



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

IDF Factsheet – October 2014

- Trans fatty acids (TFA) are a specific type of unsaturated fatty acids. There are two main 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 meat 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. For example:

- A 2009 WHO Scientific update on TFA concluded that:

*'The current growing body of evidence from controlled trials and observational studies indicates that TFA consumption from **partially hydrogenated oils** adversely affects multiple cardiovascular risk factors and contributes significantly to increased risk of CHD events.*

*TFA produced by **partial hydrogenation** of fats and oils should be considered industrial food additives having no demonstrable health benefits and clear risks to human health.'*ⁱ

- The 2010 FAO/WHO Expert Consultation on Fats and Fatty Acids in Human Nutrition contain similar conclusions on industrial TFA:

*'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.'*ⁱⁱ

- Consumption of ruminant TFA at doses achievable by the diet alone has no adverse effect on CHD risk.ⁱ ⁱⁱⁱFurthermore, emerging evidence shows that the biological activities of industrial and ruminant TFA differ and that certain ruminant TFA may be associated with beneficial health effects in humans.^{iv}
- Milk and dairy products contain only low amounts of natural TFA. Whole milk contains only about 0.1% natural TFA and dairy foods with reduced fat content contain even less. The 2010 FAO/WHO Expert Consultation on Fats and Fatty Acids in Human Nutrition concluded:
- *Among adults, the estimated average daily **ruminant TFA intake in most societies is low.***ⁱⁱ
- When the intake of industrial TFA goes down, total TFA intake goes down as well while the absolute amount of natural TFA eaten from dairy and meat does not change. People saying that we now eat more natural TFA only speak about the relative contribution of natural TFA to overall reduced total TFA intake.
- TFAs naturally occurring in dairy products are produced in the rumen of the cow and enter naturally into the cow's milk and meat. Dairy products, and hence also ruminant TFA, have been part of the human diet for thousands of years. In contrast to industrially produced TFA dairy technology does not produce TFAs, as they are naturally present in milk-fat. And thus due to animal physiology, natural TFA cannot be eliminated from milk fat as they are naturally present.
- 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 lower consumption of dairy foods, which play a key role in healthy human nutrition and development throughout life, but especially in childhood.ⁱ

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- ⁱ Uauy R et al., (2009) Review. WHO Scientific update on trans fatty acids: summary and conclusions. EJCN 63, S68-75.
- ⁱⁱ FAO (2010) Food and Nutrition Paper 91. Fats and fatty acids in human nutrition. Report of an expert consultation. (<http://foris.fao.org/preview/25553-ece4cb94ac52f9a25af77ca5cfba7a8c.pdf>, accessed 12 March 2014)
- ⁱⁱⁱ Gayet-Boyer 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. In Press
- ^{iv} 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.
- ^v FAO. (2013) Milk and Dairy Products in Human Nutrition. <http://www.fao.org/docrep/018/i3396e/i3396e.pdf> (Accessed on 6 May 2014)

