Saturated fat and Cardiovascular Disease: *What is the Evidence?*

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- Trauma Team Leader, Medical Response Team Physician, and Cardiac Surgery ICU Physician Kingston Health Sciences Centre, Kingston, Ontario
- ICU Physician, General Surgeon, and Physician Stroke Champion Quinte Health Care, Belleville, Ontario,
- Investigating Coroner, Kingston Area,

Presenter Disclosure

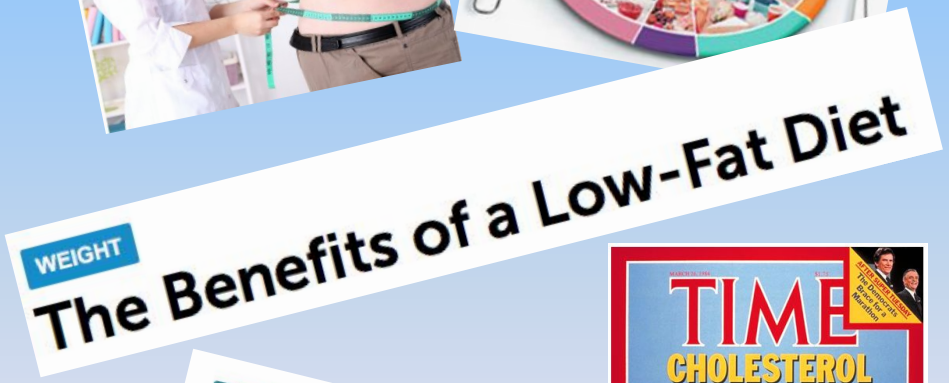
Faculty: Andrew Samis MD PhD

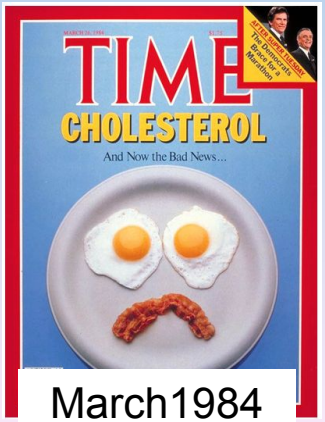
Relationships with Commercial Interests:

- **Grants/Research Support**: I have received no financial support from for research from a commercial interest. All research support from non biased sources (Canadian Institutes of Health Research, PSI Foundation) for research in areas unrelated to topics in this talk
- **Speakers Honoraria**: I have received speaking honoraria or gifts from the Heart and Stroke Foundation, the Lung Association, the Dairy Farmers of Canada, Dairy Farmers of Ontario, Ontario Pork, Alberta Milk, and the Family Medicine Forum
- I have no financial relationship with a manufacturer of any product or class of products discussed in this presentation, as well as with the commercial supporters

FAT

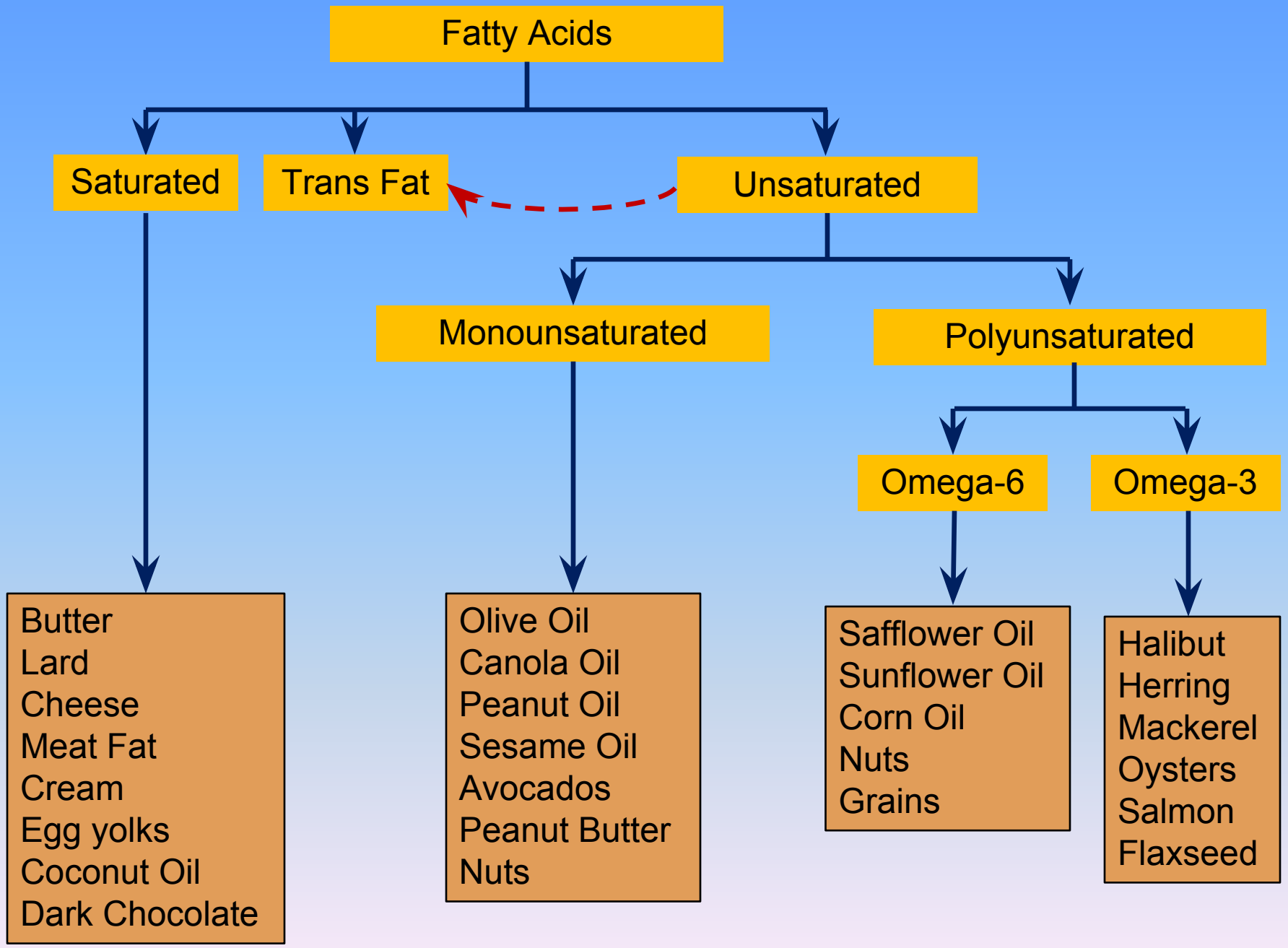
Confusion



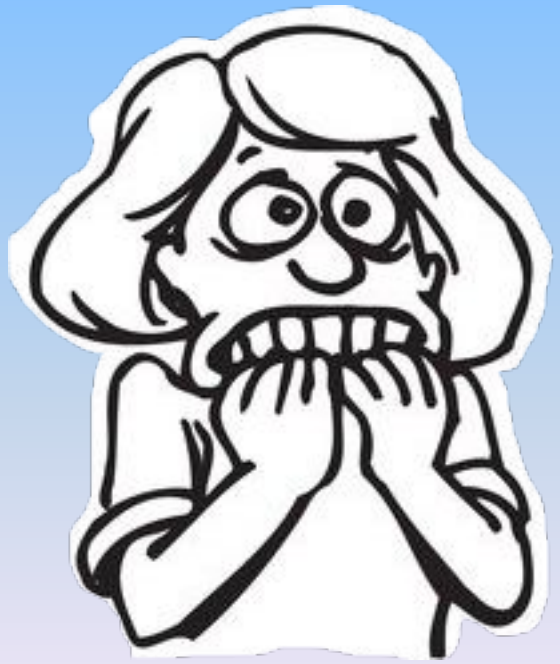


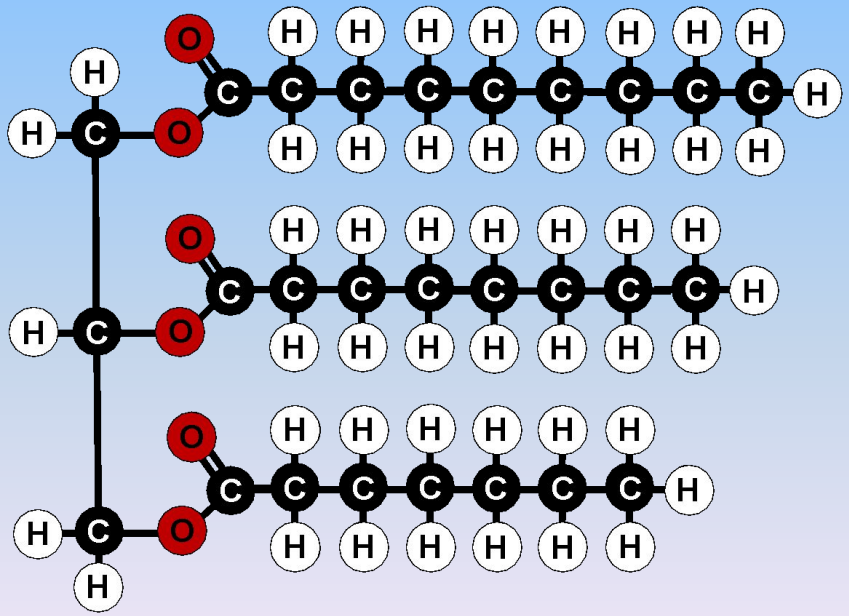
March1984

June 2014


Fatty Acids
Saturated
Trans Fat
Unsaturated
Monounsaturated
Polyunsaturated
Omega-6
Omega-3
Butter
Lard
Cheese
Meat Fat
Cream
Egg yolks
Coconut Oil
Dark Chocolate
Olive Oil
Canola Oil
Peanut Oil
Sesame Oil
Avocados
Peanut Butter
Nuts
Safflower Oil
Sunflower Oil
Corn Oil
Nuts
Grains
Halibut
Herring
Mackerel
Oysters
Salmon
Flaxseed

The History of the Vilification of Fat

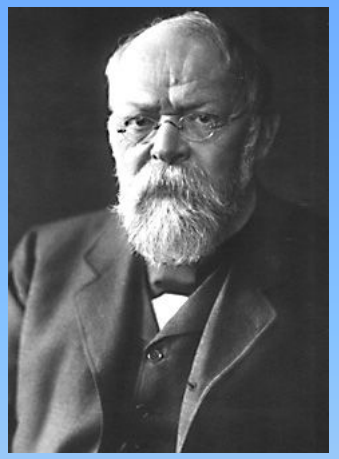




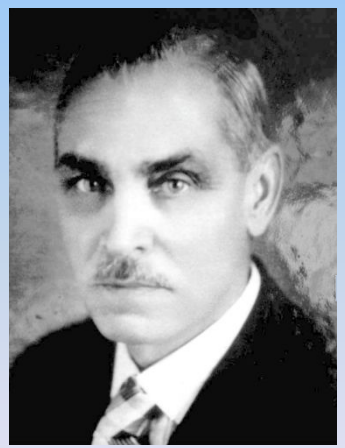
- Cartoon Artwork - Clipartpand.com free clipart

History of the Vilification of Fat

- ***1904*** – The term atherosclerosis is introduced by German Pathologist **Dr. Felix Marchand** (1846-1928) at the University of Leipzig suggests it is responsible for most obstructive processes in the arteries. From the Greek "athere" meaning gruel, and "skleros", meaning hard[1]



- ***1908*** – **Dr. Alexander Ignatowski** of the Imperial Medical Academy in St. Petersburg Russia fed rabbits full-fat milk, eggs, and meat and they developed yellow cobblestoning of the aorta which resembled atherosclerotic plaque[2]. This formulated the idea that something in the diet was clogging the arteries.



