

TECHNICAL ISSUES ON NUTRITION LABELLING

– TRANS FATTY ACID –

Trans fatty acid, commonly known as trans fat, is in the spotlight in recent years due to its adverse effects on heart disease. This paper briefly introduces trans fat and actions on trans fat taken by various food/health authorities.

BACKGROUND

A trans fat is an unsaturated fatty acid molecule that contains a trans double bond. A low level of trans fats is found naturally in milk and fat of sheep and cattle. Other than these sources, dietary trans fats are mostly from hydrogenated oils, such as shortening and margarines which are common ingredients of fried foods and bakery products, e.g., crackers, cookies, cakes, pastries, chips, etc. During the hydrogenation process of turning oil from liquid form into semi-solid form, both reduction and migration of double bonds occurred, resulting in an increase in the amount of trans fatty acids (Annex 1 – FAQs on trans fat).

Trans fat has properties similar to saturated fat with regard to health effects, i.e., it raises the low-density lipoprotein cholesterol (so called “bad” cholesterol) and lowers the high-density lipoprotein cholesterol (so called “good” cholesterol), which in turn increases the risk of coronary heart disease (CHD).

ACTIONS TAKEN ON TRANS FAT

As scientific evidence is found linking dietary trans fat and risk of developing health disease, some food/health authorities have called for actions on trans fat. These actions are generally classified into (i) labelling of trans fat; and (2) limiting the amount of trans fat in food products.

Labelling of Trans Fat

The latest amendments on the Codex Guidelines on Nutrition Labelling in 2003 indicate that food/health authorities may require trans fat to be labelled along with saturated fat, monounsaturated fat, polyunsaturated fat and cholesterol when

there is a claim on the amount and/or type of fat or the amount of cholesterol. Other than this recent change, Codex has all along given flexibility to food authorities in formulating nutrition labelling regulations in individual countries by suggesting the inclusion of nutrient(s) that is considered to be relevant for maintaining a good nutrition status in nutrition labelling. Following this principle, several countries, including Canada, Brazil, Israel, the USA, Argentina, Paraguay and Uruguay, are requiring trans fat to be declared on nutrition labels mandatorily¹.

Limiting Trans Fat in Food Products

Apart from requiring the provision of trans fat information on nutrition labelling, some food/health authorities take or consider further actions on trans fat by means of introducing restrictions on the use of trans fat in food products. Denmark leads the world by passing an executive order on the content of trans fatty acids in oils and fats in March 2003. Beginning 1 June 2003, the amount of trans fat found in oils and fats, either alone or as part of processed foods, should not exceed 2 grams per 100 grams of food sold in Denmark. Following the move in Denmark, a bill with similar requirements was submitted to the Parliament in Canada in October 2004.

TRANS FAT LABELLING IN HONG KONG

Trans fat is not included in the core nutrient list in the latest NL proposal in Hong Kong. However, we propose that, starting from Phase II, trans fat to be labelled along with saturated fat, monounsaturated fat, polyunsaturated fat and cholesterol when there is a claim on the amount and/or type of fat or the amount of cholesterol. This proposal is in line with the latest movement on trans fat as there is a trend showing that trans fat and its potential health impact are of concern to Codex and health authorities worldwide.

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¹ Listing of trans fat on nutrition labels in the USA, Argentina, Paraguay and Uruguay will be implemented in 2006.

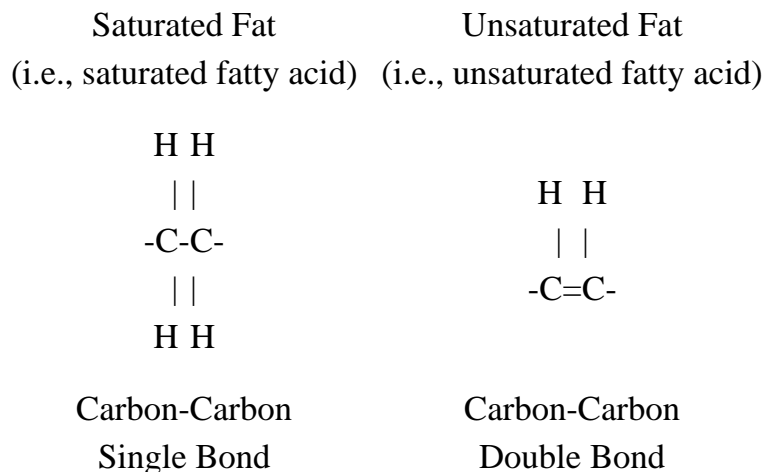
Frequently Asked Questions about Trans Fat

Q: What are fats and fatty acids?

