

# Healthy Fats As a Booster to Health

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# Health effects of dietary risks in 195 countries, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017



GBD 2017 Diet Collaborators\*

## Summary

Lancet 2019; 393: 1958–72

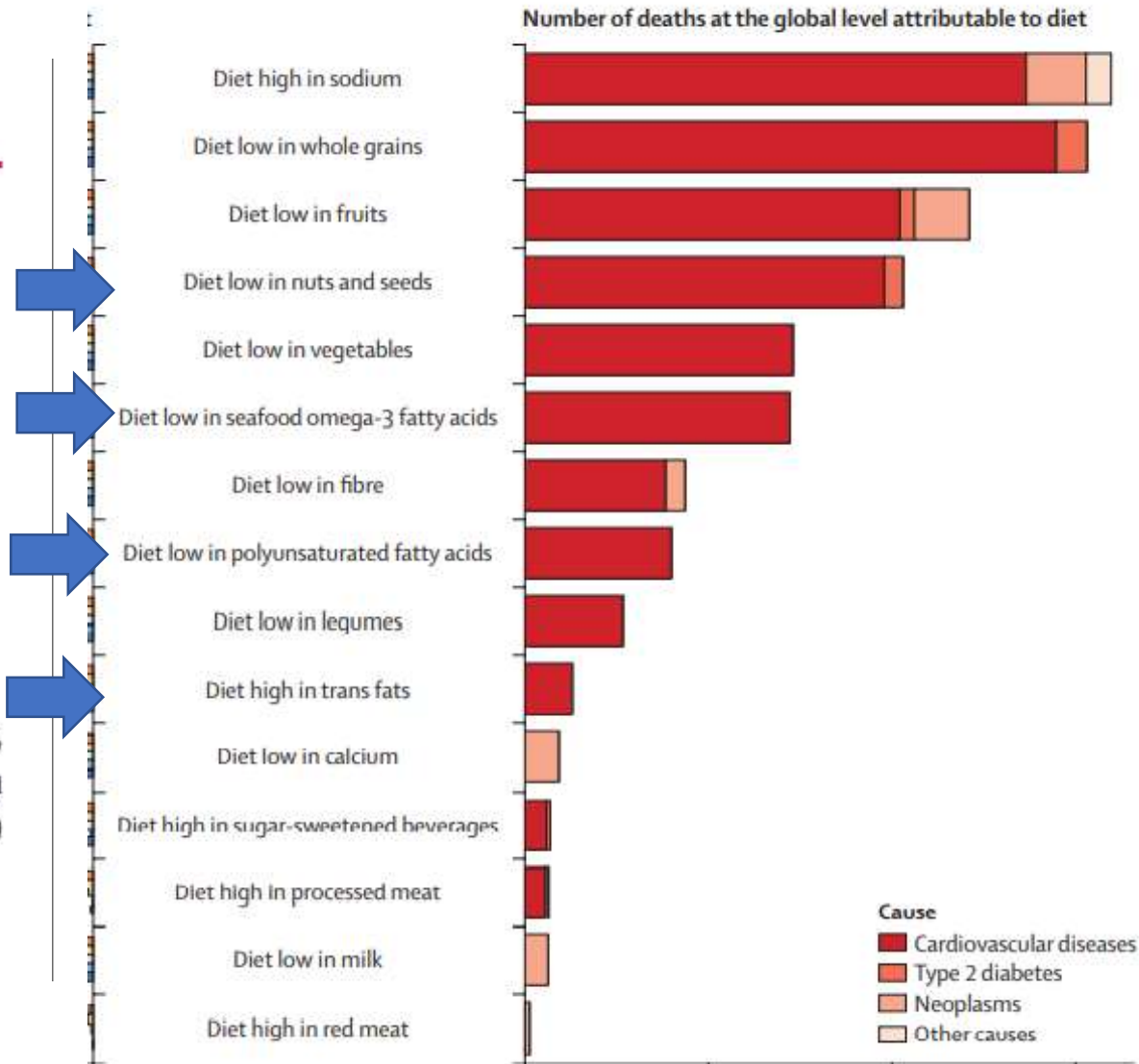
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**Background** Suboptimal diet is an important preventable risk factor for non-communicable diseases (NCDs); however, its impact on the burden of NCDs has not been systematically evaluated. This study aimed to evaluate the consumption of major foods and nutrients across 195 countries and to quantify the impact of their suboptimal intake on NCD mortality and morbidity.