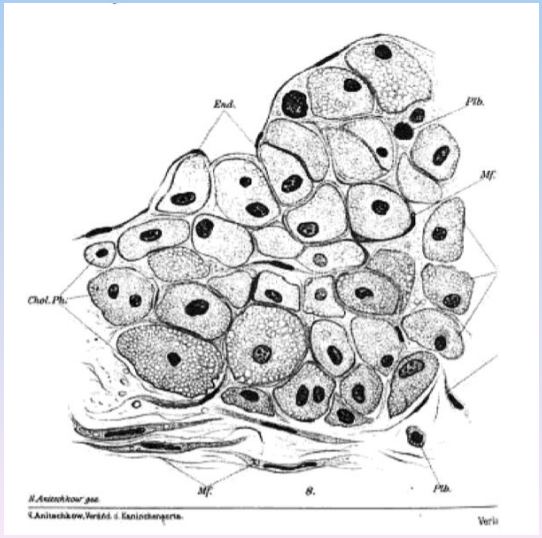
1. Marchand, F. 1904. “Ueber Atherosclerosis” Verhandlungen der Kongresse fur Innere Medizin. 21 Kongresse.
2. Ignatowski A. Changes in parenchymatous organs and in the aorta of rabbits under the influence of animal protein [in Russian]. Izvestia Imperatorskoi Voenno-Medicinskoi Akademii (St. Petersburg) 1908;18:231–44.

Dr. Nikolaj Anitschkow

#1

(1885-1964)
Russian pathologist

- ***1913*** –has just finished his PhD at the Imperial Medical Academy in St. Petersburg. He became interested in the work of Dr. Ignatowski.



- Over the next thirty years Dr. Anitschkow and his team determine that the material in the meat and eggs that produces the lesions is called cholesterol, and if rabbits are fed purified cholesterol instead of meat and eggs they develop even bigger plaques[1,2].
- These experiments became widely known, and replicated in sheep, cows, horses. His conclusion: “cholesterol in diet (eg. eggs, meat) causes heart disease”

- But these animals are strict herbivores and not evolved to eat meat. Less well known parallel experiments on dogs and rats (natural meat eaters) failed to produce lesions. And the cholesterol levels in rabbits fed pure cholesterol was five times what is seen in a human. The rabbits also accumulated cholesterol in connective tissues– they couldn't eliminate it[3].

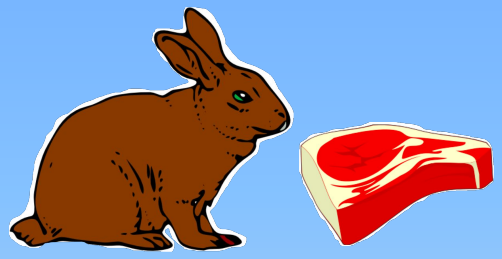
- These lesions could be also produced in a wide variety of animals fed an almost entirely plant-based diet which doesn’t contain cholesterol, but this didn’t seem relevant at the time.

1. Anitschkow N, Chalatow S. Ueber experimentelle Cholester- insteatose und ihre Bedeutung fuer die Entstehung einiger pathologischer Prozesse. Zentrbl Allg Pathol Pathol Anat 1913;24:1-9.
2. Anitschkow N, Chatatow S. (translated by Mary Z. PeliasJ). 1983. Classics in arteriosclerosis research: On experimental cholesterin steatosis and its significance in the origin of some pathological processes by N. Anitschkow and S. Chalatow, 1913. Arteriosclerosis 1983;3: 178-82.
3. Shull K, Mann, GV, Andrus SB, and Stare FJ. 1954. Response of Dogs to Cholesterol Feeding. American Journal of Physiology Published 28 February 1954 Vol. 176 no. 475-482

1951 ….

Lipid Hypothesis

Eat Cholesterol



Increase Blood Cholesterol

Increase CVD

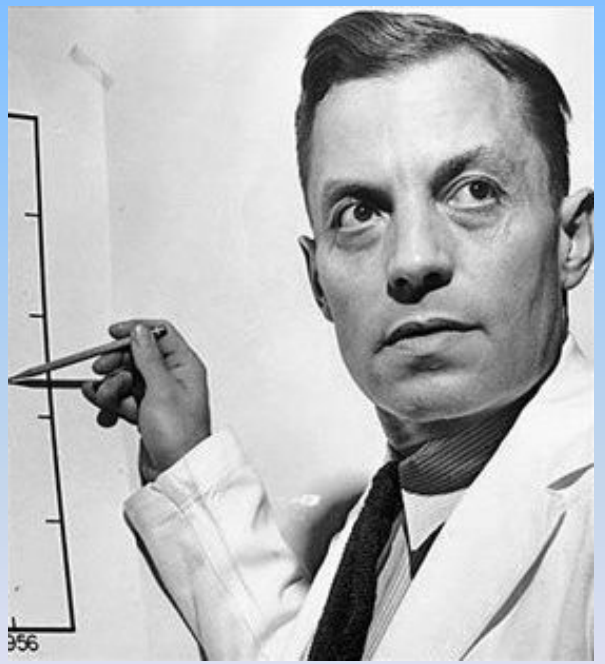
Dr. Ancel Keys

#2

(1904-2004)

American Physiologist

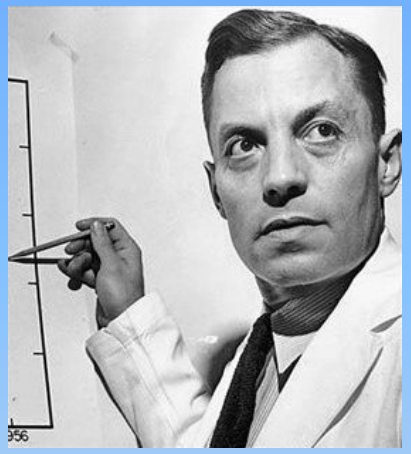
University of Minnesota




U. S. ARMY FIELD RATION K
SUPPER UNIT
U. S. ARMY FIELD RATION K
DINNER UNIT
CONTENTS:
1 PKG. DEFENSE BISCUITS
1 PKG. COMPRESSED GRAHAM BISCUITS
1 CAN PORK LUNCHEON MEAT
1 TUBE CONCENTRATED BOUILLION
1 STICK CHEWING GUM
1 PKG. DEXTROSE TABLETS
U. S. ARMY FIELD RATION K
BREAKFAST UNIT
CONTENTS:
1 PKG. DEFENSE BISCUITS
1 PKG. COMPRESSED GRAHAM BISCUITS
1 CAN VEAL LUNCHEON MEAT
1 PKG. MALTED MILK — DEXTROSE TABLETS
2 PKGS. SOLUBLE COFFEE
3 TABLETS SUGAR
1 STICK CHEWING GUM
U. S. ARMY
FIELD RATION K
CORNED BEEF MINCED
INGREDIENTS: Cooked beef, beef bone stock, salt and sodium nitrite.
CONTENTS 3¾ OZ. AVOIR.
PEPSIN GUM
PEPSIN
Bonino
"Sweeten it with Bonino"

Diet-Heart Hypothesis

Eat Fat
Especially
Saturated Fat



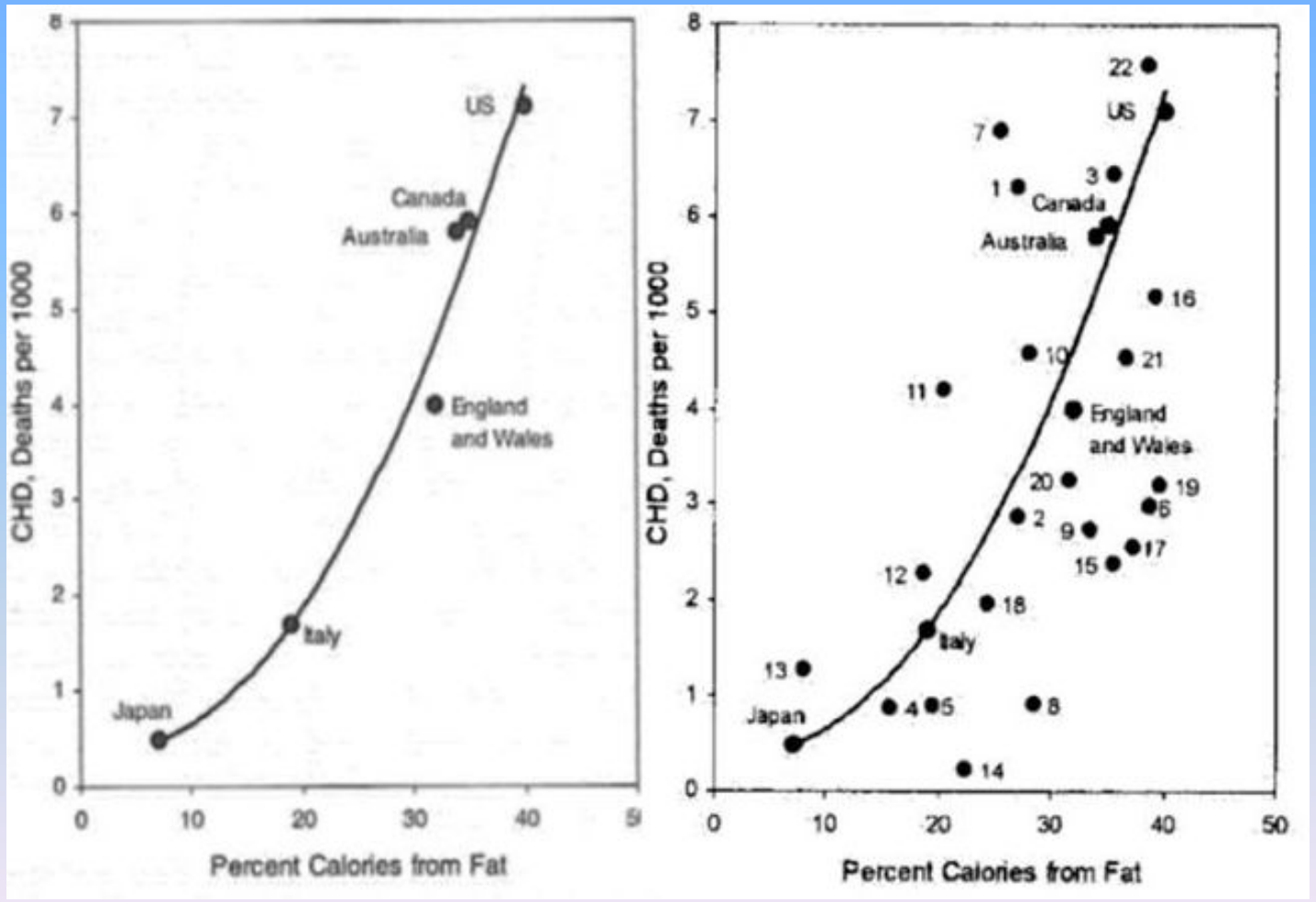
Increase
Blood
Cholesterol

Increase CVD

1950-1960

1. Jason Andrade, MD, FRCPC, Aneez Mohamed, MD, FRCPC, Jiri Frohlich, MD, FRCPC, Andrew Ignaszewski, MD, FRCPC. 2009. Ancel Keys and the lipid hypothesis: From early breakthroughs to current management of dyslipidemialssue: BCMJ, Vol. 51, No. 2, March 2009, page(s) 66-72
2. Teicholz, N. The Big Fat Surprise. Simon and Shuster. 479 pp.

