

The Facts on Fats

50 Years of American Heart Association Dietary Fats Recommendations



June 2015

Executive Summary

For more than 50 years the American Heart Association (AHA) has issued and updated science-based dietary recommendations about controlling risk factors for cardiovascular diseases. Dietary fats, particularly saturated fat, are an area of keen interest among consumers, health professionals, and the media. This white paper highlights the evolution of the association's dietary fat recommendations. As a topic of much discussion and often controversy, it's important for health professionals to understand the AHA's recommendations and to be able to communicate them to patients/clients.

Many who question recommendations to reduce dietary saturated fats rely on studies that the AHA and other organizations believe have methodological limitations and are therefore less reliable for drawing conclusions and making public health recommendations. This white paper discusses the strengths and limitations of the types of studies that examine the relationships between dietary intake, disease risk factors, and health outcomes. Many of the claims that question recommendations to reduce dietary saturated fats rely on analyses that have not taken the replacement nutrient into consideration, but the replacement nutrient can have a profound effect on the outcomes measured. On balance, replacement of dietary saturated fat with polyunsaturated fat has been shown to have a beneficial effect on coronary heart disease risk and LDL cholesterol concentrations. Replacement of dietary saturated fat with carbohydrate has been shown to have lesser effect.

The fields of nutrition science and research methodology that evaluate the impact of diet on health have made significant advances since the 1960s, providing the opportunity to continuously update dietary recommendations to reflect the latest evidence available. Over the past 50 years, dietary fat recommendations have shifted from total fat to type of fat, and from nutrient-based to food-based with the addition of environmental and policy recommendations to support healthy lifestyles. The recommendation to reduce dietary saturated fats from current intake levels has been consistent over time, among not only AHA's recommendations but in the Dietary Guidelines for Americans as well.

Contrary to what has been reported in the media and likely perceived by many health care professionals and consumers, the AHA does not advise a low-fat diet for optimal heart health. In fact, the term "low-fat" in reference to total recommended dietary fat intake does not appear in the association's 2006 recommendations or 2013 guidelines.

The AHA's most recent comprehensive dietary guidance was issued in November 2013 and recognizes that the overall dietary pattern is more important than individual foods. The recommended dietary pattern emphasizes fruits, vegetables, and whole grains, while including low-fat dairy products, poultry, fish, legumes, non-tropical vegetable oils and nuts, and limiting red meat, sweets, sodium, and sugar-sweetened beverages. It is low in saturated and *trans* fats, with an emphasis on incorporating unsaturated fats.

Introduction

The American Heart Association (AHA) is passionately committed to its mission of building healthier lives, free of cardiovascular diseases and stroke. Part of carrying out this mission has been to ensure that scientific findings are quickly and accurately translated to the public, health professionals, policy makers, and other stakeholders.

For more than 50 years the AHA has issued and updated science-based statements about controlling risk factors for cardiovascular diseases. This white paper highlights the evolution of the recommendations for dietary fat intake over that time, showing the organization's devotion to scientific evidence and its consistency over the years. This history is important because the issue of dietary fat intake – and why it should or should not be reconsidered – is an area of keen interest among consumers, health professionals, and the media. As a topic of much discussion and often controversy, it's important for health professionals to understand the reasoning behind the American Heart Association's recommendations and to have the ability to easily and simply share them with patients/clients.

The association's current recommendations support moderate-fat diets low in saturated and *trans* fats, with an emphasis on incorporating unsaturated fats. All things considered, that's not far from one of the AHA's early recommendations, in 1961, which stated, "the reduction or control of fat consumption under medical supervision, with reasonable substitution of poly-unsaturated for saturated fats, is recommended as a possible means of preventing atherosclerosis and decreasing the risk of heart attacks and strokes."¹

The first dietary recommendations stem from the 1954 creation of the organization's first Nutrition Committee, composed of leading academic researchers and clinicians to make dietary recommendations to reduce heart disease risk. Nutrition Committees have updated these recommendations since then. All of these recommendations are anchored in science, which has been the foundation of the American Heart Association's work since the organization was founded by six cardiologists in 1924.

Scientific Methodology of Dietary Fat Recommendations

A serious discussion of dietary fat recommendations should include the important detail of how researchers study the relationship between saturated fats and heart disease. As a science-based organization, the American Heart Association understands there is room for disagreement among experts and researchers. The methodology is a major sticking point in discussions of how much dietary fat people should consume. There are several types of study designs to assess the relationship. These studies

¹ Dietary fat and its relation to heart attacks and strokes: Report by the Central Committee for Medical and Community Program of the AHA. Page, Irvin H.; Allen, Edgar V.; Chamberlain, Francis L.; Keys, Ancel; Stamler, Jeremiah; Stare, Frederick J. *Circulation* Vol. 23, January 1961

have strengths and limitations; some can demonstrate only correlations, whereas others are better suited to determine causation.