A: Fats are a group of chemical compounds that contain fatty acids. Energy is stored in the body mostly in the form of fat. Fat is also needed in the diet to supply essential fatty acids that are substances essential for growth but not produced by the body itself. The terms fat and fatty acids are frequently used interchangeably.

Q: What are the main types of fatty acids?

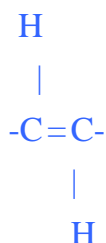
A: There are three main types of fatty acids: saturated, monounsaturated and polyunsaturated. All fatty acids are chains of carbon atoms with hydrogen atoms attached to the carbon atoms. A saturated fatty acid has the maximum possible number of hydrogen atoms attached to every carbon atom. It is therefore said to be "saturated" with hydrogen atoms, and all of the carbons are attached to each other with single bonds. In some fatty acids, a pair of hydrogen atoms in the middle of a chain is missing, creating a gap that leaves two carbon atoms connected by a double bond rather than a single bond. Because the chain has fewer hydrogen atoms, it is said to be "unsaturated." A fatty acid with one double bond is called "monounsaturated" because it has one gap. Fatty acids having more than one gap are called "polyunsaturated." The fat in foods contains a mixture of saturated, monounsaturated and polyunsaturated fatty acids. In foods of animal origin, a large proportion of fatty acids are saturated. In contrast, in foods of plant origin and some seafood, a large proportion of the fatty acids are monounsaturated and polyunsaturated. The structure of saturated and unsaturated chemical bonds looks like the diagram below.



Q: What is trans fat?

A: Trans fat (also known as trans fatty acids) is a specific type of fat formed when liquid oils are made into solid fats like shortening and hard margarine. However, a small amount of trans fat is found naturally, primarily in some animal-based foods. Trans fat behaves like saturated fat by raising low-density lipoprotein (LDL or "bad") cholesterol that increases your risk of coronary heart disease (CHD). Trans fat can be found in some of the same foods as saturated fat, such as vegetable shortenings, some margarines, crackers, candies, cookies, snack foods, fried foods, baked goods, and other processed foods made with partially hydrogenated vegetable oils. Trans fat is made when hydrogen is added to vegetable oil -- a process called hydrogenation. Hydrogenation increases the shelf life and flavor stability of foods containing these fats. Usually the hydrogen atoms at a double bond are positioned on the same side of the carbon chain. However, partial hydrogenation reconfigures some double bonds and the hydrogen atoms end up on different sides of the chain. This type of configuration is called "trans" (means "across" in Latin). The structure of a trans unsaturated chemical bond looks like the diagram below.

Trans Fat
(i.e., trans fatty acids)



Hydrogen atoms are on opposite sides of the chain of carbon atoms at the carbon-carbon double bond.

Q: Are all fats the same?

A: No. While unsaturated fats (monounsaturated and polyunsaturated) are beneficial when consumed in moderation, saturated fat and trans fat are not. Saturated fat and trans fat raise LDL ("bad") cholesterol. Therefore, it is advisable to choose foods low in both saturated and trans fats as part of a healthful diet.

Q: What foods contain saturated fat, trans fat, and cholesterol?

A: Saturated and trans fats can be found in some of the same foods, such as vegetable shortenings, some margarines (especially margarines that are harder), crackers, candies, cookies, snack foods, fried foods, baked goods, and other processed foods

made with partially hydrogenated vegetable oils. High amounts of saturated fat are found in animal products, such as beef and pork, chicken skin, butter, whole milk, and cheese. Foods high in cholesterol include liver, other organs meats, egg yolks, and dairy fats.

Q: How do saturated and trans fats, unsaturated fats, and dietary cholesterol relate to heart disease?

A: Higher intakes of saturated and trans fats, and dietary cholesterol raise low density lipoprotein (LDL or "bad") cholesterol in the blood. An elevated LDL cholesterol increases the risk of developing coronary heart disease (CHD). To decrease LDL cholesterol and the risk of CHD, substitute monounsaturated and polyunsaturated fats for saturated and trans fats and decrease the intake of cholesterol.

Q: Do saturated and trans fats affect blood cholesterol in different ways?

A: Yes. Like saturated fat, trans fat also raises the low density lipoprotein (LDL or "bad") cholesterol in the blood. But, unlike saturated fat, trans fat lowers high density lipoprotein (HDL or "good") cholesterol in the blood. An elevated LDL cholesterol increases the risk of developing coronary heart disease.

(extracted from US FDA *Questions and Answers about Trans Fat Nutrition Labelling*
<http://www.cfsan.fda.gov/~dms/qatrans2.html>)