- There was immediate criticism because Keys had selected a subset of countries out of the 21 for which were data. Analysis of the full dataset by Yerushalmy and Hilleboe (1957) showed the the link fat intake and heart disease much less clear, and some current analyses have shown an opposite effect.



Yerushalmy J, Hilleboe HE. in the diet and mortality from heart disease; a methodologic note NY State J Med. 1957 Jul 15;57(14):2343-54.Fat .

- In the late 1950's the American Heart Association formed a nutrition committee.
- It did not support the diet-heart hypothesis of Keys, stating that "the evidence does not stand up under critical examination"
- This changed in 1961 when Keys became a member of the committee, and the diet-heart hypothesis became "the best scientific evidence available at the time"

Keys A (ed). Coronary heart disease in seven countries. Circulation 1970;41(4S1):1-198.
Yerushalmy J, Hilleboe HE. in the diet and mortality from heart disease; a methodologic note NY State J Med. 1957 Jul 15;57(14):2343-54.
Teicholz, N. The Big Fat Surprise. Simon and Shuster. 479 pp.

Adult Nutritional Guidelines 1961

- The advice to reduce fat in human diet to reduce the risk of heart attacks and strokes has been a corner stone of world wide dietary guidelines for over 60 years

- *Journal of the American Medical Association* 1961:

Dietary Fat and Its Relation to Heart Attacks and Strokes

REPORT BY THE CENTRAL COMMITTEE FOR MEDICAL AND COMMUNITY PROGRAM OF THE AMERICAN HEART ASSOCIATION*

- " 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"

- **" More complete information must be obtained before final conclusions are reached"**

- Authors – Irvine Page MD (Cleveland), E.V. Allen MD (Rochester Minn), Francis Chamberlain MD (San Franscisco), Ancel Keys PhD, Jeremiah Stamler MD (Chicago), Frederick Stare MD (Boston)

Dietary fat and its relation to heart attacks and strokes. Report by the Central Committee for Medical and Community Program of the American Heart Association. JAMA. 1961 Feb 4;175:389-91.

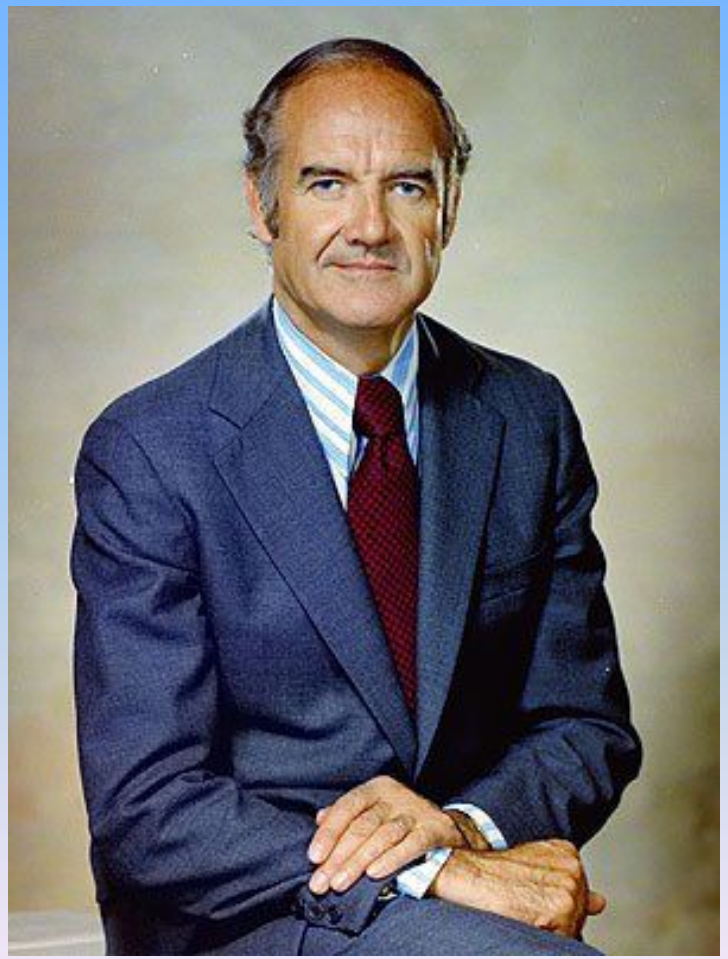
George McGovern

#3

(1922-2012)

US Senator from South Dakota 1963-1981

- World War II bomber pilot flew 35 missions over German-Occupied Europe, earned Distinguised Flying Cross
- Methodist Minister
- PhD in History from Northwestern University
- US House of Representatives (4 yrs) then Senate (18 yrs) representing South Dakota
- Democratic candidate for US President in 1972 against Richard Nixon, lost with a 61%-37% defeat, the second biggest landslide in American history, with Electoral College total 520 to 17.
- The Watergate break in in 1972 was targeting the DNC and an alternate to bugging McGovern's headquarters
- Guest host of Saturday Night Live in 1984



https://en.wikipedia.org/wiki/George_McGovern.

- The director of the National Heart Lung and Blood Institute Dr. Robert Levy said that **“no one knew if eating less fat would prevent heart attacks**”,
- Dr. Pete Ahrens said that “**advising Americans to eat less fat on the strength of such marginal evidence was equivalent to conducting a nutritional experiment with the American public as subjects**”.
- One scientist, Dr. Robert Olson said “**I plead in my report and will plead again orally here for more research on the problem before we make announcements to the American public.**” Senator McGovern replied: “**Senators don’t have the luxury that the research scientist does of waiting until every last shred of evidence is in**.”

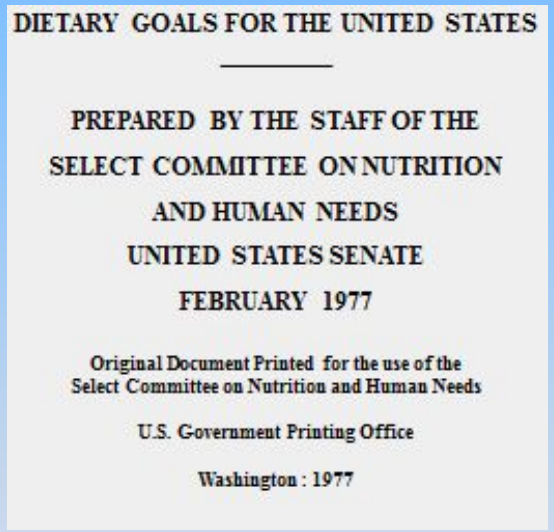
Teicholz, N. The Big Fat Surprise. Simon and Shuster. 479 pp.

“Dietary Goals for the United States”
‘The McGovern Report’

Select Committee on Nutrition and Human Needs
United States Senate - February 1977

- In simple terms, the senators were “faced with issues they were professionally incapable of resolving: conflicts within science over the interpretation of data, questions of scientific validity, and notions of proof”

- Ultimately there was a lack of scientific consensus, which led to a heavy influence from non-scientific groups


DIETARY GOALS FOR THE UNITED STATES

PREPARED BY THE STAFF OF THE
SELECT COMMITTEE ON NUTRITION
AND HUMAN NEEDS
UNITED STATES SENATE
FEBRUARY 1977

Original Document Printed for the use of the
Select Committee on Nutrition and Human Needs

U.S. Government Printing Office

Washington : 1977

Gerald M. Oppenheimer and I. Daniel Benrubi McGovern's Senate Select Committee on Nutrition and Human Needs Versus the: Meat Industry on the Diet-Heart Question (1976–1977) Am J Public Health. 2014 January; 104(1): 59–69.

“Dietary Goals for the United States”
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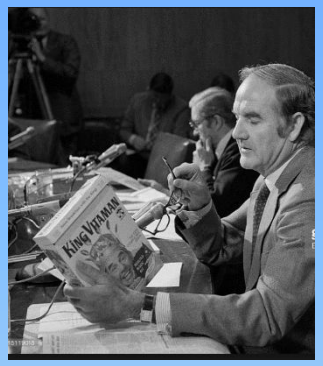
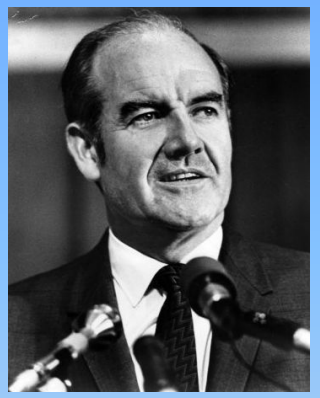
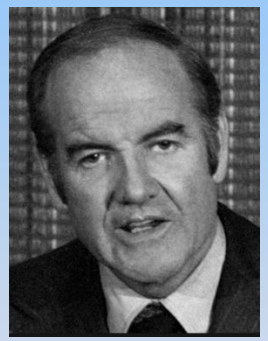




