

Heart Headlines

A professional resource on nutrition and heart health brought to you by the Becel Centre for Heart Health

How dietary fat guidelines have evolved over the years

THE FOCUS



DIETARY FAT GUIDELINES

This issue reviews the evolution in dietary guidance relating to fat and provides practical tips to help Canadians put healthy habits into action.

Canada's Food Guide has been the cornerstone of nutrition education in Canada for the past 65 years.¹ During that time, it has gone through numerous revisions, including the latest version released this year, *Eating Well with Canada's Food Guide*.^{1,2} For the first time, the Food Guide acknowledges the importance of healthy fats and encourages Canadians to consume unsaturated fats each day.

Understanding how the science and nutrition recommendations have evolved can help in communicating this message clearly and effectively, especially to Canadians at risk of developing cardiovascular disease (CVD).

Oils and fats

Health Canada's *Eating Well with Canada's Food Guide* now contains more explicit guidance on types of fat than previous versions of the Food Guide. A specific section dedicated to advice on oils and fats in the new Food Guide advises Canadians to:²

- Include a small amount – 30 to 45 mL (2 to 3 tbsp) – of unsaturated fat each day. This includes oil used for cooking, salad dressings, margarine and mayonnaise.
- Use vegetable oils such as canola, olive and soybean.
- Choose soft margarines that are low in saturated and trans fats.
- Limit butter, hard margarine, lard and shortening.

Canada's Food Guide now recommends that Canadians eat at least two Food Guide Servings of fish each week, recognizing the importance of the marine omega-3 fatty acids, EPA and DHA.

An effort to favourably alter the omega-6 to omega-3 ratio in the Canadian diet is also evident. Canola, olive and soybean oils are specifically mentioned as examples of healthier oils. Canola and soybean oils are rich in the omega-3 fatty acid, alpha-linolenic acid, and canola and olive oils are rich in the omega-9 fatty acid, oleic acid.

The new Food Guide further advises Canadians to "limit trans fat" and suggests that consumers ask for nutrition information on trans and saturated fat. This will help them make wise food choices when a Nutrition Facts table is not available.

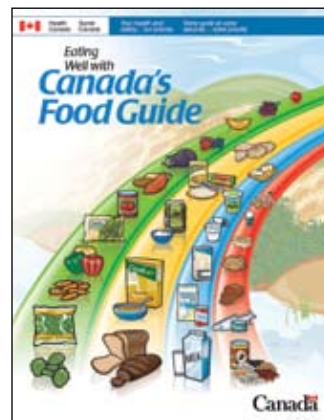
The advice regarding oils and fats in Health Canada's *Eating Well with Canada's Food Guide* represents a significant shift from the 1992 *Canada's Food Guide to Healthy Eating*, which included oils and fats as part of the "Other Foods" category.³

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In this issue

1 The new thinking about fat intake in Canada's new Food Guide that's markedly different from the 1992 Guide.

5 Simple tips used by dietitians for behaviour changes that lead to better heart health.



See the new **Canada's Food Guide** at www.healthcanada.gc.ca/foodguide.

Health Canada, Minister of Public Works and Government Services Canada, 2007.

Resources for health care professionals

Becel established the Becel Centre for Heart Health to provide heart health educators and the public with the latest scientific information and useful educational tools about nutrition and heart disease. Order or download free educational materials to help you advise your patients or clients about heart health. Visit www.becel.ca/healthcare and log in today.



KEY POINTS

- 1 For the first time, *Canada's Food Guide* acknowledges the importance of healthy fats.
- 2 *Canada's Food Guide* now encourages Canadians to include a small amount of unsaturated fats each day and limit their consumption of saturated and trans fats.
- 3 Guidance on oils and fats now reflects current scientific evidence.

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There was no specific distinction between healthy and less healthy choices with respect to oils and fats in the Food Guide itself. In fact, the 1992 *Food Guide Facts — Background for Educators and Communicators* did not distinguish between “fats and oils, such as butter, cooking oil, margarine, oil-based salad dressing, shortening, lard and regular mayonnaise”.⁴

Although the 1992 document did acknowledge a strong link between saturated fat intake and heart disease, it focused primarily on reducing the total amount of fat in the diet, rather than guiding Canadians in making healthier choices when selecting oils and fats.

