

Dietary Fats: Health and Consumers

Maena Naman Shafiee

Research Assistant, Dept. of Community Medicine, Govt. Medical College, Srinagar, Kashmir, India

ABSTRACT

Communication among nutrition experts and consumers is required to convey the nutrition information of foods usually consumed. A case study is presented from Experimental biology symposium that addresses issues between public health and fats. Many researchers have laid their focus on balanced calorie intake and reduction of saturated fats in order to reduce CVD probability in individuals. It has been proven by many scientific evidences that replacement of fats by carbohydrates has no effect on the probability while replacing it with poly unsaturated fats reduces the risk, many significant research centres support this evidence of unsaturated fat benefitting the health, yet a lot of confusion is still prevalent among number of food manufactures and restaurant owners on the risk of CVDs and relation of fat with it.

Key words: Fats, CVDs, Dietary Intake

INTRODUCTION

Although the new age media has made huge information possible for consumers. It has also led to a rise in confusion regarding nutrition and balanced dietary intake requirements for individuals of all ages.

The most common example of miscommunication between nutritionist and consumers is overall avoidance of dietary fat by consumers. ⁽¹⁾ For many years consumers reduce the fat intake in foods due to high density of lipids as the main aim was to reduce calorie intake. ⁽²⁾ Hence reduced-fat, increased-carbohydrate foods were suggested in 1980 in order to reduce CVD and result in weight loss. However this recommendation led to the intake of refined carbohydrate diets by consumers with added sugars and with the result avoidance of high nutrient foods which were abundant in saturated fats like oilseeds, fruits like avocados etc were prevalent. Therefore intake of fat has lowered and carbohydrate ingestion has increased resulting in high

calories therefore increasing obesity chances in individuals. ⁽³⁻⁴⁾

The treatment of diseases with single target has proven to be a success in case of deficiency diseases but this method has been problematic in addressing chronic diseases. ⁽⁵⁾ Dietary pattern can always affect the rise and prevalence of chronic disease. ⁽⁶⁾ It has been found out that only 41 % know about fats as an essential part of diet while remaining 95% think of vitamins as a important requirement for a healthy life. ⁽⁷⁾ Communication between nutrition experts and public is not evident in the current scenario which leads to consumer confusion and poor public health. This paper elaborates the misconceptions among the consumers regarding fat and its intake and throws some light on the history of dietary fat as per a scientific biology session

Dietary fat and its recommendations

Fats have always been linked with the increased CVDs and cholesterol has always been thought as a major reason for cardiac arrest and bocks, this is because of

the increase in the serum of the total cholesterol level and the LDL-C in the human body ⁽⁸⁾

Factors responsible for CVD are

- Diabetes
- Overweight
- Hypertension
- Smoking and
- Obesity.

Dietary fats have many effects on these contributing factors of CVD. Nutrition and diet recommendation have played a huge role in the consumer perception for the

consumption of the fats, low fat foods in the regular diet

Dietary recommendations for Fat Total fat

1. General Fat recommendations is summarised in Table 1. ⁽⁹⁻¹⁴⁾
2. WHO and Dietary Reference Intake suggest 20-35% of total calories ⁽⁹⁻¹⁰⁾ with a minimum of 20 % which prevent increased TG and lowered lipoproteins in blood this condition occurs when less fat diet with high carbs is consumed ⁽¹⁰⁾ and a max of 35 % of limited saturated fat which results in weight gain. ⁽¹⁰⁾

Table 1: Fat Intake for Adults

*Percentage of energy

Report	Body of Recommendation	Saturated fat allowed	Trans fat Limit	n-3 PUFA	n-6 PUFA	Total
Fats and fatty acids in human nutrition: report of an expert consultation ^[9]	World Health Organization	<10%	<1%	0.5–2%	2.5–9%	20–35%
Dietary reference intakes for energy, carbohydrate, fiber, fat, fatty acids, cholesterol, protein, and amino acids ^[10]	Food and Nutrition Board, Institute of Medicine	Limit	Limit	0.6–1.2%	5–10%	20–35%
Scientific Report of the 2015 Dietary Guidelines Advisory Committee ^[11]	United States Department of Health and Human Services and United States Department of Agriculture	<10%	Limit			
Guideline on Lifestyle Management to Reduce Cardiovascular Risk, 2013 ^[12]	American Heart Association/ American College of Cardiology	5–6%	Limit			
Standards of Medical Care in Diabetes, 2015 ^[13]	American Diabetes Association	No specific Recommendation				
Guideline for the Management of Overweight and Obesity, 2013 ^[14]	American College of Cardiology/ American Heart Association/ The Obesity Society	Huge Variety of dietary recommendations				

PUFA polyunsaturated fatty acids

Saturated fat

1. Many reputed dietary organisations recommended the intake of the saturated fat by, 10 % of energy ⁽⁹⁻¹²⁾ Canada’s Heart and Stroke Foundation did not give any limit on fat intake but focused on balanced diet intake by human. ⁽¹⁵⁾

Trans fat

There are usually no safe levels for trans fat intake. it is highly responsible for