GEORGE McGOVERN, South Dakota, Chairman

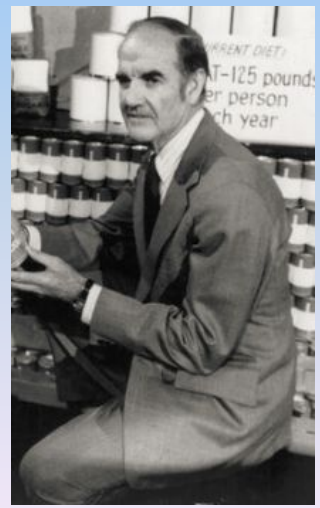
HERMAN E. TALMADGE, Georgia	EDWARD M. KENNEDY, Massachusetts
GAYLORD NELSON, Wisconsin	ALAN CRANSTON, California
HUBERT H. HUMPHREY, Minnesota	CHARLES M. PERCY, Illinois
ROBERT DOLE, Kansas	HENRY BELLMON, Oklahoma
MARK O. HATFIELD, Oregon	RICHARD S. SCHWEIKER, Pennsylvania

ALAN J. STONE, Staff Director
MARSHALL L. MATZ, General Counsel



U.S. DIETARY GOALS

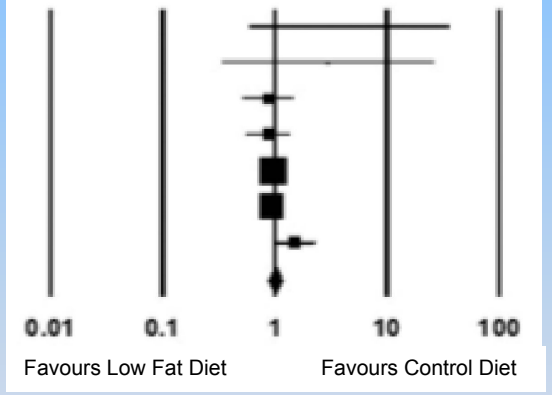
1. Increase carbohydrate consumption to account for 55 to 60 percent of the energy (caloric) intake.
2. Reduce overall fat consumption from approximately 40 to 30 percent energy intake.
3. Reduce saturated fat consumption to account for about 10 percent of total energy intake; and balance that with poly-unsaturated and mono-unsaturated fats, which should account for about 10 percent of energy intake each.
4. Reduce cholesterol consumption to about 300 mg. a day.
5. Reduce sugar consumption by about 40 percent to account for about 15 percent of total energy intake.
6. Reduce salt consumption by about 50 to 85 percent to approximately 3 grams a day.



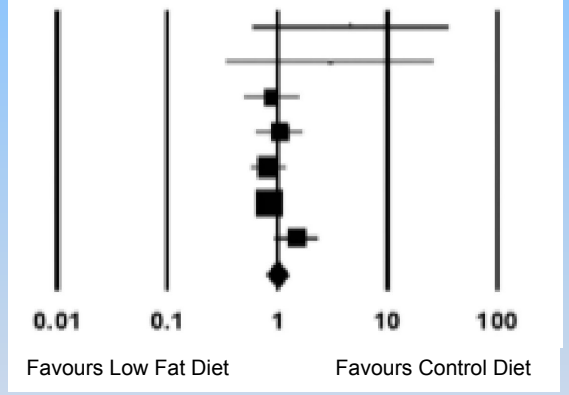
Dietary Goals for the United States. Prepared by the staff of the select committee on nutrition and human needs. Feb 1977. US. Government Printing Office Washington D.C .

- **2015** Zoe Harcombe et al. publish paper in journal *Open Heart*

Dietary interventions and all deaths



Dietary interventions and heart deaths



- Concluded that even though dietary recommendations calling for the public to reduce total fat and saturated fat in their diet were introduced at the cost of $200M USD and $56M GBP, there was no supporting evidence from the seven RCTs that existed at the time

Harcombe Z, Baker JS, Cooper SM, et al. Evidence from randomised controlled trials did not support the introduction of dietary fat guidelines in 1977 and 1983: a systematic review and meta-analysis. Open Heart 2015;2:e000196

Canadian Council on Nutrition

Nutrition Division of the Federal Government

Canada's Official Food Rules 1942

Canada's Food Rules 1944

Canada's Food Rules 1949

Canada's Food Guide 1961

Canada's Food Guide 1977

1977 the term "meat" is replaced with "cooked lean meat" and serving of carbohydrates increased

Canada's Food Guide 1982

1982 new section titled "moderation" included which recommends "foods with limited amounts of fat"

Canada's Food Guide to Healthy Eating 1992

1992 now suggests leaner meats, meat alternatives, and no more mention of cheese

Eating Well With Canada's Food Guide 2007

- **1988-1999** US Surgeon General's Office commits to writing the definitive report on dietary fat, calling it "the most unwholesome part of the American Diet". There was four project officers in 10 years, finally halting the project after 11 years. The associate director of the office of prevention at the NIH said "the report was initiated with a preconceived opinion of the conclusions, but the science behind these opinions was not holding up"

- **1970-2000** The production of low fat products became big business – 15,000 products introduced. A food science research industry arose to create palatable non-fat substitutes. The low fat message spread by what Gary Taubes calls "societal osmosis" - continually reinforced by physicians, dieticians, health organizations, journalists, and consumer advocacy groups.

Gary Taubes. 2001.The Soft Science of Dietary Fat. Science 30 Mar 2001:Vol. 291, Issue 5513, pp. 2536-2545

Adult Nutritional Guidelines 2006

AHA 2006 Diet and Lifestyle Recommendations for Cardiovascular Disease Risk Reduction

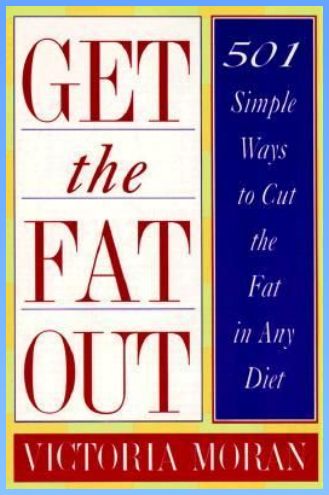
- Balance calorie intake and physical activity to achieve or maintain a healthy body weight
- Consume a diet rich in vegetables and fruits
- Choose whole-grain, high-fiber foods
- Consume fish, especially oily fish, at least twice a week
- Limit your intake of saturated fat to 7% of energy, trans fat to 1% of energy, and cholesterol to 300 mg/d by
  - Choosing lean meats and vegetable alternatives
  - Selecting fat-free (skim), 1% fat, and low-fat dairy products
  - Minimizing intake of partially hydrogenated fats
- Minimize 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
- When you eat food prepared outside of home, follow the AHA diet and lifestyle recommendations

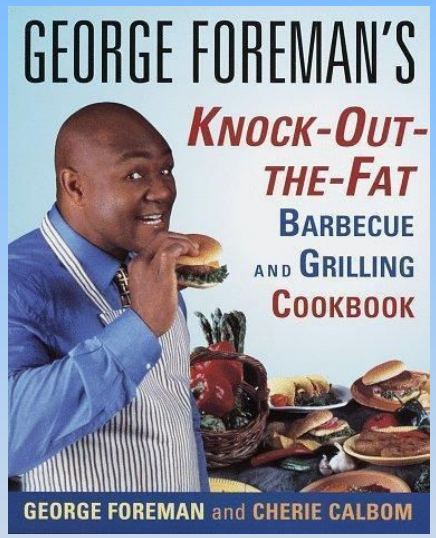
Diet and Lifestyle Recommendations Revision 2006. A Scientific Statement From the American Heart Association Nutrition Committee. Alice H. Lichtenstein et al., Circulation. 2006;114:82-96. Originally published July 3, 2006


FAT


Fat Free
Snack Pack
Fat Free
PUDDING
CHOCOLATE
90 Calories
Calcium
Real Milk
1 ingredient


Trans-fat free
guilt free
Organic
Fat Free


GET the FAT OUT
501 Simple Ways to Cut the Fat in Any Diet
VICTORIA MORAN


GEORGE FOREMAN'S
KNOCK-OUT-THE-FAT
BARBECUE AND GRILLING COOKBOOK
GEORGE FOREMAN and CHERIE CALBOM


NO Preservative
Chef BOYARDEE
99% Fat Free
Beef Ravioli
in Tomato & Meat Sauce


new!
Jet-Puffed StackerMallows
S'mores in seconds!


Beatrice
0

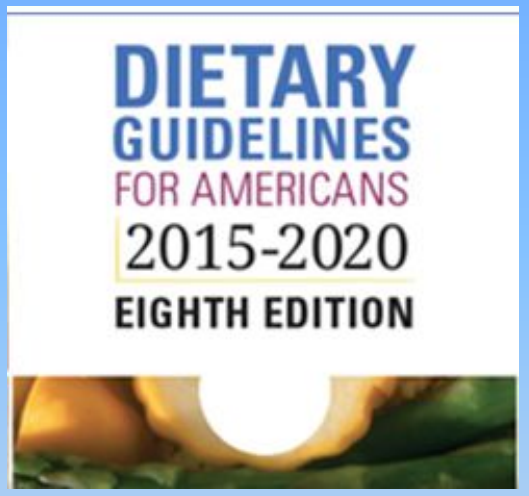

99% FAT FREE
99% FAT FREE
Download from
Dreamstime.com


JUJUBES
FAT FREE CANDY
JUJUBES
NET WT 6.5 OZ (184 g)


FAT FREE
Gummi Bears

Dietary Cholesterol

- In 2015, the US Dietary Guidelines Advisory Committee (DGAC) finally acknowledged the research and changed, after 50 years of warnings about dietary cholesterol. Now the US is in line with other Western countries



"Previously, the Dietary Guidelines for Americans recommended that cholesterol intake be limited to no more than 300 mg/day. The 2015 DGAC will not bring forward this recommendation because available evidence shows no appreciable relationship between consumption of dietary cholesterol and serum cholesterol… ***Cholesterol is not a nutrient of concern for overconsumption****."*

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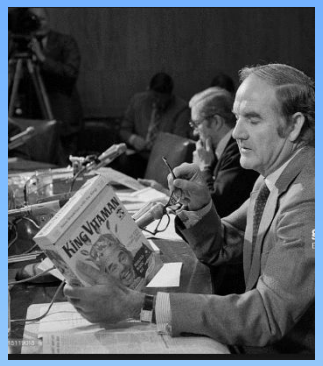
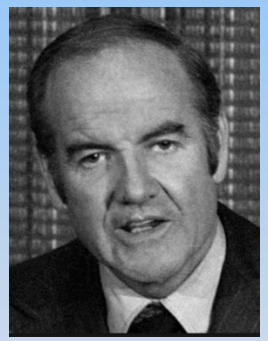
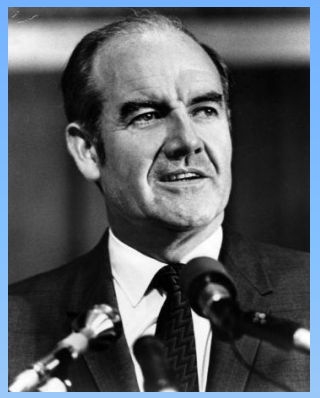
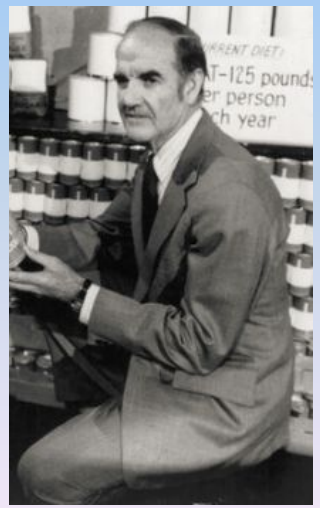
Select Committee on Nutrition and Human Needs
United States Senate - February 1977