Food and Agriculture Organization  
of the United Nations



## Dietary Fats

Dietary fats include all fats and oils that are edible; they may be produced from plants or animals. Dietary fats consist mainly of triglycerides, which can be split into glycerol and chains of carbon, hydrogen and oxygen called fatty acids. Fatty acids constitute the main components of these lipids and are required as a source of energy, and for metabolism and structure.

The major sources of the essential unsaturated fatty acids of the n-3 and n-6 series are fish and vegetable oils respectively.

## Major Types of Fatty Acids in Fats and Oils

SATURATED	MONO-UNSATURATED	POLYUNSATURATED		
Coconut Palm kernel Ghee/butter Vanaspati	Red palm oil Palmolein Groundnut Ricebran Sesame	<b>LINOLEIC (n-6)</b>		<b>α-LINOLENIC (n-3)</b>
		<b>Low</b>	Red palm oil Palmolein	Rapeseed, Mustard Soyabean
		<b>Moderate</b>	Groundnut, Ricebran Sesame	
		<b>High</b>	Safflower, Sunflower Cottonseed, Corn, Soyabean	



# Some Benefits of Dietary Fats

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- Fats/oils have high energy value and induce satiety.
- Fats provide energy and essential fatty acids
- Fats are precursors of biologically-active compounds in the body.
- Fats serve as a vehicle for fat-soluble vitamins like vitamins A, D, E and K and carotenes and promote their absorption.
- Fats contribute to texture, flavor and taste and increase the palatability of the diet.
- Fats constitute major components of body fluids and cell membranes.



# Dietary Guidelines for Indians

Eat variety of foods to ensure a balanced diet

Ensure provision of extra food and healthcare to pregnant and lactating women

Promote exclusive breastfeeding for six months and encourage breastfeeding till two years or more, if possible

Feed home based semi-solid foods to the infant after six months

Ensure adequate and appropriate diets for children and adolescents both in health and sickness

Eat plenty of vegetables and fruits

Ensure moderate use of edible oils and animal foods and very less use of ghee/butter/ vanaspati

Avoid overeating to prevent overweight and obesity

Exercise regularly and be physically active to maintain ideal body weight

Restrict salt intake to minimum

Ensure the use of safe and clean food

Adopt right pre-cooking processes and appropriate cooking methods

Drink plenty of water and take beverages in moderation

Minimize the use of processed foods rich in salt, sugar and fats

Include micronutrient rich foods in the diets of elderly people to enable them to be fit and active

# WHO Recommendations (as part of Healthy Diet Recommendations )

## Fats

- Reduce the amount of total fat intake to less than 30% of total energy intake helps to prevent unhealthy weight gain in the adult population (1, 2, 3). Also, the risk of developing NCDs is lowered by:
  - reduce saturated fats to less than 10% of total energy intake;
  - reduce *trans*-fats to less than 1% of total energy intake; and
  - replace both saturated fats and *trans*-fats with unsaturated fats (2, 3) – in particular, with polyunsaturated fats.



## A healthy approach to dietary fats: understanding the science and taking action to reduce consumer confusion

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Within the nutrition community, one example of suboptimal communication between scientists and the public is the continued demonization and general avoidance of dietary fat [3]. For years, an emphasis of nutrition communication was to balance calorie intake and energy expenditure and decrease dietary fat. Reductions in total dietary fat were recommended to reduce saturated fat as well as due to the energy density of lipids and the overall goal to reduce caloric intake [4]. Partly as a result, low-fat, high-carbohydrate diets were recommended in 1980 and thereafter for weight loss and reducing cardiovascular disease (CVD) risk. However this led to unintended consequences. The focus on reducing total fat resulted in increased consumption of refined carbohydrates and added sugars, and avoidance of nutrient-dense foods rich in healthy unsaturated fats such as nuts, seeds, avocados and vegetable oils. Subsequently, fat consumption has decreased while carbohydrate intake has increased as percentage of calories, which has been accompanied by significant increases in total energy intake and obesity rates in the United States [5, 6].