2. CVDs
3. Increased LDL-C,
4. Increased triglycerides
5. lowers HDL-C
6. inflammation,
7. increased hepatic fat synthesis,

This results in high risk of CVD other than any macronutrient based on this

the intake is required to be lowered as far as possible. ⁽⁸⁾ USDA gave a ruling about the partially hydrogenated fats that they are no longer considered to be safe for intake in 2015 and must thus kept out of the food supply. ⁽¹⁶⁾

Monounsaturated fat

MUFA (Monounsaturated fat) are easily broken down by the liver in result to the synthesis of carbs consumption. ⁽¹⁰⁾ the most abundant form of MUFA in both plant and animal source is oleic acid. ⁽⁹⁾

Polyunsaturated fat

PUFA has beneficial role in human health IOM has set a definite limit for the intake of n-3,n-6,EPA and DHA. ⁽¹⁰⁾ The recent limit is as follows:

1. Linoleic acid up to 2.5–9% ,

2. total n-3 PUFA up to of 0.5–2% of energy, and
3. EPA + DHA in combination up to 250 to 2000 mg/d. ⁽¹⁹⁾

Fats and Heart Diseases:

Fats are synthesised in the body for energy and structural formation of the body (17). Though there has always been a directly proportional relation to the fat intake and bad cholesterol levels. ⁽⁹⁻¹²⁾ but still the effect is very complex and unknown in nature as the fatty acids are very diverse biologically. ⁽¹⁸⁾

There have always been evidences regarding the relation of fats and CVDs: higher the trans fat elevated are the risks of coronary heart diseases. ⁽⁸⁾ Siri-Tarino et al found out that there is hardly any relation between fat and heart disease. ⁽¹⁹⁾ Studies that compared carbohydrates to fats found out that there are similar associations of both with the cardiovascular risk. ⁽²⁰⁻²¹⁾ Based on the evidences of DGAC (Dietary Guidelines Advisory Committee) which stated that replacement of carbohydrate in case of fat does not lower the risk of CVDs. ⁽²²⁾ Presidential Advisory committee reviewed that by lowering saturated fat and replacement of the same by unsaturated fat especially PUFA will reduce the risk of CVDs. ⁽²³⁾ In cohort study modelling, PUFA is considered to be the most useful substitute nutrient as compare to either saturated fat or carbohydrate. ⁽²⁴⁾ Li. et al. found out that replacement of saturated fat with high carbohydrates such will lower risk of CHD, but replacement of saturated fat by carbohydrates does not affect the CHD risk. ⁽²¹⁾

Consumers and Dietary Fat:

1. 64% consumers were confused about the information available and was contradictory in its nature ⁽⁷⁾
2. 90% of the respondents think that fat is a negative dietary nutrient and relate it to obesity and CVDs ^(7,27)
3. 70% of the people relate that if they reduce fat intake they will control their weight and reduce the risk of CVDs ⁽²⁸⁾

4. Surveys suggest that consumers think that fat is not required in daily diet and its intake must be as low as possible ^(7,28)
5. Identification of fats among various sources of food is responsible for the consumer acceptability of various fats like olive oil and fish oil is considered healthy and its acceptability is high while only few considered avocados and nuts as healthy ^(34,28)
6. 67% of the consumers limit their intake while only few are aware about the amount of fat required. ⁽²⁸⁾
7. 22% identified the correct range of dietary fat intake ⁽⁷⁾
8. Women's Health Initiative trial resulted in showing that there are no results in lowering the fat from 36% to 29% on the probabilities of CVDs, diabetes and cancers ^(25,26,29-33)

CONCLUSIONS

Dietary fat consumption is a perplexing matter for consumers, while some evidences state that the reduced consumption is good for health other highlight the importance of intake of the same in the scientific literature. None of the literature should be considered in isolation as the concept are interlinked to other nutrient and no single target nutrient can result in the reduction of the risk of CVDs and diabetes etc.

REFERENCES

1. Gallop P. Americans Still Avoid Fat More than Carbs. Gallop Press; 2014.
2. US Department of Health and Human Services; US Department of Agriculture. Health.gov, 1985 Dietary Guidelines for Americans. Washington, DC: US Dept of Health and Human Services; 1985.
3. Austin GL, Ogden LG, Hill JO. Trends in carbohydrate, fat, and protein intakes and association with energy intake in normal-weight, overweight, and obese individuals: 1971-2006. *Am J Clin Nutr.* 2011;93(4): 836–43.
4. Ogden CL, et al. Prevalence of childhood and adult obesity in the United States, 2011-2012. *JAMA.* 2014;311(8):806–14.