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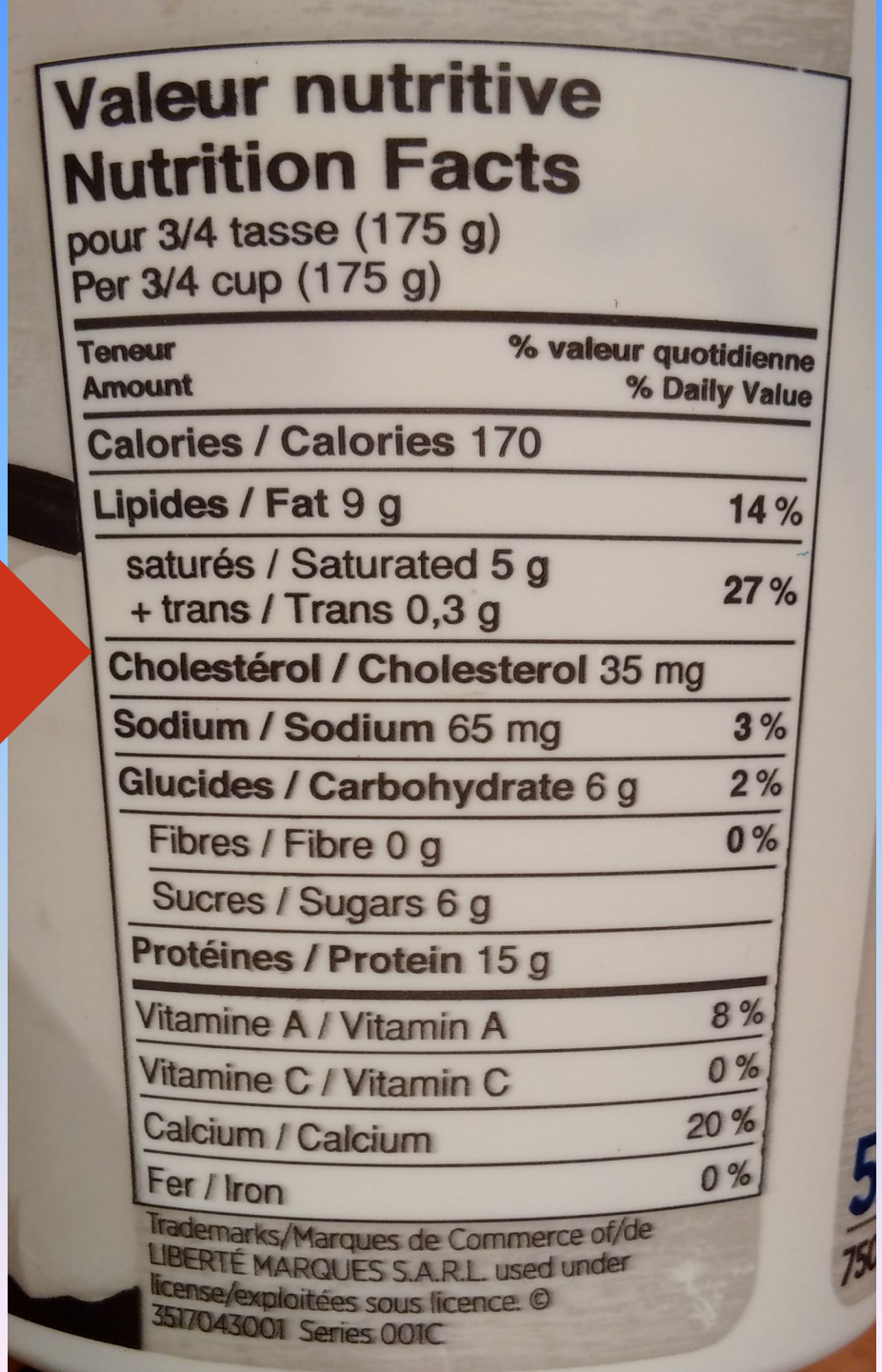
MEAT ALTERNATIVES FACT #6

Nuts are cholesterol free, which is important in a heart healthy diet.



Valeur nutritive
Nutrition Facts

pour 3/4 tasse (175 g)
Per 3/4 cup (175 g)

Teneur Amount	% valeur quotidienne % Daily Value
Calories / Calories 170	
Lipides / Fat 9 g	14 %
saturés / Saturated 5 g + trans / Trans 0,3 g	27 %
Cholestérol / Cholesterol 35 mg	
Sodium / Sodium 65 mg	3 %
Glucides / Carbohydrate 6 g	2 %
Fibres / Fibre 0 g	0 %
Sucres / Sugars 6 g	
Protéines / Protein 15 g	
Vitamine A / Vitamin A	8 %
Vitamine C / Vitamin C	0 %
Calcium / Calcium	20 %
Fer / Iron	0 %

How can you make a healthier choice?

- For a healthy diet, reduce the amount of cholesterol, saturated and trans fats you eat.
- Use the % Daily Value (% DV) in the Nutrition Facts table.
- Remember: 5% DV or less is a little and 15% DV or more is a lot for all nutrients.
- Cholesterol, saturated and trans fats are nutrients you may want **less** of.

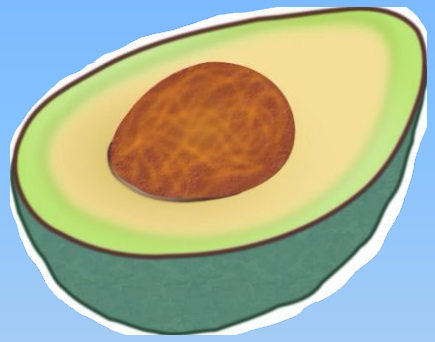
How is the % DV for cholesterol calculated?

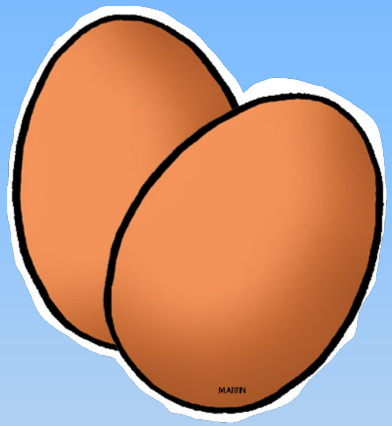
When there is a % DV for cholesterol, the Daily Value used in nutrition labelling is based on 300 mg of cholesterol for a reference diet.

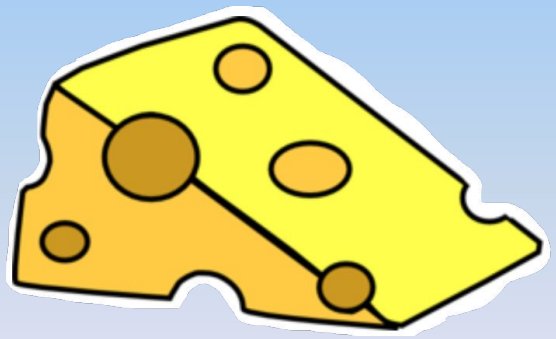
For example, if the Nutrition Facts table shows 30 mg of cholesterol, the product would have a % Daily Value for cholesterol of 10%. (30 mg ÷ 300 mg) × 100 = 10%.

Remember: 5% DV or less is a little and 15% DV or more is a lot for all nutrients.

