



Trans fatty acids (TFA) to be differentiated into industrially produced TFAs and naturally present TFAs

- Trans fatty acids (TFA) are a specific type of unsaturated fatty acids. There are two dietary sources of TFA. Industrially produced TFA are formed during the hardening process, called partial hydrogenation of vegetable oils. They are found in various products including spreads, baked goods, fried food and frying fats. Naturally occurring TFA - also referred to as ruminant TFA - are produced by ruminants such as cows and are therefore naturally present in ruminant meat (e.g. beef and lamb) and milk. In dairy products, natural TFA are part of the milk fat.
- The detrimental effects of industrial TFA on heart health are well accepted:
 - The FAO/WHO Expert Consultation on Fats and Fatty Acids in Human Nutrition concluded in 2010:

*“There is convincing evidence that TFA from commercial **partially hydrogenated vegetable oils (PHVO)** increase CHD risk factors and CHD events – more so than had been thought in the past. There is also probable evidence of an increased risk of fatal CHD and sudden cardiac death in addition to an increased risk of metabolic syndrome components and diabetes.”^a*
 - A 2015 systematic review and meta-analysis commissioned by WHO, reported:

*“Consistent with the findings of a previous meta-analysis of observational studies, our study [...] found that **industrially produced, but not ruminant derived, trans fats** are associated with risk of CHD...”^b*
 - A 2016 WHO Scientific update on TFA also confirmed:

*“The results of this meta-regression analysis show clearly and consistently that reducing intake of total or **industrial TFA** by replacing either with cis-MUFA or cis-PUFA, and to a lesser extent, carbohydrates, improves the lipid and lipoprotein profiles towards reduced risk of CVD. The results on ruminant TFA studies were less conclusive...”^c (For more details on this report, read IDF specific factsheet on [the IDF intranet](#))*
- Furthermore, emerging evidence shows that the biological activities of industrial and ruminant TFA differ, and that certain ruminant TFA (such as rumenic, vaccenic and t-palmitoleic acids, ...) may be associated with beneficial health effects in humans.^d For example, the findings of the meta-analysis of prospective cohort studies commissioned by WHO (2015) showed that “Ruminant trans-palmitoleic acid was inversely associated with type 2 diabetes”^b
- Consumption of ruminant TFA at doses achievable by the diet alone has no adverse effect on CHD risk.^{e ; f} Milk and dairy products contain low amounts of natural TFA. Whole milk contains about 0.08 g of natural TFA/100g of product (i.e < 0.1%), butter contains about 2.6 g/100g (i.e < 3%).
- As the intake of industrial TFA substantially decreased in the past decade, total TFA intake went down as well, while the absolute amount of natural TFA eaten from dairy and meat did not change. Stating that the current consumption of natural TFA has increased is misleading; the correct statement is that the relative contribution of natural TFA to the total TFA intake has become higher. Yet, the habitual intake of ruminant TFA is well below the maximum recommended intake of 1 En%.

- TFAs naturally occurring in dairy foods are produced in the rumen of the cow and are an integral part of milk/meat fat. Contrary to highly processed foods, products naturally containing some amounts of ruminant TFAs, such as milk and dairy products, have very limited opportunities for reformulation.
- Given the above, it is important to differentiate ruminant TFA with industrially-produced TFA. Recommending in policies the virtual elimination of all TFAs without differentiation between the types of TFA will potentially lead to poorer diets. This may result in discouraging consumers from eating dairy products. Milk and dairy foods play a key role in healthy human nutrition and development throughout life, and especially in childhood.^d
- The European Commission is currently working on a possible EU-based initiative to limit intakes of **industrial trans fats** in the diet of EU consumers, such as mandatory labelling of total trans fats content of foods on food labels.
- At international level, work and discussion on claim for “Free of trans fatty acids” are under progress within the CODEX Committee on Nutrition and Foods. The proposed claim “free of TFA” is not supported by the dairy industry. The dairy sector strongly recommended that any consideration of claims related to TFAs be reconsidered in the context of reduction of **trans fatty acids from partially hydrogenated oils and fats**.

^a FAO (2010) Food and Nutrition paper 91. Fats and fatty acids in human nutrition. Report of an expert consultation

^b de Souza RJ, et al., (2015) Intake of saturated and trans unsaturated fatty acids and risk of all-cause mortality, cardiovascular disease, and type 2 diabetes: systematic review and meta-analysis of observational studies. *BMJ*; 351:h3978

^c Brouwer IA, World Health Organization (2016). Effect of trans-fatty acid intake on blood lipids and lipoproteins: a systematic review and meta-regression analysis
<http://apps.who.int/iris/bitstream/10665/246109/1/9789241510608-eng.pdf>

^d Wang Y et al., (2013) Current issues surrounding the definition of trans-fatty acids: implications for health, industry and food labels. *Br J Nutr.* Oct;110(8):1369-83

^e Uauy R et al., (2009). WHO Scientific update on trans fatty acids: summary and conclusions. *EJCN* 63, S68-75

^f Gayet-Boyer C, et al., (2014) Is there a linear relationship between the dose of ruminant trans-fatty acids and cardiovascular risk markers in healthy subjects: results from a systematic review and meta-regression of randomised clinical trials. *Br J Nutr.*;112(12):1914-1922