Many of the claims that question recommendations to reduce dietary saturated fats rely on analyses that have not taken the replacement nutrient into consideration. When dietary saturated fat is decreased, another dietary component is increased. Data have consistently demonstrated that the replacement nutrient can have a profound effect on the outcomes measured. For the most part, replacement of dietary saturated fat with polyunsaturated fat has been shown to have a beneficial effect on CHD risk and LDL-C concentrations. Replacement of dietary saturated fat with carbohydrate has been shown to have lesser effect.

Many who question recommendations to reduce dietary saturated fats rely on studies that the American Heart Association and other organizations believe are limited and therefore less reliable. For example, some claims that saturated fat should not be reduced rely on randomized controlled trials, also known as RCTs. One problem with RCTs to study the diet is that there are challenges with dietary adherence in outpatient intervention trials. Furthermore, many of these studies follow subjects for a limited time period and evaluate only CVD risk factors and not CVD events. However, since the processes underlying atherosclerosis and acute coronary events can take decades to develop, short-term RCTs provide limited insight about event outcomes. As a result, these short-term RCTs may not show a significant effect of saturated fat on CVD-related morbidity and mortality during the study period.

Other studies that question saturated fat recommendations rely on information gathered through self-reporting. Many of the studies rely on study participants' responses to food frequency questionnaires which attempt to capture long-term dietary intake. These studies often do not use any other means of confirming how accurately the self-report reflects actual intake. In addition, using self-reported measures of long-term dietary intake, it is difficult to capture changes in nutrient intake based on changes in the food supply, such as shifts in availability of *trans* fat and omega-3 fatty acids in the food supply. The most reliable research involves scientists feeding study participants controlled diets and monitoring their meals. Those studies are considered the gold standard for dietary studies because the dietary intake data can be independently verified. Controlled diet studies have consistently shown firm evidence linking diets higher in saturated fat and CHD.

The American Heart Association's guidance on saturated fats is based on the best available clinical research. That research clearly demonstrates that increased dietary saturated fat increases LDL ("bad") cholesterol, a well-documented, major risk factor for heart disease. This finding has been upheld by a preponderance of studies done over many years by many scientists, using the best tools and the most meticulous methods available: studying what people ate, in some cases by providing their food,

measuring changes in specific risk factors for heart disease, and in some studies monitoring their health over years.^{2,3}

The American Heart Association believes that dietary recommendations should be based on studies that use the most methodologically-sound science, and put less weight on less-reliable methodology. A number of national and international organizations have independently concluded from this evidence base that a healthy diet should limit saturated fats, including the World Health Organization, the United States government, the Institute of Medicine and the European Food Safety Authority.

AHA Dietary Fat Recommendations over the Years

The fields of nutrition science and research methodology that evaluate the impact of diet on health have made significant advances since the 1960s. These advances have provided the opportunity to continuously update dietary recommendations to reflect the latest evidence available.

The AHA dietary recommendations have evolved from focusing on the high-risk individuals in the population to preventive strategies for the whole population. A person with a medical condition or with special dietary needs should always consult with their health professional regarding their optimal dietary pattern.

Fats from meat, poultry, fish, dairy, vegetables, grains, nuts, seeds and legumes all contain a mixture of saturated, monounsaturated and polyunsaturated fatty acids but the proportions vary greatly among these foods and even within them. Over the past 50 years, dietary fat recommendations have evolved to become more specific regarding recommended proportions of fats in a diet to reduce cardiovascular risk.

The figure and text below summarize how AHA dietary fat recommendations have evolved over the past several decades. The figure also provides Dietary Guidelines for Americans fat recommendations. On the whole, dietary fat recommendations have shifted from total fat to type of fat. Recommendations about total dietary fats have transitioned from quantitative guidance about recommended consumption amounts to food-based recommendations for healthy dietary patterns. The recommendation to reduce dietary saturated fats from current intake levels has been consistent over time.

² World Health Organization. 2013. Global action plan for prevention and control of noncommunicable diseases 2013-2020. Geneva, Switzerland: WHO Document Production Services.

http://apps.who.int/iris/bitstream/10665/94384/1/9789241506236_eng.pdf?ua=1&ua=1

³ Dietary Guidelines Advisory Committee. Scientific Report of the 2015 Dietary Guidelines Advisory Committee. Advisory Report to the Secretary of Health and Human Services and the Secretary of Agriculture. February 2015. <http://www.health.gov/dietaryguidelines/2015-scientific-report/PDFs/Scientific-Report-of-the-2015-Dietary-Guidelines-Advisory-Committee.pdf>

Dietary Fat Recommendations 1957–2015

Focus shifts from total fat to type of fat.