Total Dietary Fat

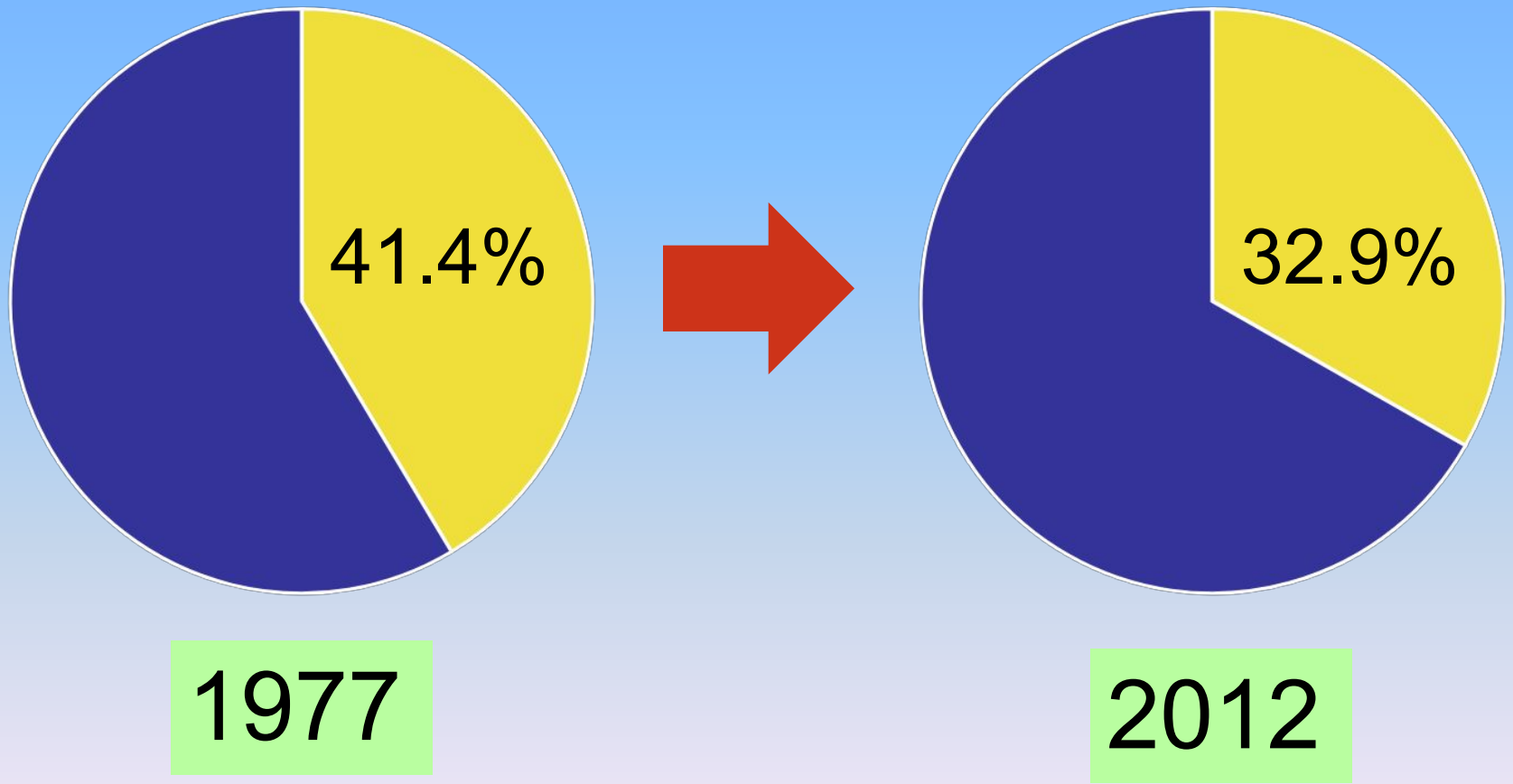






Percent kcal from Total Dietary Fat

U.S. Population



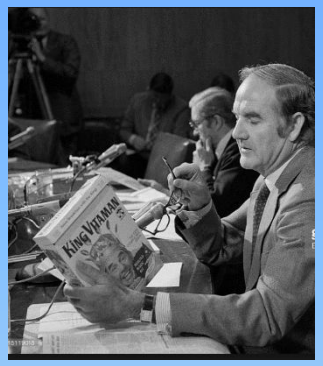
- National Center for Health Statistics. Health, United States, 2015: With Special Feature on Racial and Ethnic Health Disparities. Hyattsville, MD. 2016 Table 56
- Kennedy ET1, Bowman SA, Powell R.Dietary-fat intake in the US population. Am Coll Nutr. 1999 Jun;18(3):207-12.

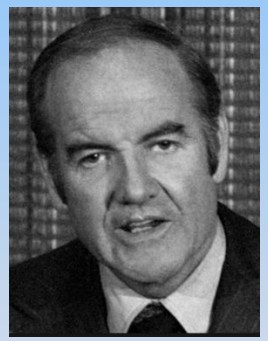
Cochrane Database 2012

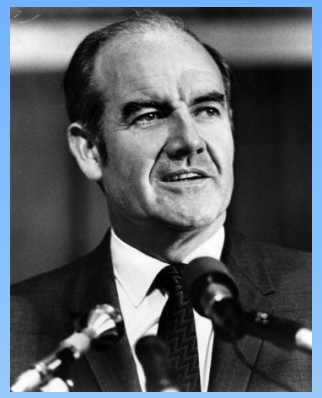
- Results in terms of overall fat in diet:
  - **No effect** of reducing dietary fat on total mortality
    (RR 0.98, 95% CI 0.93 to 1.04, 71,790 participants)
  - **No effect** of reducing dietary fat on cardiovascular mortality
    (RR 0.94, 95% CI 0.85 to 1.04, 65,978 participants)
  - There are "**no clear health benefits"** of reducing the total amount of fat we eat. This included overall death rates, cardiovascular death rates, incidences of heart attacks, angina, strokes, sudden cardiovascular death and the need for heart surgery.

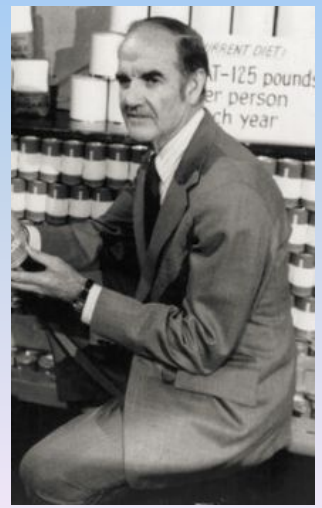
“Dietary Goals for the United States”
‘The McGovern Report’

Select Committee on Nutrition and Human Needs
United States Senate - February 1977









U.S. DIETARY GOALS

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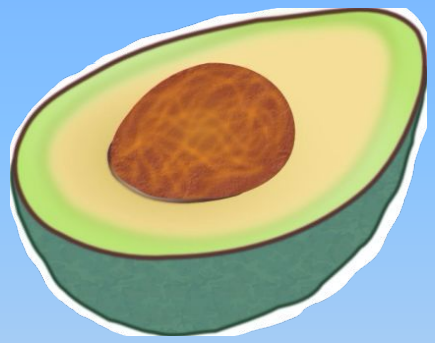
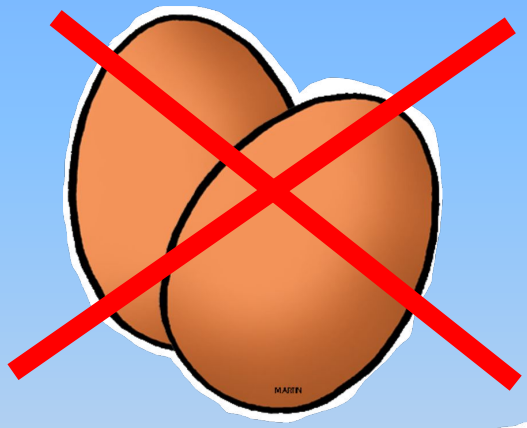
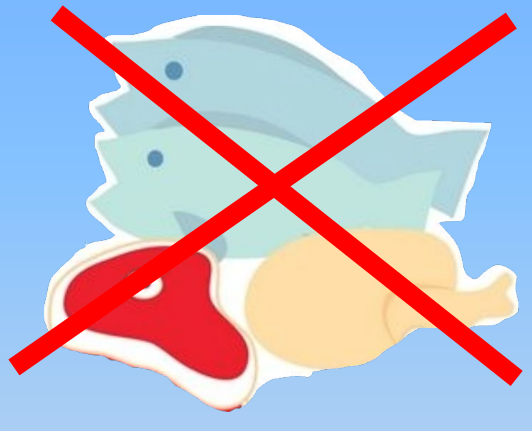
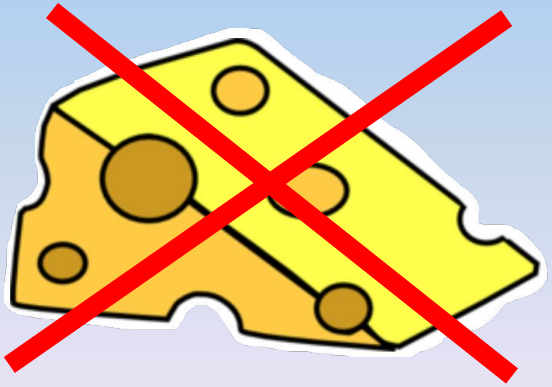
Unsaturated vs Saturated Fat