The science

In recent years it has become increasingly clear that the association between fat and heart disease is related more to the *quality* of fat than the total amount of fat.⁵

Yet as early as the 1960s, Keys et al. observed that Mediterranean populations who consumed high-fat diets low in saturated fat had significantly lower rates of heart disease than populations in the U.S. and northern Europe, which consumed high amounts of saturated fat.⁶

Furthermore, intervention trials in the late 1980s and early 1990s demonstrated that when saturated fat intakes were held constant, dietary variations in the percentage of energy from total fat did not alter LDL cholesterol levels.^{7,8,9} A controlled trial published in 1992 showed this very clearly.⁹ Changing subjects' intakes from a typical diet at the time of 37% of energy from total fat and 16% of saturated fat to a diet with 30% of energy from fat and 9% from saturated fat resulted in a significant decrease in total and LDL cholesterol levels.⁹ Lowering total fat to 30% of energy but maintaining a higher level of 14% of energy from saturated fat had no effect on total or LDL cholesterol levels.⁹

A 1995 meta-analysis of studies on the effect of substituting 6% to 16% of energy from saturated fat with unsaturated fats also reported a significant decrease in total and LDL cholesterol levels.¹⁰

A 2003 meta-analysis of 60 controlled clinical trials by Mensink et al. reported on a number of beneficial effects of unsaturated fatty acids.¹¹ Unsaturated fats improved the ratio of total cholesterol to HDL choles-

terol compared to carbohydrates.¹¹

Isocaloric replacement of carbohydrate with any type of fatty acid decreases fasting serum triacylglycerol concentrations;¹¹ however, the most powerful triglyceride-lowering effect is seen with marine omega-3 polyunsaturated fatty acids.¹² Mensink et al. noted that the major omega-6 polyunsaturated fatty acid, linoleic acid, does not share this pronounced effect.¹¹ Apo-B concentrations did not change when saturated fats replaced carbohydrates. Unsaturated fats did, however, lower apo-B, with polyunsaturated fats having the strongest effect.¹¹

More recent research indicates that essential omega-3 and omega-6 polyunsaturated fatty acids actually offer protection against heart disease.⁵

Anthropological and epidemiological evidence indicates that humans evolved on diets of the omega-6 to omega-3 essential fatty acids with a ratio of approximately 1 to 1.¹³ Researchers estimate that the ratio is approximately 15 to 1 in today's Western diets.¹³ This high omega-6 to omega-3 ratio may play a part in the pathogenesis of CVD.¹³ As reported in previous issues of *Heart Headlines* (Volume 12, Issue 1, Summer 2005 and Issue 4, Fall 2006)^{14,15} studies indicate that higher omega-3 intakes benefit cardiovascular health in a number of ways.

Nutrition recommendations

Nutrition recommendations also changed, with an appreciable refinement in the understanding of the role of dietary fat in CVD throughout the 1990s.¹⁶ In the late 1980s, expert groups in Canada, the United States and Europe recommended that the general population reduce the amount of fat, particularly saturated fat, in their diets. These recommendations stemmed primarily from mounting concern about the high incidence of CVD.

As a result, governments and other health agencies around the globe responded by changing their nutrition guidance, including food guides. One of the key recommendations made in Health and Welfare Canada's 1990 Nutrition Recommendations – Report of the Scientific Review Committee was that:¹⁷

The Canadian diet should include no more than 30% of energy as fat and no more than 10% as saturated fat.

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An accompanying recommendation stated that:

The Canadian diet should provide 55% of energy as carbohydrates from a variety of sources.

The food industry also responded by developing lower fat food products as well as products lower in saturated fat. And the “no more than 30% of energy as fat” recommendation was used extensively in nutrition education in Canada until the release of the Dietary Reference Intakes (DRI) Report on macronutrients in 2002.⁵

However, while there was sound scientific evidence for the recommendation to lower saturated fat intakes to reduce the risk of CVD, the recommendation to lower total fat was more tenuous.¹⁶ This was attributed to the fact that limited studies dealt specifically with the effect of total dietary fat. A 2000 National Institute of Nutrition Review stated that:¹⁶

“Nearly all metabolic studies that have examined the effect of dietary fat level on risk factors for CVD have been confounded by concomitant changes in the type of fat in the diet; lower dietary fat intakes usually were accompanied by lower intakes of saturated fat. In fact, the scientific literature suggests that reducing total fat intake is of little benefit from a cardiovascular risk perspective without a concomitant reduction in saturated fat.”

Finally, in 2002, the Institute of Medicine released the DRI report on macronutrients based on the most current science at the time.⁵ Health Canada participated in the development of the DRI nutrition standards and has since adopted these and used them in developing the new Food Guide.

The DRI report on macronutrients outlines acceptable macronutrient distribution ranges (AMDR) for fat, carbohydrates and protein (Table 1).⁵ This represented a shift from earlier recommendations in that the values acknowledge that:

- Individuals can consume a range of intakes without adverse health effects; and
- Chronic diseases may increase with long-term consumption of diets that are too low or too high in these macronutrients.