American Heart Association		Dietary Guidelines for Americans
1957: <ul style="list-style-type: none"> • 25-30% of calories from total fat. • “The possibility remains that the kind, rather than the amount of fat in the diet is responsible for atherosclerosis.” 	1950	
1961: <ul style="list-style-type: none"> • 25-35% of calories from total fat. • Substitute vegetable oils and PUFA for SFA. 1965: <ul style="list-style-type: none"> • Eat less SFA. • Increase intake of unsaturated vegetable oils and other PUFA, substituting them for SFA wherever possible. 1968: <ul style="list-style-type: none"> • Decrease SFA, increase PUFA. • <40% of calories from total fat. • “PUFA should probably comprise twice the quantity of SFA.” 	1960	
1973: <ul style="list-style-type: none"> • ≤35% calories from total fat. • Of that 35%, ≤10% from SFA, ≤10% from PUFA, remainder from MUFA. • “...fat calories should be distributed throughout each day...a massive high saturated fat meal is inappropriate at any time.” 1978: <ul style="list-style-type: none"> • 30-35% of calories from total fat. • <10% from SFA, ≤10% from PUFA, remainder from MUFA. 	1970	
1982, 1986, 1988: <ul style="list-style-type: none"> • <30% of calories from total fat (1982: 30-35%). • <10% of calories from SFA. • ≤10% of calories from PUFA. 	1980	1980 (inaugural edition of DGA), 1985: <ul style="list-style-type: none"> • Avoid too much total fat and SFA.
1993: <ul style="list-style-type: none"> • <30% of calories from total fat. • <10% of calories from SFA • ≤10% of calories from PUFA. • Widespread consumption of very-low-fat diets not justified by current evidence. 1996: <ul style="list-style-type: none"> • <30% of calories from total fat. • 8-10% of calories from SFA. • ≤10% of calories from PUFA. • ≤15% of calories from MUFA. 	1990	1990, 1995 <ul style="list-style-type: none"> • Select a diet low in total fat and SFA. • ≤30% of calories from total fat. • ≤10% calories from SFA.
2000: <ul style="list-style-type: none"> • ≤30% of calories from total fat. • <10% of calories from SFA. • Limit intake of TFA. • Very-low-fat (<15% of calories) diets not recommended for the general population. 2006: <ul style="list-style-type: none"> • 25-35% of calories from fat is appropriate in a healthy dietary pattern. • <7% of calories from SFA. Replace with MUFA & PUFA. • <1% of calories from TFA. 	2000	2000: <ul style="list-style-type: none"> • Choose a diet low in SFA and moderate in total fat. • ≤30% of calories from total fat. • <10% of calories from SFA. • TFA as low as possible. 2005: <ul style="list-style-type: none"> • 20-35% of calories from total fat, with most fats coming from PUFA & MUFA oils. • <10% of calories from SFA. • TFA as low as possible. • Limit intake of fats & oils high in SFA & TFA, and choose products low in such fats & oils.
2013: <ul style="list-style-type: none"> • Advise adults who would benefit from lowering LDL cholesterol to aim for a healthy dietary pattern* that achieves 5-6% of calories from SFA. Replace with MUFA & PUFA. • Reduce % of calories from TFA. 	2010	2010: <ul style="list-style-type: none"> • 20–35% of calories from total fat, with most coming from PUFA & MUFA. • <10% of calories from SFA. Replace them with MUFA & PUFA. • TFA as low as possible. 2015 Dietary Guidelines Advisory Committee report: <ul style="list-style-type: none"> • <10% of calories from SFA. Replace with unsaturated fat, particularly PUFA. • Partially hydrogenated oils containing TFA should be avoided.

*A healthy dietary pattern emphasizes intake of vegetables, fruits, and whole grains; includes low-fat dairy products, poultry, fish, legumes, non-tropical vegetable oils, and nuts; and limits intake of sweets, sugar-sweetened beverages, and red meats.

Notes:

- SFA = Saturated Fatty Acids, TFA = Trans Fatty Acids, MUFA = Monounsaturated Fatty Acids, PUFA = Polyunsaturated Fatty Acids
- Many of these recommendations include dietary cholesterol targets, but for the purposes of this paper, these are not included.
- References for the guidelines/recommendations in this figure are at the end of the document

1960s

Achieving long-term calorie balance in order to achieve a healthy body weight has been at the forefront of the association's dietary recommendations since the 1960s. In the 1960s, about 40% to 45% of the calories in the American diet were from fat.⁴ Because fat provides more than twice the calories per gram as carbohydrate and protein, reducing calories from dietary fat can have a bigger impact on reducing total calorie intake than reducing calories from protein or carbohydrates. In 1965, a key strategy recommended by the AHA to reduce heart disease was to reduce saturated fats and increase polyunsaturated fats by eating less animal fat and increasing intake of unsaturated vegetable oils and other polyunsaturated fats.⁵

1970s

The 1970s brought large lifestyle changes and shifts in family life for many Americans. These changes can be seen in food choices and dietary habits since this time as consumption of packaged foods, snacks, and food and beverages prepared outside of the home increased. This increase was paralleled by an increase in consumers' share of food spending on food away from home, a trend that has continued to the present.⁶ Foods away from home tend to be less nutritious and have higher calories than food prepared at home.⁷ These changes increased the calories from fat in the diet. In 1973, the AHA recommended that Americans should reduce total fat from 40-45% of calories that was common at the time to no more than 35% of calories from fat and limit saturated fat to no more than 10% of calories.⁸ In 1978, a limit of 30-35% of calories from total fat and less than 10% of calories from saturated fat was recommended.⁹ The Association continued to recommend $\leq 10\%$ of calories from polyunsaturated fats.