- Artwork Clipartpand.com free clipart

Unsaturated vs Saturated Fat

the most important question in human diet in developed countries

The K

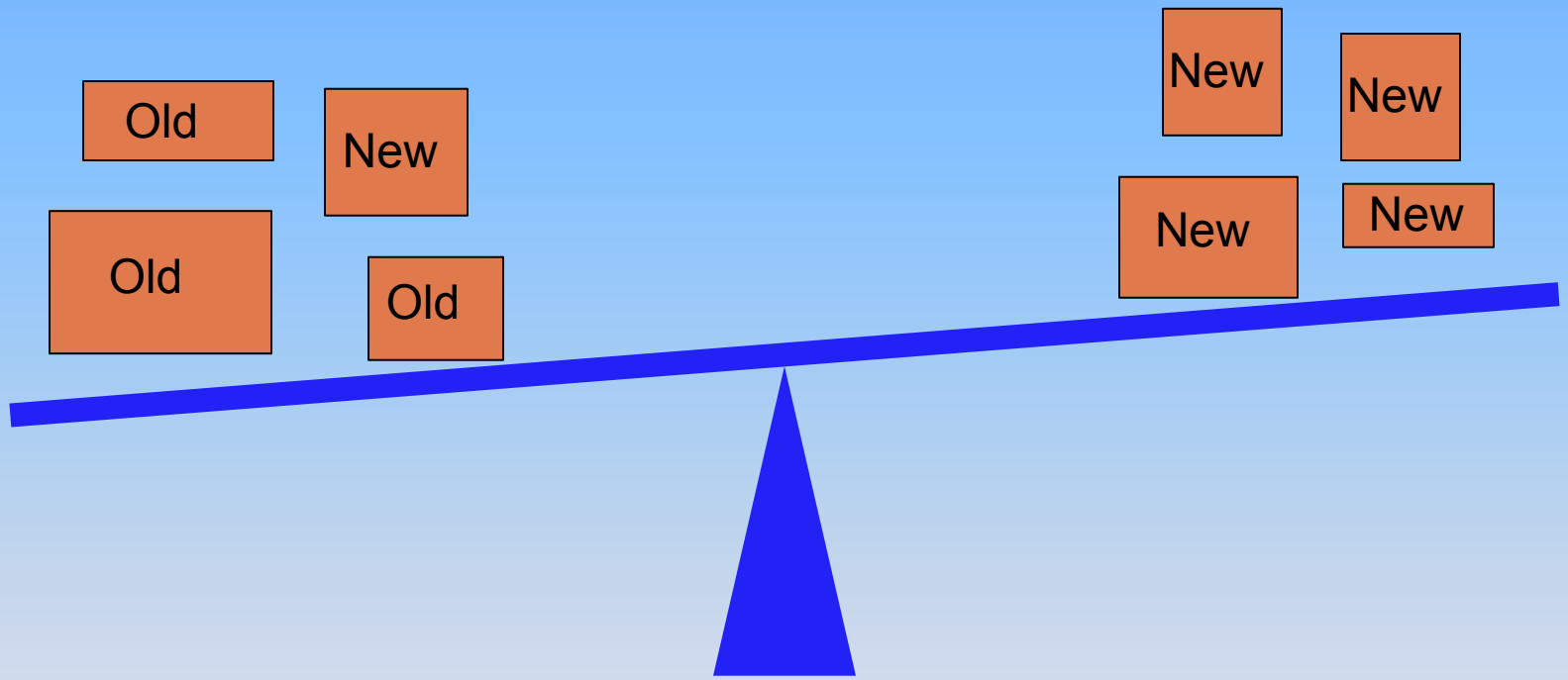
D

eath

eath from heart attack,

he chance of having a heart attack,
stroke, angina, heart surgery

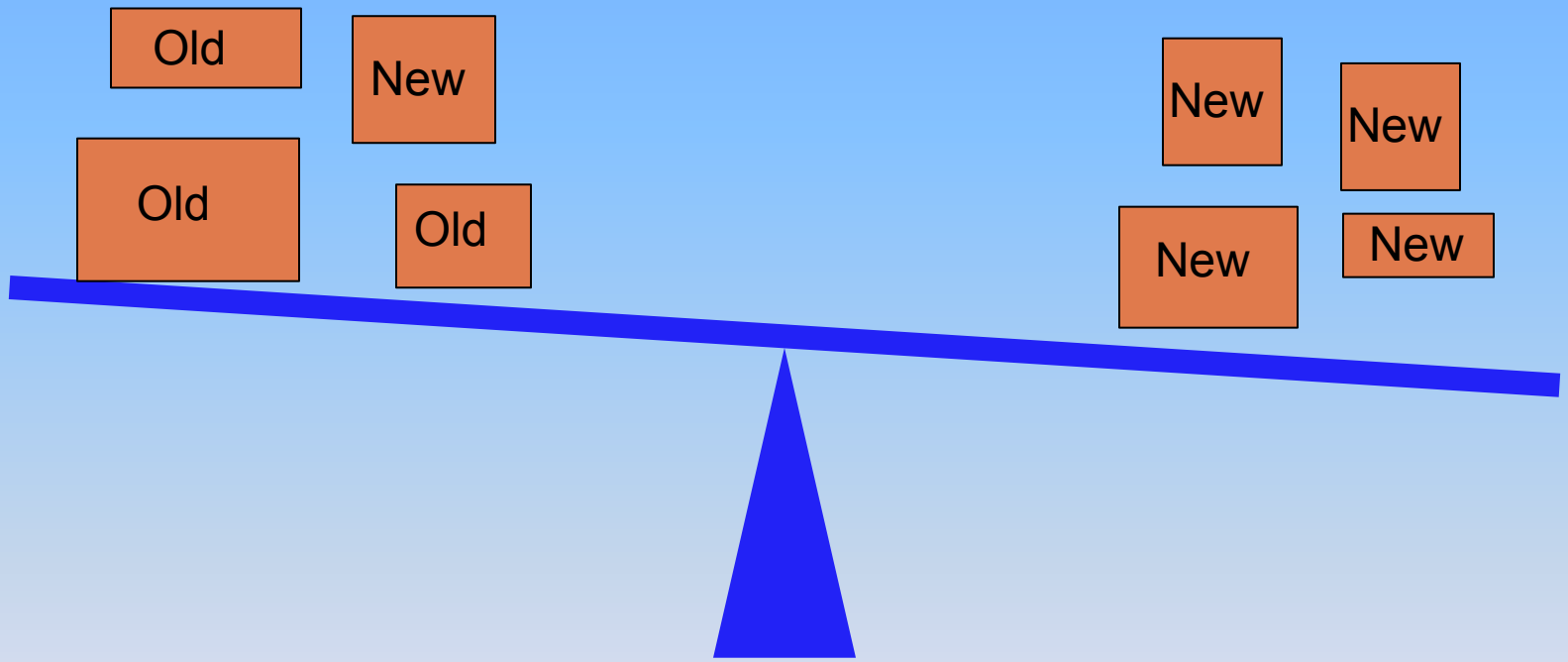
State of the Literature 2018



~~Fat~~ and SFA should be reduced in diet to prevent heart attack and stroke and obesity

Fat and SFA not related to heart attack and stroke

State of the Literature 2018



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“Reduce Saturated Fat to decrease risk of CVD”

Sat Fat Increases CVD	Sat Fat Neutral for CVD	Sat Fat Decrease CVD
Zong et al. 2016 *BMJ*	Ramsden et al. 2016 *BMJ*	Dehghan et al. 2017 *The Lancet*
Wang et al. 2016 JAMA Int Med	de Souza et al 2015 *BMJ*	Grasgruber et al. 2016 *Food Nutr Res*
Hooper et al. 2015 *Cochrane Database*	Harcombe et al 2015 *Open Heart (BMJ)*	Praagman et al. 2016 *Am J Clin Nutr*
Li et al. 2015 *J Am Coll Cardiol*	Chowdhury et al. 2014 *Annals of Internal Medicine*	Praagman et al. 2016 *Arterioscler Thromb Vasc Biol*
de Oliveira et al. 2012 *Am J Clin Nutr*	Siri-Tarino et al. 2010 *Am J Clin Nutr*	Ramsden et al. 2013 *BMJ*
Mozaffarian et. al 2010 *PLoS Medicine*	Danaei et al. 2009 *PLoS Medicine*	de Oliveira et al. 2012 *Am J Clin Nutr*
	Mente et al. 2009 *Arch Intern Med*	

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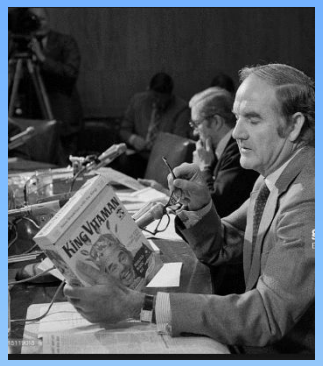

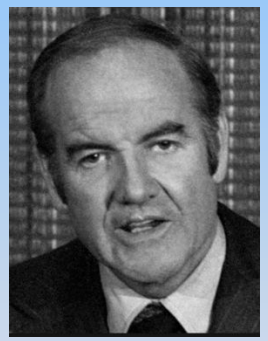

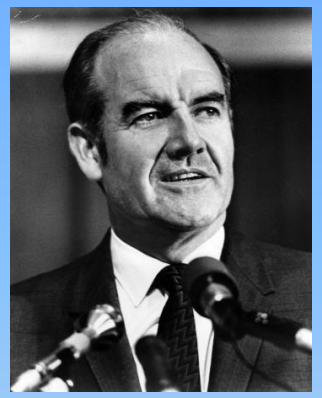

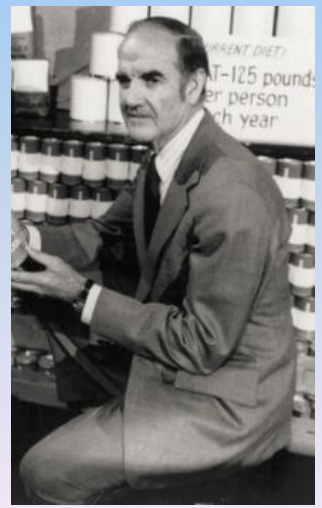

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Still Unproven

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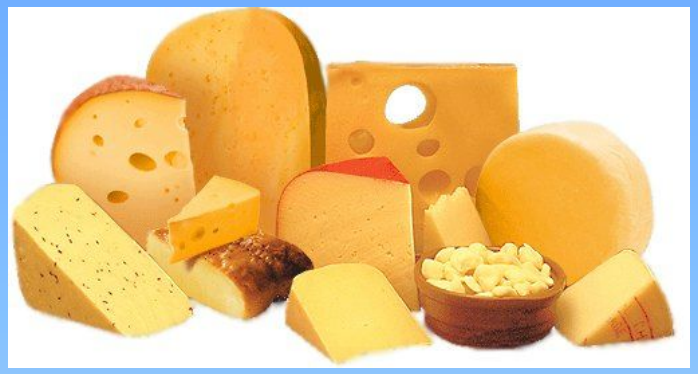
Dairy Saturated Fat



Systematic Review of the Association between Dairy Product Consumption and Risk of Cardiovascular-Related Clinical Outcomes[1–3]

Jean-Philippe Drouin-Chartier,[4] Didier Brassard,[4] Maude Tessier-Grenier,[4] Julie Anne Côté,[5] Marie-Ève Labonté,[6] Sophie Desroches,[4] Patrick Couture,[4,7] and Benoît Lamarche[4]*

[4]Institute of Nutrition and Functional Foods, Laval University, Quebec City, Quebec, Canada; [5]Institut Universitaire de Cardiologie et de Pneumologie de Québec, Quebec City, Quebec, Canada; [6]Department of Nutritional Science, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada; and [7]CHU de Québec-Université Laval, Quebec City, Quebec, Canada

 Adv Nutr 2016;7:1026–40; doi:10.3945/an.115.011403.

Findings:

- **the consumption of dairy products shows either favorable or neutral associations with CVD**
- **total dairy, cheese, and yogurt are associated with decreased risk of stroke, hypertension and diabetes**
- **"the recommendation to focus on low-fat in place of regular- and high-fat dairy is currently not evidence-based"**

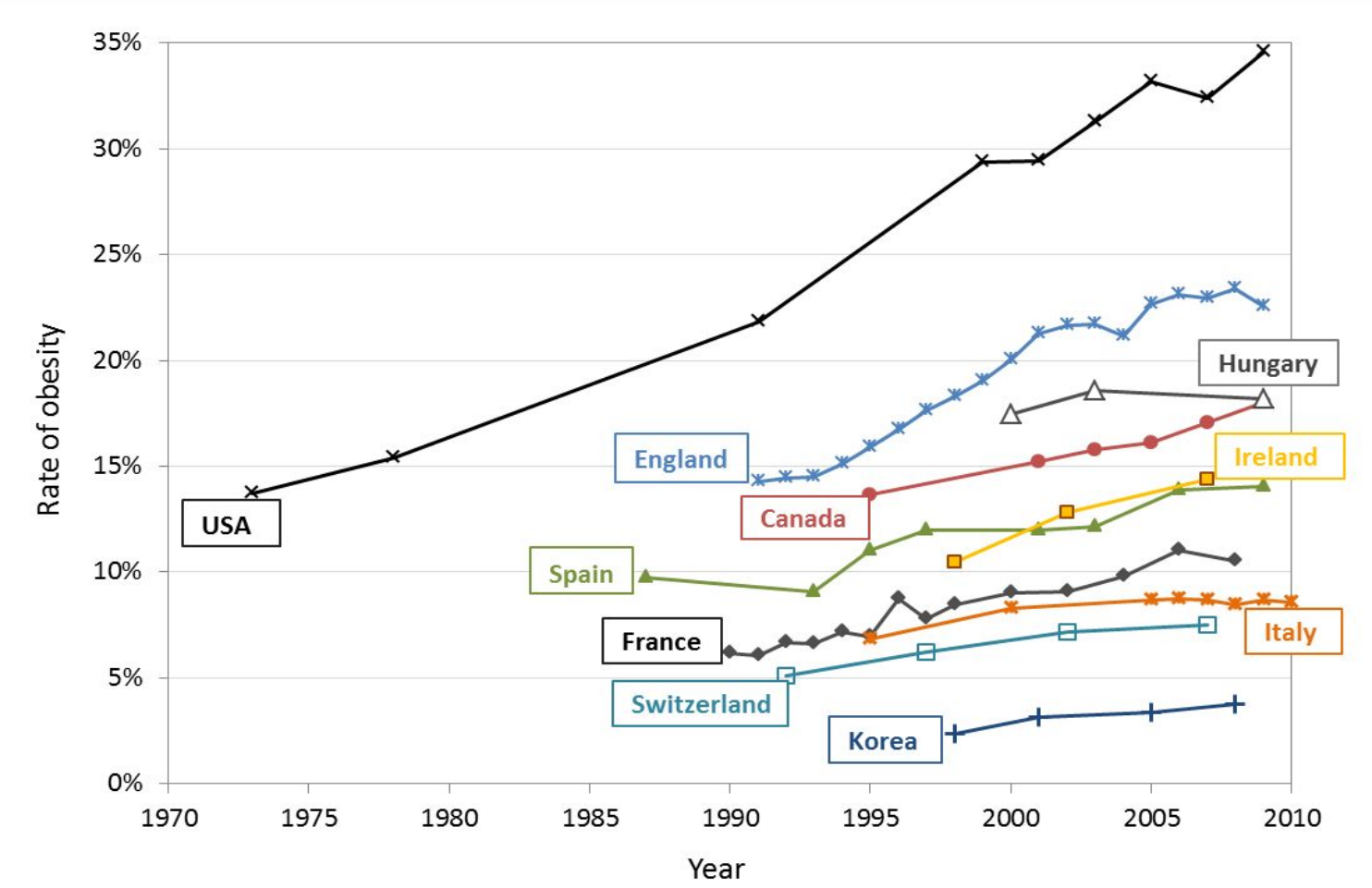
Summary: Dietary Fat

The current evidence as of 2018 with respect to dietary fat and cardiovascular disease indicates that:

- The consumption of **trans fats** increases CVD. Trans fats are not safe and should be removed from the food supply[1]
- There is no increase in CVD from eating **cholesterol rich foods**, including eggs and butter
- There is no reduction in CVD by reducing **overall fat**
- The literature is unclear if reducing **saturated fat** has an impact on CVD

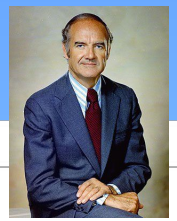
1. Food and Drug Administration. Final determination regarding partially hydrogenated oils. Health and Human Services Federal Register, June 17, 2015. 80 FR 34650-34670.

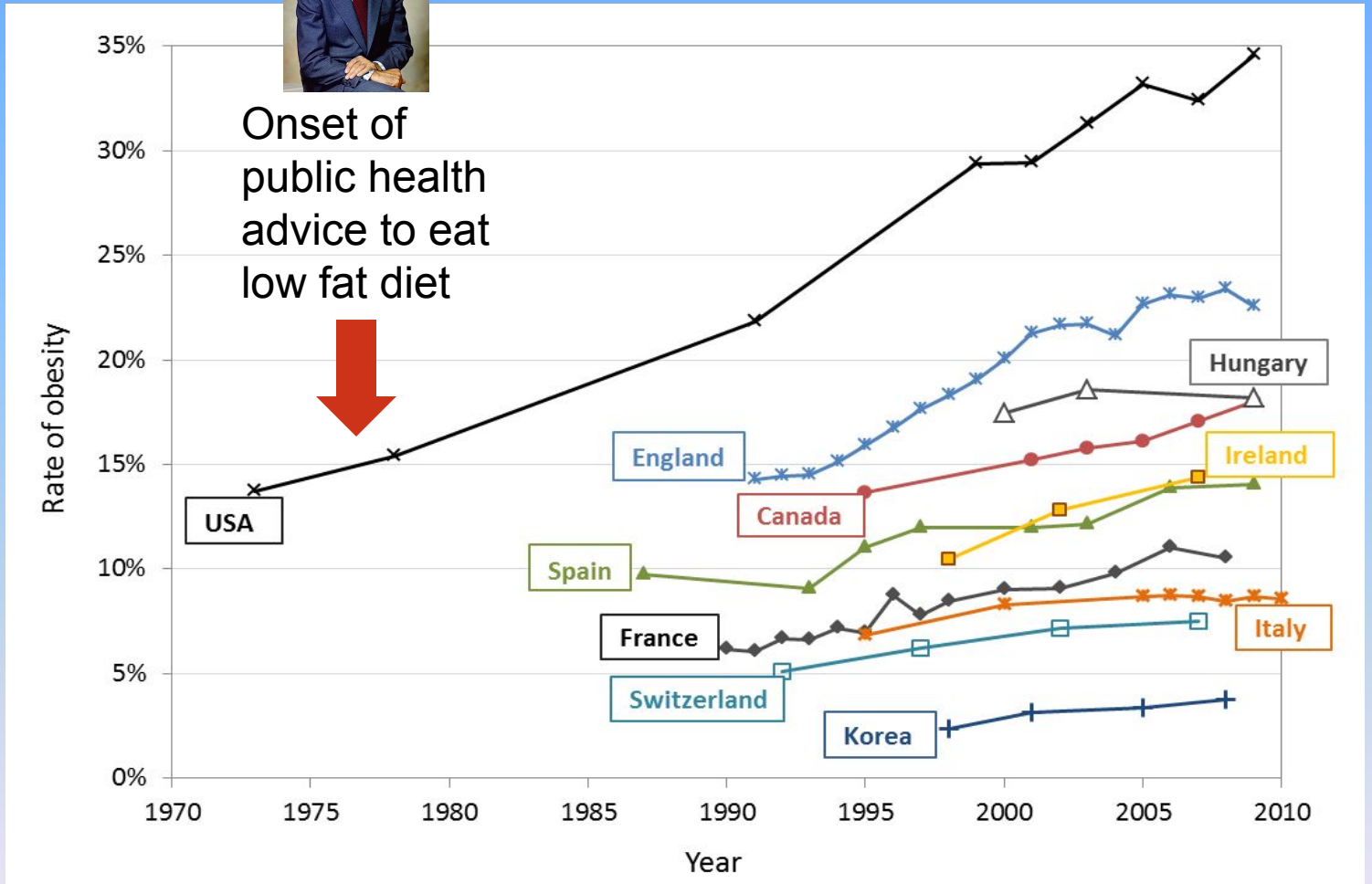
Obesity Rates



OECD Obesity Update 2012 www.oecd.org/health/fitnotfat

Obesity Rates





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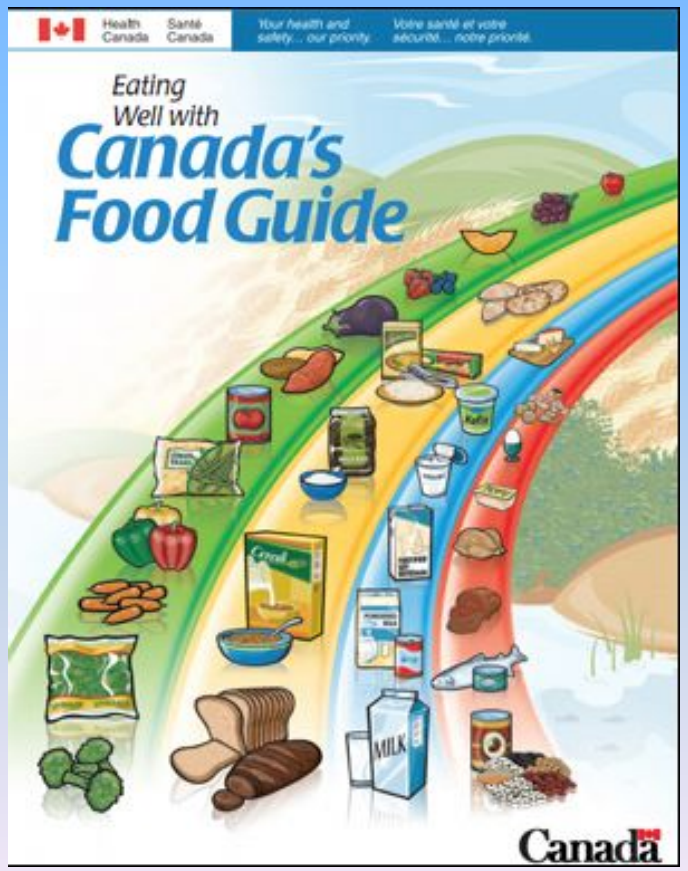
Criticism of the 2007 Canada's Food Guide



Canada's New Food Guide

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Search

Element A: Guiding Principle 1

Based on the available evidence, Health Canada is proposing the following Guiding Principle and Recommendations to focus on the regular intake of nutritious foods as the foundation for healthy eating.

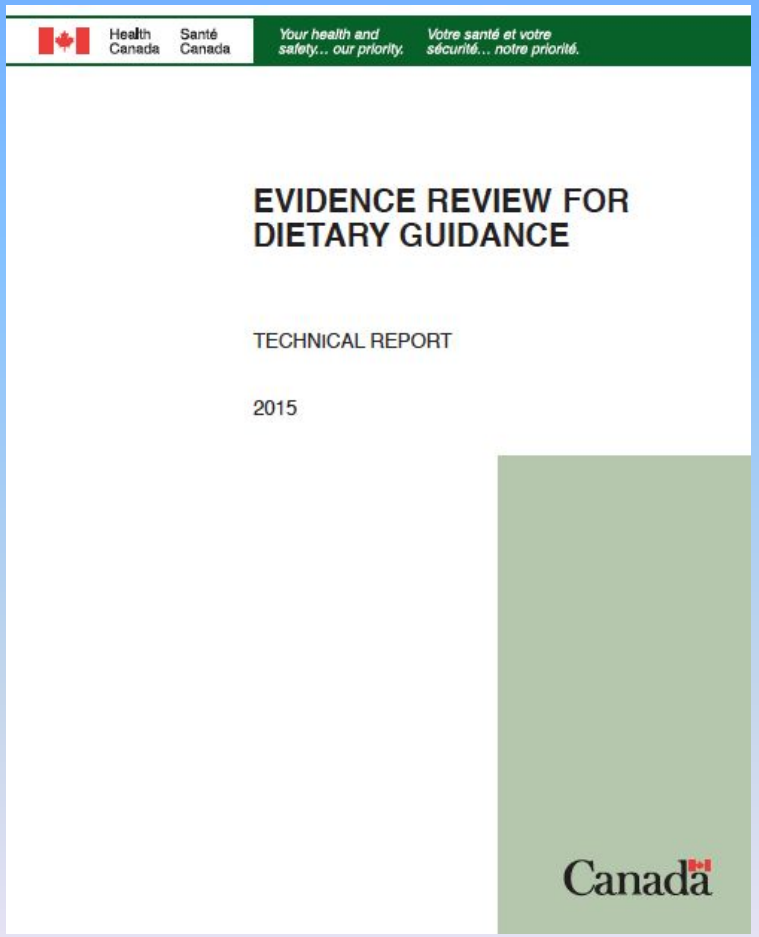
Guiding Principle 1: A variety of nutritious foods and beverages are the foundation for healthy eating.

Health Canada recommends:

- Regular intake of vegetables, fruit, whole grains, and protein-rich foods* – especially plant-based sources of protein
- Inclusion of foods that contain mostly unsaturated fat, instead of foods that contain mostly of saturated fat
- Regular intake of water

Canada's New Food Guide

- Improper scientific review methods which were non-rigorous and deeply flawed.
- This rigorous scientific method should be expected for all those areas where food recommendations are being made to prevent disease



Questions