The upper limit of 35% of energy from fat was actually set in order to limit saturated fat intake.⁵ This was based on the concern that it may be difficult to design heart healthy diets low in saturated fat when the total fat exceeds 35% of calories.^{5,18}

Table 1. Current macronutrient recommendations⁵

Macronutrient	% of total energy
Total fat	20% to 35%
<i>This should include the essential fatty acids:</i>	
Omega-3 (linolenic acid)	0.6% to 1.2%
Omega-6 (linoleic acid)	5% to 10%
Carbohydrate	45% to 65%
Protein	10% to 35%

The DRI report cites substantial evidence that saturated and trans fats increase total and LDL cholesterol levels. It notes that higher intakes of these fats is associated with higher risk of heart disease and concludes that even low intakes may increase risk.

Thus, there are no AMDR for saturated or trans fats, and the recommendation is to keep these as low as possible while meeting nutrient needs. To lower saturated fat intake, the DRI report suggests that the amount of butter added to foods should be minimized or replaced with soft, non-hydrogenated margarines or vegetable oils rich in polyunsaturated fat.

As early as 1990, Canadian scientists also began to raise concerns about the detrimental health effects of trans fats in the Nutrition Recommendations for Canadians Report,¹⁷ noting that trans fat levels in the Canadian diet were high. By the mid-1990s, researchers estimated that Canadians had one of the highest intakes of trans fats in the world.¹⁹

With the concern over the health impact of these high levels, Canada became the first country to regulate the mandatory labelling of trans fats on pre-packaged foods. Many food companies have already started to replace the trans fats in their food products in accordance with the recommendations from the 2006 report of the Trans Fat Task Force¹⁹ jointly chaired by Health Canada and the Heart and Stroke Foundation.

Dietary intakes

A decrease in reported fat intakes during the past four decades has accompanied the evolving food guidance and nutrition education efforts. Health Canada's National Nutrition Survey conducted in the early 1970s found that, on average, about 40% of calories in the Canadian diet came from total fat.²⁰

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Ten years ago in the Fall 1996 issue of *Heart Headlines* (Volume 3, Issue 2)²¹ we reported that in 1990, Agriculture Canada estimated that the average fat intake by Canadian adults represented 36% of calories.²² This estimate was based on data from Statistics Canada's Family Food Expenditure Survey conducted two years before the 1992 Food Guide was released. An estimated average of 12% of calories came from saturated fats, 15% of calories from monounsaturated fats and 6% from polyunsaturated fats.

In our last issue of *Heart Headlines* (Volume 13, Issue 1, Winter 2007)²³ we reviewed Nutrition Findings from the Canadian Community Health Survey (2004).²⁴ That survey found that reported fat intakes had declined to an average of just over 31% of calories.

This indicates that the current reported average fat intakes are well within the DRI recommendation for adults of 20% to 35% of calories from fat. However, one-quarter of adults aged 31 to 50 and about one-fifth of older adults consumed more than 35% of calories from fat. Future reports are expected to provide more detail on the types of fats Canadians are consuming.

This downward trend in total fat intake since the 1970s has been accompanied by a commensurate increase in carbohydrate intake, while protein intakes have remained relatively stable.^{20,24} Worth noting is the striking rise in obesity rates in the past few decades, a major risk factor for CVD, despite the decrease in total fat.^{20,24,25}

To help people achieve healthy weights and minimize chronic disease risk while meeting nutrient needs, the new Food Guide:

- More clearly defines the recommended amounts of foods from each food group for different age and gender groups.
- Encourages Canadians to limit less healthy food choices that are high in calories, fat, sugar and salt.
- Favours vegetables and fruit rich in vitamins A and C, folate and fibre.
- Promotes whole grains rich in B vitamins, minerals and fibre.
- Suggests specific ways to limit saturated and trans fats.
- Recognizes the importance of daily physical activity.

From guidelines to practice

The messages relating to oils and fats in the 2007 Food Guide clearly reflect global expert opinion based

on current scientific understanding that consuming healthy fats, including mono and polyunsaturated fats, in moderation, is good for you.

The Nutrition Facts table on food labels, which lists the total fat, as well as the saturated and trans fat, is a valuable tool for comparing products and making healthier choices. Many product labels also highlight omega-3 content.

In addition, the food industry's implementation of the Trans Fat Task Force recommendations is likely to reduce the trans fat content of the Canadian food supply. Canadians can benefit from all of these initiatives to help them make heart healthy food choices.

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Actionable nutrition advice

KEY POINTS

- 1 Canadians need help translating science and nutrition guidance into their every-day eating habits.
- 2 Research shows that people are motivated by messages that are positive, simple, actionable, personalized and that provide a clear payoff.

Given how science and dietary guidelines evolve, it's no wonder that people often express confusion with regard to nutrition issues. One of the greatest challenges for health care professionals is translating complex science and dietary guidance into actionable messages that motivate behaviour change.