⁴ Food and nutrient intake of individuals in the United States. Household food consumption survey 1965-1966.

http://www.ars.usda.gov/SP2UserFiles/Place/80400530/pdf/6566/hfcs6566_rep_11.pdf (page 13)

⁵ Diet and Heart Disease: Report of the Committee on Nutrition authorized by the Central Committee for Medical and Community Program of the AHA. American Heart Association, 1965.

⁶ U.S. Department of Agriculture, Economic Research Service. 2014. [Food away from home as a share of food expenditures \(Table 10\)](http://www.ers.usda.gov/data-products/food-expenditures.aspx). <http://www.ers.usda.gov/data-products/food-expenditures.aspx>.

⁷ Lin, Biing-Hwan, and Joanne Guthrie. Nutritional Quality of Food Prepared at Home and Away From Home, 1977-2008, EIB-105, U.S. Department of Agriculture, Economic Research Service, December 2012. <http://www.ers.usda.gov/media/977761/eib-105.pdf>

⁸ American Heart Association. Diet and Coronary Heart Disease. Dallas, Texas: 1973.

⁹ Diet and Coronary Heart Disease: Statement for Physicians and other Health Professionals prepared by the Nutrition Committee of the Steering Community for Medical and Community Programs of the AHA. Bierman, Edwin L.; Corwin, Robert D.; Farquahar, John W.; Geer, Jack C.; Glueck, Charles D.; Grundy, Scott M.; Insall, William; Kuller, Lewis J. American Heart Association 1978.

1980s

In the 1980's, AHA again reviewed the science and revised its recommendation to limit fat to less than 30% of calories and reduce saturated fat to less than 10% of calories. The Association continued to recommend $\leq 10\%$ of calories from polyunsaturated fats.

1990s

In the 1990s, the AHA supported an upper limit of 30% of calories from fat with less than 10% of calories from saturated fat and $\leq 10\%$ of calories from polyunsaturated fats. Responding to consumer interest in reducing dietary fat, food manufacturers started developing low- and reduced fat alternatives for many products. Not all of these products had a significant calorie reduction; in many cases fat was replaced with refined sugars and fat substitutes¹⁰. (In 2002, the AHA advised that when incorporating products containing fat substitutes in the diet, it is important to balance the calories and assure that these products do not displace nutrient-rich foods.¹¹)

The association discouraged very low-fat diets (e.g. 15% of calories from fat) for the general population on the basis of RCT evidence showing that weight loss on these diets is not sustained.¹² There was also concern about nutrient inadequacies if very low-fat diets were followed over the long-term, and some had been associated with exacerbating lipid and metabolic abnormalities.¹³

2000+

To engage with people earlier in life to make dietary changes that reduce risk of CVD, the association published dietary recommendations for children and adolescents in 2005.¹⁴ The association continued to provide food-based recommendations and diet and lifestyle goals for CVD, and recommendations for strategies to increase consumer awareness of the calorie content of their food and beverage choices.¹⁵

¹⁰ Oboxy, M. 2003. American pop culture through history: the 1990s. Greenwood, CN: Westport Press.

https://books.google.com/books?id=vCgM4VYsph8C&printsec=frontcover&vq=fat+free+foods+1990&source=gbp_ge_summary_r&cad=0#v=onepage&q=fat%20free%20foods%201990&f=false

¹¹ Wylie-Rosett J. Fat Substitutes and Health: An Advisory From the Nutrition Committee of the American Heart Association. *Circulation* 2002; 105:2800–2804.

¹² Krauss RM, Eckel RH, Howard B, et al. AHA Dietary Guidelines: Revision 2000: A Statement for Healthcare Professionals From the Nutrition Committee of the American Heart Association. *Circulation*. 2000;102(18):2284-2299.

¹³ Lichtenstein AH, Van Horn L. AHA Science Advisory: Very low fat diets. *Circulation*. 1998 Sep 1;98(9):935-9.

¹⁴ Gidding SS, Dennison B a, Birch LL, et al. Dietary recommendations for children and adolescents: a guide for practitioners: consensus statement from the American Heart Association. *Circulation* 2005; 112:2061–75.

¹⁵ Krauss RM, Eckel RH, Howard B, et al. AHA Dietary Guidelines: Revision 2000: A Statement for Healthcare Professionals From the Nutrition Committee of the American Heart Association. *Circulation*. 2000;102(18):2284-2299.