.....A global survey found that 95% of respondents knew that vitamins were needed for a healthy diet, but only 41% knew certain fats were essential nutrients

Myths  
around fats  
developed  
in 1980's



Table 1

## Current Dietary Fat Intake Recommendations for Adults

Organization	Report	Recommended Percent of Energy				
		Total	Saturated	Trans	n-6 PUFA	n-3 PUFA
World Health Organization	Fats and fatty acids in human nutrition: report of an expert consultation [12]	20–35%	<10%	<1%	2.5–9%	0.5–2%
Food and Nutrition Board, Institute of Medicine	Dietary reference intakes for energy, carbohydrate, fiber, fat, fatty acids, cholesterol, protein, and amino acids [13]	20–35%	Limit	Limit	5–10%	0.6–1.2%
United States Department of Health and Human Services and United States Department of Agriculture	Scientific Report of the 2015 Dietary Guidelines Advisory Committee [14]		<10%	Limit		
American Heart Association/ American College of Cardiology	Guideline on Lifestyle Management to Reduce Cardiovascular Risk, 2013 [15]		5–6%	Limit		
American Diabetes Association	Standards of Medical Care in Diabetes, 2015 [16]	Evidence suggests that there is not an ideal percentage of calories from carbohydrate, protein, and fat for all people with diabetes. Follow same recommendation as for the general population.				
American College of Cardiology/ American Heart Association/ The Obesity Society	Guideline for the Management of Overweight and Obesity, 2013 [17]	A variety of dietary approaches can produce weight loss in overweight and obese adults as long as reduction in energy intake is achieved. Weight loss is comparable with lower-fat and higher-fat diets.				

PUFA polyunsaturated fatty acids

**Table 6.4: Recommendations for dietary fat intake in Indians**

Age/Gender/ physiological groups	Physical activity	Minimum level of Total fat (% E) <sup>a</sup>	Fat from foods other than visible fats <sup>d</sup> % E	Visible fat <sup>g</sup>	
				%E	g/p/d
<b>Adult Men</b>	Sedentary	20	10	10	25
	Moderate				30
	Heavy				40
<b>Adult Women</b>	Sedentary	20	10	10	20
	Moderate				25
	Heavy				30
	Pregnant women	20	10	10	30
	Lactating women				30
<b>Infants</b>	0 – 6 m	40-60	Human milk <sup>i</sup>		
	6 - 24 m	35 <sup>b</sup>	10 <sup>c</sup>	25	25
<b>Children</b>	3-6 y	25	10	15	25
	7-9 y				30
<b>Boys</b>	10 – 12 y				35
	13 – 15 y				45
	16 – 18 y				50
<b>Girls</b>	10 – 12 y				35
	13 – 15 y				40
	16 – 18 y				35

# **Fats and fatty acids in human nutrition**

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# CONCLUSIONS AND RECOMMENDATIONS FOR SATURATED FATTY ACIDS (SFA)

- There is convincing evidence that replacing SFA with PUFA decreases the risk of CHD.
- There is probable evidence that replacing SFA with largely refined carbohydrates has no benefit on CHD, and may even increase the risk of CHD and favour metabolic syndrome development (Jakobsen et al., 2009).
- There is a possible positive relationship between SFA intake and increased risk of diabetes.
- There is insufficient evidence relating to the effect on the risk of CHD in replacing SFA with either MUFA or largely whole grain carbohydrates; however, based on indirect lines of evidence this could result in a reduced risk of CHD.
- There is insufficient evidence that SFA affects the risk for alterations in indices related to the components of the metabolic syndrome