Research shows that people are more motivated by nutrition advice that is:¹

- Positive;
- Short and simple;
- Specific and actionable;
- Personalized; and
- Provides a payoff.

Providing clients with nutrition advice can be particularly challenging for family physicians and other health care professionals who have limited time for dietary counselling. Here's a summary of some simple tips that dietitians often use in their practice to help people make heart healthy behaviour changes:¹⁻³

Portion control

- Switch to a smaller dinner plate at home as a simple way to cut calories; research shows that you're likely to eat less.
- Eating out? Ask for a take-out container when you order your meal so that you can save half of your meal to enjoy the next day.
- Serve snacks on a plate, rather than eating right out of a bag or box, to help control the amount and calories that you eat.
- Slow down and enjoy your meals. It takes 20 minutes for your brain to register that your stomach is full.

Fibre up

- Start each day with a high-fibre breakfast that includes fruit and whole grain breads and cereals for a good fibre boost that will fill you up.
- Stock up on vegetables and fruit, and eat them at every meal and at snack time for fibre, folate and antioxidants.
- Enjoy the nutty flavour of whole grain pastas, brown and wild rice, and other whole grains such

as barley or quinoa instead of refined varieties.

- Eat more meals that include meat alternatives, such as beans and rice or lentil soup. They're lower in saturated fat too.

Fat wise

- Substitute soft, non-hydrogenated margarine for butter or stick (hard) margarine as a simple way to include healthy unsaturated fats in your diet.
- Use vegetable oils such as canola, olive or soybean oil, which are naturally higher in omega-3 and/or omega-9 fats, to promote heart health.
- Jazz up cereals, yogurt, salads, stir-frys or home-made baked goods with small amounts of nuts and seeds. Walnuts and ground flax seeds will boost your omega-3 intake.
- Each week, enjoy at least two 75 g servings of fatty fish, such as char, herring, mackerel, salmon, sardines and trout, to get more of the omega-3 fats that you need.

Active living

- Every bit counts. You can increase your activity in periods of at least 10 minutes.
- Build up to 30 minutes to an hour of moderate activity like brisk walking, swimming or biking each day for optimal health.
- Take a brisk 10- to 30-minute walk to start your day, on your lunch hour or after work. You'll feel refreshed and re-energized.
- Find activities that you enjoy and you may find that you can keep your appetite in check by being more active.

Build on good habits by asking your clients about the healthy choices they are already making and by encouraging additional small changes.

For example, suggesting something as simple as replacing butter with a soft, non-hydrogenated margarine could mean that they cook and bake with as much as 80% less saturated fat and no trans fat. Where there is room for improvement in behaviour, there are likely healthier substitutes.

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Actionable nutrition advice

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Resources

- *Eating Well with Canada's Food Guide: A Resource for Educators and Communicators*

is available on the new Food Guide website at: www.healthcanada.gc.ca/foodguide (see pages 26-27 for more information and practice tips relating to oils and fats).

- For a wealth of simple information and recipes to help your clients put healthier fats on their menu, have them visit: www.healthyfats.ca.

- Refer clients to Canada's Physical Activity Guide at: www.healthcanada.gc.ca/paguide.



Research Update

Soy protein

A recent randomized crossover design study found that the consumption of differently processed soy-based products (soybeans, soy flour, or soymilk) and different types of protein (animal and soy) had little clinical effect on cardiovascular disease risk biomarkers, including blood pressure, total and VLDL cholesterol, triglycerides, apolipoprotein B, c-reactive protein and peripheral endothelial function, when other major dietary variables and weight were held constant.

(Matthan NR et al. *Am J Clin Nutr* 2007; 85: 906-66)

Fast food

In a randomized, repeated measures crossover design trial, University of Calgary researchers tested the effects of a single fast food meal high in total fat (42 g) and saturated fat (16.5 g), compared with a low-fat meal (with 1.3 g of fat and 0.8 g of saturated fat). The fast food meal sent healthy, normotensive participants' blood pressure soaring 1.25 to 1.5 times higher than the low-fat meal when subjected to several standard stress tests.

(Jakulj F et al. *J Nutr*, 2007; 137:935-9)

Snack foods

A randomized crossover trial studied the effects of feeding 33 adults three different types of snacks for a period of 25 days each. Consuming snack chips rich in polyunsaturated fat (PUFA) and low in saturated and trans fat improved lipid profiles compared to snacks high in saturated and trans fat or low-fat snacks. The PUFA-rich snacks and low-fat snacks lowered total and LDL cholesterol the most. The PUFA-rich snacks reduced triacylglycerol levels the most, by 9.4%.

(Marie-Pierre St-Onge. *Am J Clin Nutr*, 2007; 85(6):1503-10)

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