Additionally, food choices and dietary habits are influenced by many factors every day, so the 2006 recommendations included recommendations for restaurants, the food industry, retailers, schools and local and national policy makers and health care professionals to help them provide an environment that supports heart healthy eating.¹⁶

2006 Diet and Lifestyle Recommendations

In the 2000s, AHA's recommendations emphasized core elements of population-wide recommendations for cardiovascular disease prevention and treatment and provided a role of health care professionals to educate Americans about diet's role in CVD in a clinical setting. The revised focus was on promotion of cardiovascular health (CVH) and prevention of CVD with recognition of the role of the environment and community settings to influence food choices. The 2006 recommendations are for the population ages 2 and older and include diet and lifestyle recommendations to reduce CVD risk, including:

- Balance calorie intake and physical activity to achieve or maintain a healthy body weight.
- Consume a diet rich in vegetables and fruits.
- Choose whole-grain, high-fiber foods.
- Consume fish, especially oily fish, at least twice a week.
- Limit your intake of saturated fat to <7% of energy, *trans* fat to <1% of energy, and cholesterol to <300 mg per day by
 - Choosing lean meats and vegetable alternatives;
 - Selecting fat-free (skim), 1%-fat, and low-fat dairy products; and
 - Minimizing intake of partially hydrogenated fats.
- Minimize your intake of beverages and foods with added sugars
- Choose and prepare foods with little or no salt.
- If you consume alcohol, do so in moderation.

2013 AHA/ACC Guideline on Lifestyle Management to Reduce Cardiovascular Risk

As of Spring 2015, the most recent comprehensive dietary guidance from the American Heart Association was issued in November 2013 as part of a joint clinical practice guideline from the AHA and the American College of Cardiology.¹⁷ The Guideline on Lifestyle Management to Reduce Cardiovascular Risk recognized an overall heart-healthy diet and physical activity as critical elements for preventing cardiovascular disease and lowering blood pressure and cholesterol. The guideline is intended for primary healthcare providers, cardiologists, and all providers working with patients to prevent CVD. It is based on a systematic evidence review of research published between 1990 and 2012 that summarizes key nutrition and physical activity topics for the management of blood pressure and blood cholesterol in adults. Nine independent scientific organizations endorsed the conclusions of these guidelines.

¹⁶ Lichtenstein AH, Appel LJ, Brands M, et al. Diet and lifestyle recommendations revision 2006: a scientific statement from the American Heart Association Nutrition Committee. *Circulation*. 2006;114(1):82-96.

¹⁷ Eckel RH, Jakicic JM, Ard JD, et al. 2013 AHA/ACC guideline on lifestyle management to reduce cardiovascular risk: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *Circulation*. 2014;129(25 Suppl 2):S76-99.

The heart-healthy diet recommended in the guideline emphasizes fruits, vegetables, and whole grains, while including low-fat dairy products, poultry, fish, legumes, non-tropical vegetable oils and nuts, and limiting red meat, sweets, sodium, and sugar-sweetened beverages. It recognizes that the overall dietary pattern is more important than individual foods. The dietary pattern should be adapted to appropriate calorie requirements, personal and cultural food preferences, and nutrition therapy for other medical conditions.

For example, based on a 2,000 calorie per day diet, a heart-healthy eating pattern that is consistent with a DASH (Dietary Approaches to Stop Hypertension)-type eating plan could include:

- Fruits: 4-5 servings a day
- Vegetables: 4-5 servings a day
- Whole grains, preferably high fiber: 6-8 servings a day
- Fat-free or low-fat milk and milk products: 2-3 servings a day
- Lean meats, poultry and fish: 6 or fewer ounces a day
- Nuts, legumes and seeds: 4-5 servings a week
- Fats and oils: 2-3 servings of healthy oils per day, limit *trans* and saturated fat
- Limit sweets, sodium, and added sugars

Following a dietary pattern such as this will help individuals limit their saturated fat and *trans* fat intake to recommended levels without counting grams and ensure adequate nutrient intake. For adults who would benefit from lowering LDL cholesterol, the association recommends limiting saturated fat to 5-6% of calories.

Contrary to what has been reported in the media and likely perceived by many health care professionals and consumers, the American Heart Association does not advise a low-fat diet for optimal heart health. In fact, the term “low-fat” in reference to total recommended dietary fat intake does not appear in the association’s 2006 recommendations or 2013 guidelines.

Beyond the AHA: The Basis for 20-35% Total Calories from Fat

In 2002, the Institute of Medicine of the National Academies issued an Acceptable Macronutrient Distribution Range (AMDR) for fats in the Dietary Reference Intakes (DRI) for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids Report.¹⁸ The range of 20-35% of calories from fat (for adults ages 19+) was based on: 1) intakes that are associated with reduced risk of chronic diseases; 2) intakes at which essential dietary nutrients can be consumed at sufficient levels; and 3) intakes based on adequate energy intake and physical activity to maintain energy balance. This range was derived from a large body of evidence from intervention trials as well as epidemiological studies. This range has served as basis for many other dietary fat

¹⁸ National Research Council. Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids (Macronutrients). Washington, DC: The National Academies Press, 2002. <https://www.iom.edu/Reports/2002/Dietary-Reference-Intakes-for-Energy-Carbohydrate-Fiber-Fat-Fatty-Acids-Cholesterol-Protein-and-Amino-Acids.aspx>

recommendations issued by scientific, public health, and health professional organizations.