5. Mozaffarian D, Ludwig DS. Dietary guidelines in the 21st century--a time for food. *JAMA*. 2010;304(6):681–2.
6. Heidemann C, et al. Dietary patterns and risk of mortality from cardiovascular disease, cancer, and all causes in a prospective cohort of women. *Circulation*. 2008;118(3):230–7.
7. Diekmann C, Malcolm K. Consumer perception and insights on fats and fatty acids: knowledge on the quality of diet fat. *Ann Nutr Metab*. 2009;54(Suppl 1):25–32.
8. Hu FB, Willett WC. Optimal diets for prevention of coronary heart disease. *JAMA*. 2002;288(20):2569–78.
9. US Department of Health and Human Services; US Department of Agriculture. Health.gov, Scientific report of the 2015 dietary guidelines advisory committee. U.S. Department of Health and Human Services and U.S. Department of Agriculture; 2015.
10. Eckel RH, et al. 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. *J Am Coll Cardiol*. 2013;63(25 Pt B):2960–84.
11. American Diabetes Association. Standards of medical care in diabetes--2015. *Diabetes Care*. 2015;38(Suppl 1):S1–93.
12. Jensen MD, et al. AHA/ACC/TOS guideline for the management of overweight and obesity in adults: a report of the American College of Cardiology/American Heart Association task force on practice guidelines and the Obesity Society. *J Am Coll Cardiol*. 2014;63(25 Pt B):2985–3023.
13. 2015 Food and Health Survey: consumer attitudes towards food safety, nutrition and health. 2015, International Food Information Council Foundation, conducted by Greenwald & Associates of Washington, D.C.
14. Heart and Stroke Foundation of Canada Position Statement: Saturated Fat, Heart Disease, and Stroke. 2015.
15. Mitchell L. U.S. and EU Consumption Comparison. Published by Economic Research Service, USDA, Washington D.C. (WRS-04-04).
16. Mozaffarian D. Diverging global trends in heart disease and type 2 diabetes: the role of carbohydrates and saturated fats. *Lancet Diabetes Endocrinol*; 2015;3(8):586–8.
17. Mozaffarian D, Micha R, Wallace S. Effects on coronary heart disease of increasing polyunsaturated fat in place of saturated fat: a systematic review and meta-analysis of randomized controlled trials. *PLoS Med*. 2010;7(3):e1000252.
18. Li Y, et al. Saturated fats compared with unsaturated fats and sources of carbohydrates in relation to risk of coronary heart disease: a prospective cohort study. *J Am Coll Cardiol*. 2015;66(14):1538–48
19. Sacks FM, et al. Dietary fats and cardiovascular disease: a presidential advisory from the American Heart Association. *Circulation*. 2017;136(3):e1–e23.
20. Wang DD, et al. Association of Specific Dietary Fats with Total and Cause-Specific Mortality. *JAMA Intern Med*. 2016;176(8):1134–45.
21. Zong G, et al. Intake of individual saturated fatty acids and risk of coronary heart disease in US men and women: two prospective longitudinal cohort studies. *BMJ*. 2016;355:i5796.
22. Jakobsen MU, et al. Intake of carbohydrates compared with intake of saturated fatty acids and risk of myocardial infarction: importance of the glycemic index. *Am J Clin Nutr*. 2010;91(6):1764–8.
23. de Oliveira Otto MC, et al. Dietary intake of saturated fat by food source and incident cardiovascular disease: the multi-ethnic study of atherosclerosis. *Am J Clin Nutr*. 2012;96(2):397–404.
24. Guasch-Ferre M, et al. Dietary fat intake and risk of cardiovascular disease and all-cause mortality in a population at high risk of cardiovascular disease. *Am J Clin Nutr*. 2015;102(6):1563–73.
25. Appel LJ, et al. A clinical trial of the effects of dietary patterns on blood pressure. DASH collaborative research group. *N Engl J Med*. 1997;336(16):1117–24.
26. Covas MI, et al. The effect of polyphenols in olive oil on heart disease risk factors: a randomized trial. *Ann Intern Med*. 2006;145(5):333–41.
27. Mozaffarian D, Ludwig DS. The 2015 US dietary guidelines: lifting the ban on Total dietary fat. *JAMA*. 2015;313(24):2421–2.
28. Howard BV, et al. Low-fat dietary pattern and risk of cardiovascular disease: the Women's Health Initiative randomized

- controlled dietary modification trial. JAMA. 2006;295(6):655–66.
29. Tinker LF, et al. Low-fat dietary pattern and risk of treated diabetes mellitus in postmenopausal women: the Women's Health Initiative randomized controlled dietary modification trial. Arch Intern Med. 2008;168(14):1500–11.
 30. Oldways Common Ground Consensus Statement. 2015
 31. Sources of Saturated Fat, Stearic Acid, & Cholesterol Raising Fat among the U.S. Population, 2005-06. Epidemiology and Genomics Research Program website. National Cancer Institute. http://epi.grants.cancer.gov/diet/foodsources/sat_fat/.
 32. Prentice RL, et al. Low-fat dietary pattern and risk of invasive breast cancer: the Women's Health Initiative randomized controlled dietary modification trial. JAMA. 2006;295(6):629–42.
 33. Beresford SA, et al. Low-fat dietary pattern and risk of colorectal cancer: the Women's Health Initiative randomized controlled dietary modification trial. JAMA. 2006;295(6):643–54.
 34. 2015 Food and Health Survey: consumer attitudes towards food safety, nutrition and health. 2015, International Food Information Council Foundation, conducted by Greenwald & Associates of Washington, D.C.

How to cite this article: Shafiee MN. Dietary fats: health and consumers. Int J Health Sci Res. 2019; 9(1):270-274.