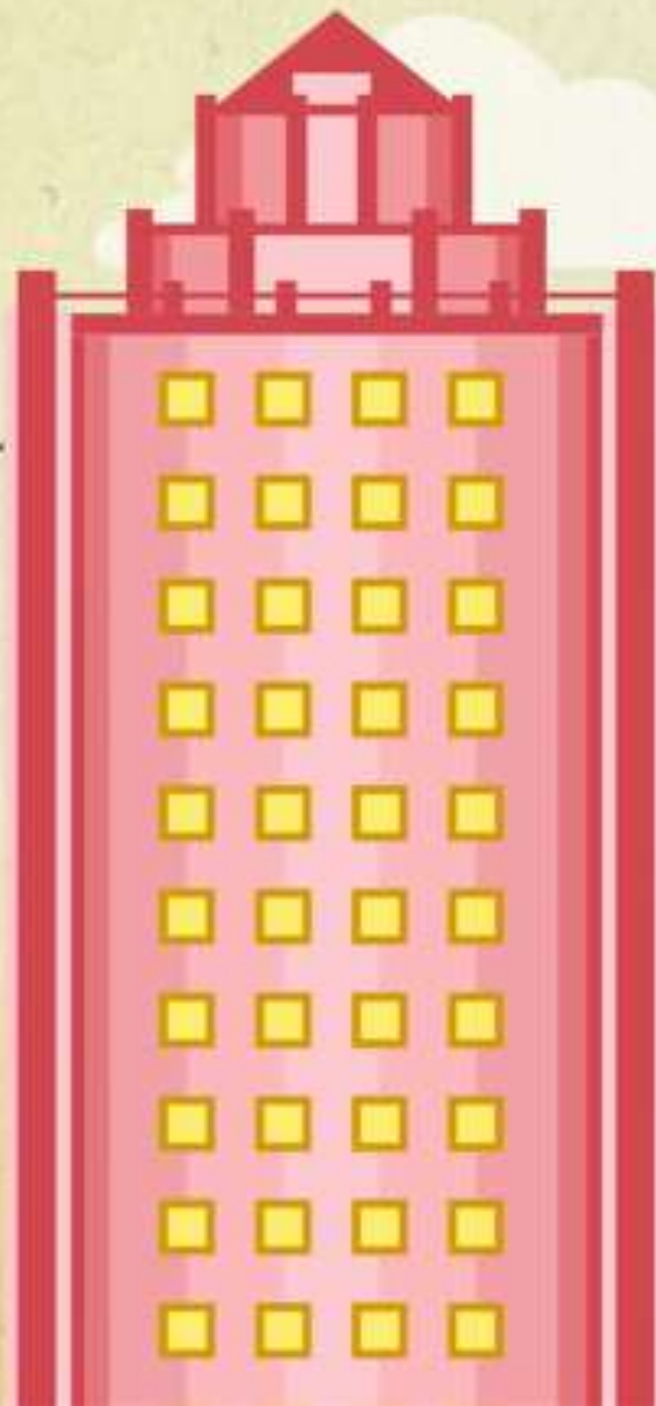
# CONCLUSIONS AND RECOMMENDATIONS FOR MONOUNSATURATED FATTY ACIDS (MUFA)

- There is convincing evidence that replacing carbohydrates with MUFA increases HDL cholesterol concentrations.
- There is convincing evidence that replacing SFA (C12:0–C16:0) with MUFA reduces LDL cholesterol concentration and total/HDL cholesterol ratio.
- There is possible evidence that replacing carbohydrates with MUFA improves insulin sensitivity.
- There is insufficient evidence for relationships of MUFA consumption with chronic disease end points such as CHD or cancer.
- There is insufficient evidence for relationships of MUFA consumption and body weight and percent adiposity.
- There is insufficient evidence of a relationship between MUFA intake and risk of diabetes.

# CONCLUSIONS AND RECOMMENDATIONS FOR POLYUNSATURATED FATTY ACIDS (PUFA)

- There is convincing evidence that linoleic acid (LA) and alpha-linolenic acid (ALA) are indispensable since they cannot be synthesized by humans.
- There is convincing evidence that replacing SFA with PUFA decreases the risk of CHD.
- There is convincing and sufficient evidence from experimental studies to set an acceptable intake to meet essential FA needs for linoleic acid (LA) and alpha-linolenic acid (ALA) consumption.
- There is possible evidence that PUFA affect the risk of alterations in indices related to the metabolic syndrome.
- There is possible evidence of a relationship between PUFA intake and reduced risk of diabetes.
- There is insufficient evidence for establishing any relationship of PUFA consumption with cancer.
- There is insufficient evidence for relationships of PUFA consumption and body weight and percent adiposity





**HDL**  
**HIGH**

**LOW**

**LDL**

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# Summary

- Healthful plant and seafood sources of monounsaturated and polyunsaturated fats have important health benefits in the context of a healthy dietary pattern.
- Future dietary recommendations should focus on healthful dietary patterns to help consumers identify and choose foods that are good sources of healthy fats.
- Furthermore, dietary recommendations need to consider and incorporate principles for effective scientific communication as a top priority in order to effectively convey evidence-based scientific messages to the public.