The same DRI publication also issued recommendations for saturated fat intake. Saturated fatty acids have physiologic and structural functions and our bodies produce them in adequate amounts to meet these needs. Because they have no known role in preventing chronic disease, there is not an Adequate Intake or Recommended Dietary Allowance for these fats. In addition, there is a positive linear relationship between saturated fat intake and LDL cholesterol, which increases risk of CHD. Thus, increasing saturated fat intake increases CHD risk. However, it is not feasible or even recommended to achieve 0% of energy from saturated fats because all dietary fats contain mixtures of fatty acids. Of note is that some fats, principally liquid vegetable oils, are low in saturated fats and high in healthy unsaturated fats. This is why current dietary guidance recommends replacing food sources of saturated fat with foods containing unsaturated fat.

Summary

At the American Heart Association, everything is based on science. The science world is full of ongoing debates, but the friction that sometimes arises in search of the truth generally advances scientific knowledge. The organization examines the evidence that comes from research studies and uses it to provide advice to help people get healthier and prevent heart disease and stroke.

The American Heart Association makes dietary recommendations only after carefully considering the totality of scientific evidence, including studies of greater and lesser strength and some with conflicting results. When you hear about the latest diet or a new or odd-sounding theory about food, consider the source. Not every source of published or printed nutrition advice conducts the same review of the evidence. Misrepresentation of scientific evidence is contrary to the mission of the American Heart Association and poses a very real risk to the health of the public.

The American Heart Association's mission is building healthier lives, free of cardiovascular diseases and stroke. A major component of that mission is helping people understand the importance of healthy lifestyle choices, including how much and which dietary fat to consume. The science linking saturated fats to heart disease is sound.

Appendices

Appendix 1

Dietary Guidance Recommending Less Saturated Fats

Appendix 2

“FATS: The Good, the Bad and the Ugly” Infographic

Appendix 3

Frequently Asked Questions About Saturated Fats

Appendix 1 Dietary Guidance Recommending Lowering Saturated Fat Intake

Organization and Document	Recommendation
Institute of Medicine of the National Academy of Sciences, DRI Report for Macronutrients, 2002	Minimize intake while consuming a nutritionally adequate diet*
Dietary Guidelines for Americans, 2015	To be released in late 2015 or early 2016
Dietary Guidelines Advisory Committee, 2015	Less than 10% of calories Replace with unsaturated fats, particularly polyunsaturated fatty acids
American Heart Association/American College of Cardiology Guideline on Lifestyle Management to Reduce Cardiovascular Risk, 2013	Advise adults who would benefit from lowering LDL cholesterol to: Consume a dietary pattern that emphasizes intake of vegetables, fruits, and whole grains; includes low-fat dairy products, poultry, fish, legumes, non-tropical vegetable oils, and nuts; and limits intake of sweets, sugar-sweetened beverages, and red meats. Aim for a dietary pattern that achieves 5%–6% of calories from saturated fat, and reduce percent of calories from <i>trans</i> fat.

*It is neither possible nor advisable to achieve 0% energy from saturated fat in typical whole food diets.

Appendix 2 “Fats: The Good, the Bad & the Ugly” Infographic

Appendix 3 Frequently Asked Questions about Saturated Fats

Q: There's a lot of conflicting information about saturated fats. Should I eat them or not?

A: The American Heart Association recommends limiting saturated fats – which are found in butter, cheese, full-fat dairy products, red meat, especially fatty red meat, and other animal-based foods. Decades of sound science has proven it can raise your “bad” cholesterol and put you at higher risk for heart disease.

Remember that it is overall dietary pattern that affects CVD risk. Saturated fats are one component of the diet. In general, you can't go wrong eating more fruits, vegetables, whole grains and fewer calories.

When you hear about the latest “diet of the day” or a new or odd-sounding theory about food, consider the source. The American Heart Association makes dietary recommendations only after carefully considering the latest scientific evidence.

Q: How do we know saturated fats can lead to heart disease?

A: Scientifically sound research dating to the 1950s has proven the link between saturated fats and LDL-cholesterol, which is a major risk factor for heart disease. This body of evidence comes from the most rigorous kind of dietary studies that precisely measure what people eat.

