variation of the Montignac diet also limited the intake of saturated and trans fats and privileged the intake of unsaturated fats, such as omega-3s.¹ This study revealed that such an approach resulted in a spontaneous 25% decrease in calorie intake due to increased satiety. Also, significant improvements in the metabolic profile as compared to the AHA diet (which deteriorates the metabolic profile) were found.

What's the drawback?

Long term studies are lacking but the benefits of a low GI diet are indirectly confirmed by large epidemiological studies.^{4,5}

High-protein diets



The basic approach of high-protein diets is to increase protein intake while decreasing carbohydrate intake (*e.g.*, The Zone, Protein Power). The end results are very similar to those achieved by the low-carb or low-GI diets. A higher protein intake is interesting since it is one of the likely mechanisms for the decreased satiety observed when using either a low-GI or a high-protein diet.¹

High-protein diets have been denounced as being potentially harmful because they have been associated with a higher intake of animal protein and thus of saturated fats. This may not however, have to be the case since the increase of protein intake can be derived from protein sources, such as vegetables, fish and very lean meats. Moreover, it has never been shown that such increases in protein intake are deleterious to the kidney.

What's the drawback?

Most versions of these diets involve many unnecessary calculations and restrictions whereas similar results can be achieved much more easily using a low-GI diet.

Canadian (The Rainbow) or American (The Pyramid) food guides




Not meant for weight control, these guides were first conceived after World War II to overcome nutritional deficiencies and to promote a more balanced and abundant diet.

There now seems to be a movement to review the food guides and, in particular, there seems to be some recognition of the untoward effects of high-GI carbohydrates. How these preoccupations will be translated to actual recommendations remains to be determined.

What's the drawback?

They have resulted in a dramatic increase in total calorie intake and have most likely contributed to the increased prevalence of obesity. The main flaw is that they encourage rather than discourage the consumption of refined carbohydrates.

There are new approaches to diet that would appear to offer some hope. In particular, the choices of foods based on the use of GIs as well as most current knowledge on the beneficial effects of certain types of fats (*e.g.*, omega-3, *etc.*) would appear most promising. More research is urgently needed for future recommendations to be based on scientific evidence rather than on empirical and/or outdated beliefs. 

References

1. Dumesnil JG, Turgeon J, Tremblay A, et al: Effect of a low-glycaemic index-low-fat-high protein diet on the atherogenic metabolic risk profile of abdominally obese men. *Br J Nutr* 2001; 86(5):557-68.
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(21):2082-90.
3. 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(21):2074-81.
4. Liu S, Willett WC, Stampfer MJ, et al: A prospective study of dietary glycemic load, carbohydrate intake and risk of coronary heart disease in US women. *Am J Clin Nutr* 2000; 71(6):1455-61.
5. Stampfer MJ, Hu FB, Manson JE, et al: Primary prevention of coronary heart disease in women through diet and lifestyle. *N Engl J Med* 2000; 343(1):16-22.



This article is online!
Get your PDF version of this article on:
www.stacommunications.com



Plavix.
clopidogrel 75mg