Influence of trans Fatty Acids on Infant and Fetus Development

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Abstract

Trans isomers are formed from cis unsaturated fatty acids during biohydrogenation by rumen microorganisms and by commercial partial hydrogenation during the processing of vegetable and fish oils. Recent estimates indicate that consumers in Western countries may receive from 0.5-2.1% to 2.5% of total energy intake as trans fatty acids. In recent years special attention has been given to the potential impairment of essential fatty acids metabolism to their long-chain metabolites by trans isomers in humans. These long-chain polyunsaturates metabolites are of great physiological importance during prenatal and postnatal development, as essential membrane components and precursors for synthesis of prostaglandins and other eicosanoids. Humans do not synthesise trans isomers of fatty acids so their presence in human milk is based on the maternal diet. Trans fatty acids content in human milk varied between countries from 0.35% in Africa to 7.2% of total fatty acids in Canada as a result of variation in dietary exposure to trans isomers. Although the negative effect of the human milk trans fatty acids on breast-fed infants is not yet well documented, ingested levels of trans fatty acids by infants may reflect current breastfeeding mothers diet and also the early consumed diet during pregnancy.

Key words: trans fatty acids, pregnancy, human milk, nutrition