Significant science on the subject was released as recently as November 2013. That is when the American Heart Association and American College of Cardiology issued [new diet and lifestyle guidelines](#) that recommended aiming for a healthy dietary pattern (emphasizing intake of vegetables, fruits, and whole grains; including low-fat dairy products, poultry, fish, legumes, non-tropical vegetable oils, and nuts; and limiting intake of sweets, sugar-sweetened beverages, and red meats) that limits saturated fat to 5-6 percent of total calories and reduces calories from *trans* fat. The guidelines were developed by some of the nation's top scientists, who for five years studied existing research to help healthcare professionals treat their patients.

Q: A recent study said saturated fat and heart disease may not be so closely related. Is this study wrong?

A: A report appeared in the *Annals of Internal Medicine* that raised questions about the saturated fat-heart disease link. However, that report has been heavily criticized by experts in the scientific community and the authors have issued several corrections and explanations.

Technically, the report evaluated 20 previously published studies and concluded that evidence does not support guidelines that encourage low intake of saturated fatty acids. Critics of the report also say the authors misinterpreted the conclusions of several studies. Importantly, there have been other population-based studies that have reported similar findings about saturated fat and they all suffer from the same serious limitations. Specifically, the dietary data collected in these studies are not precise. These mistaken conclusions are odds with an impressive data base of

carefully controlled clinical studies that consistently show that saturated fat raises LDL-cholesterol.

The American Heart Association isn't the only leading health organization to find a definitive link between saturated fats and heart disease. Eleven authoritative bodies – including the World Health Organization; the Institute of Medicine; the governments of the United States, the United Kingdom; and the European Union – independently reviewed the scientific evidence and concluded yet again that saturated fat is associated with heart disease.

Q: Does cutting back on fats lead to obesity because people eat more carbohydrates instead?

A: The obesity epidemic is caused by people eating more calories than they need, but many factors contribute to this problem.

As for cutting out fat, *how* people replace those calories is the key factor. It's healthy to replace saturated fats with whole grain foods and healthier monounsaturated and polyunsaturated fats. However, some people cut saturated fat and replace it with refined carbohydrates such as sugary cakes, cookies and beverages. And that can contribute to obesity. (Currently two of every three adults in the U.S. are obese or overweight.) Research shows that a diet rich in refined, simple carbohydrates is equally if not more detrimental to health than a fatty diet.

Q: Is all fat bad for you? Is it good to limit every kind of fat?

A: Not all fats are created equal. Saturated fats increase risk for heart disease, but that's not the case with unsaturated fats known as monounsaturated and polyunsaturated fats. These fats are found in fish, nuts, seeds and non-tropical liquid vegetable oils.

It's important to remember that unsaturated fats do contain calories. Too many calories can lead to weight gain. Still, unsaturated fats are generally better. Recent studies concluded that people who ate more omega-3 polyunsaturated fats, the type found in oily fish, had lower chances of non-alcoholic fatty liver disease, a growing problem associated with the overweight/obesity epidemic. That condition can lead to cirrhosis. Diets rich in monounsaturated fats also have been found to reduce risk of gallstones.

Q: Does the American Heart Association recommend a low-fat diet?

A: No. The American Heart Association recommends a healthy dietary pattern which focuses on fruits, vegetables, whole grains, poultry, fish, nuts, and other nutritious foods. Saturated and *trans* fats should be replaced with healthier fats, such as poly and mono-unsaturated fats.

Q: What are the American Heart Association Dietary Recommendations?

A: The recommendations developed by the American Heart Association are based on the latest scientific evidence, and are shown to reduce the risk for heart disease, stroke and other health problems. Take a closer look at the [Diet and Lifestyle Recommendations](#).

Q: What about *trans* fats?

A: Many Americans grew up eating foods containing *trans* fat without knowing it. Before *trans* fat was added to Nutrition Facts label in 2006, you could only recognize it on the list of ingredients as “partially hydrogenated oil.”

However, we now know that *trans* fat is harmful to our health. The American Heart Association was the first major health organization to specify a daily limit (in 2006): Less than 1 percent of calories from *trans* fat, and has been at the forefront of helping bring *trans*-fat consumption down in the United States. The association’s 2013 guidelines recommend keeping *trans* fats as low as possible. There has been remarkable progress in lowering *trans* fat in the food supply; however, there are still some foods that contain *trans* fats. Be sure to check the Nutrition Facts label and ingredient list and select those foods that do not contain partially hydrogenated oils or *trans* fat.

Trans fats will continue to decline in the food supply following a final determination from the Food and Drug Administration (FDA) in June 2015 that partially hydrogenated oils (PHOs), the primary dietary source of artificial *trans* fats in processed foods, are no longer “generally recognized as safe” for use in human food. Food manufacturers will have three years to remove PHOs from products. Following the three-year compliance period, no PHOs can be added to human food unless food companies petition the FDA to allow specific uses of PHOs and receive approval.¹⁹

¹⁹ FDA News Release, June 15, 2015.
<http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm451237.htm>

References for Figure 1, in chronological order of publication:

American Heart Association:

- 1957: Page IH, Stare FJ, Corcoran AC, et al. Atherosclerosis and the Fat Content of the Diet: Report to the AHA and to the American Society for the Study of Arteriosclerosis the Nutrition Committee of the Council on Community Service and Education of the AHA and others. *Circulation*. 1957;16(2):163-178.
- 1961: Dietary fat and its relation to heart attacks and strokes: Report by the Central Committee for Medical and Community Program of the AHA. Page, Irvin H.; Allen, Edgar V.; Chamberlain, Francis L.; Keys, Ancel; Stamler, Jeremiah; Stare, Frederick J. *Circulation* Vol. 23, January 1961
- 1965: Diet and Heart Disease: Report of the Committee on Nutrition authorized by the Central Committee for Medical and Community Program of the AHA. American Heart Association, 1965.
- 1968: Diet and Heart Disease: Statement developed by the Committee on Nutrition and authorized for release by the Central Committee for Medical and Community Program of the AHA. American Heart Association, 1968.
- 1973: Diet and Coronary Heart Disease. Statement for Physicians and Other Health Professionals Developed by the Committee for Nutrition and authorized for release by the Central Committee for Medical and Community Program of the American Heart Association, 1973.
- 1978: Diet and Coronary Heart Disease: Statement for Physicians and other Health Professionals prepared by the Nutrition Committee of the Steering Community for Medical and Community Programs of the AHA. Bierman, Edwin L.; Corwin, Robert D.; Farquahar, John W.; Geer, Jack C.; Glueck, Charles D.; Grundy, Scott M.; Insall, William; Kuller, Lewis J. American Heart Association 1978.
- 1982: Rationale of the Diet-Heart Statement of the American Heart Association: Report of the Nutrition Committee. Grundy, Scott M.; Bilheimer, David; Blackburn, Henry; Brown, W.V.; Kwiterovich, Peter O.; Mattson, Fred; Schoenfeld, Gustav; Weidman, William H. *Circulation* Vol 65(4), 1982.
- 1986: Dietary Guidelines for Healthy American Adults: A Statement for Physicians and Health Professionals by the Nutrition Committee, American Heart Association, *Circulation* 71(3), 1986.
- 1988: Dietary Guidelines for Healthy American Adults: A Statement for Physicians and Health Professionals by the Nutrition Committee, American Heart Association. *Circulation* 77(3), 1988.
- 1993: Dietary Guidelines for Healthy American Adults: A Statement for Physicians and Health Professionals by the Nutrition Committee, American Heart Association, 1988. Rationale of the diet-heart statement of the American Heart Association. Report of the Nutrition Committee. A Chait, J D Brunzell, M A Denke, D Eisenberg, N D Ernst, F A Franklin, Jr, H Ginsberg, T A Kotchen, L Kuller and R M Mullis. *Circulation*. 1993;88:3008-3029

- 1996: Krauss RM, Deckelbaum RJ, Ernst N, et al. Dietary guidelines for healthy American adults: a statement for health professionals from the Nutrition Committee, American Heart Association. *Circulation*. 1996;94:1795–1800.
- 2000: Krauss RM, Eckel RH, Howard B, et al. AHA Dietary Guidelines: Revision 2000: A Statement for Healthcare Professionals From the Nutrition Committee of the American Heart Association. *Circulation*. 2000;102(18):2284-2299.
- 2006: Lichtenstein AH, Appel LJ, Brands M, et al. Diet and lifestyle recommendations revision 2006: a scientific statement from the American Heart Association Nutrition Committee. *Circulation*. 2006;114(1):82-96.
- 2013: Eckel RH, Jakicic JM, Ard JD, et al. 2013 AHA/ACC guideline on lifestyle management to reduce cardiovascular risk: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *Circulation*. 2014;129(25 Suppl 2):S76-99.

Dietary Guidelines for Americans:

- USDA/HHS. 1980. Dietary guidelines for Americans. 1st ed. Washington, DC: U.S. Government Printing Office.
- USDA/HHS. 1985. Dietary guidelines for Americans. 2nd ed. Washington, DC: U.S. Government Printing Office.
- USDA/HHS. 1990. Dietary guidelines for Americans. 3rd ed. Washington, DC: U.S. Government Printing Office.
- USDA/HHS. 1995. Dietary guidelines for Americans. 4th ed. Washington, DC: U.S. Government Printing Office.
- U.S. Department of Health and Human Services and U.S. Department of Agriculture. Dietary Guidelines for Americans, 2000. 5th Edition, Washington, DC: U.S. Government Printing Office.
- U.S. Department of Health and Human Services and U.S. Department of Agriculture. Dietary Guidelines for Americans, 2005. 6th Edition, Washington, DC: U.S. Government Printing Office, January 2005.
- U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2010. 7th Edition, Washington, DC: U.S. Government Printing Office, December 2010.
- Scientific Report of the 2015 Dietary Guidelines Advisory Committee: Advisory Report to the Secretary of Health and Human Services and the Secretary of Agriculture. February 2015.