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Impact of Danish ban of industrial produced trans fatty acids on serum cholesterol levels 1993-2006

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Industrially produced trans fatty acids (ITFA) increase the LDL:HDL ratio and hereby the risk of cardiovascular disease (CVD). Therefore, ITFA has been reduced in Western Europe over the last decades but is still high in Eastern Europe and in subgroups of the EU population. Regulatory interventions are the only way to minimize ITFA intake for all. The Danish ITFA ban (2004) can elucidate the impact of elimination of ITFA on CVD. In Denmark cardiac mortality declined by 70% through 1980-2009. Data on ITFA intake and blood lipids from the 1990s, where the average Danish ITFA intake was about 3 g/d, and up to today are needed to study the correlation between intake of ITFA and serum cholesterol (CHOL). The Danish food composition databank has been updated with TFA intake values. Hereby the correlation between ITFA intake and CHOL level in Denmark from 1993 -2006 can be investigated.
Methods:
Ecological analyses of ITFA and CHOL in participants from 3 cohorts:
- Diet, Cancer and Health (1993-1997); n = 57,054; 50-64 yr
- Inter99 (1999-2001); n = 6,784, 30-60 yr
- Health 2006 (2006); n = 3,471, 18-69 yr

Results:
ITFA-intake was 0.02 g/d in Inter99. Data will be extended to include ITFA intake data of all cohorts as well as age adjusted correlations with CHOL.
Mean CHOL all men (n = 31,675) declined from 6.3 ± 1.0 in 1993 to 5.4± 1.0 in 2006
Mean CHOL all women (n = 34,675) declined from 6.6 ± 1.5 in 1993 to 5.4± 1.1 in 2006
Similar declines were found in participants without self-reported hypercholesterolemia:
Mean CHOL men (n = 28,999) declined from 6.1 ± 0.9 in 1993 to 5.1± 1.0 in 2006
Mean CHOL women (n = 32,593) declined from 6.5 ± 1.5 in 1993 to 5.2± 1.1 in 2006
There was a significant decrease in CHOL (p < 0.0001) from 1993, where average Danish intake of ITFA was about 3 g/d to 2006 where ITFA was banned

Conclusions:
Data show a non-treatment related significant decline in CHOL. Data from 2000 and 2006 are collected in younger populations, which may explain lower CHOL levels.

Key messages:
- Cholesterol decline significantly in Danish participants simultaneously with ITFA elimination.
- Results are important for decision makers in countries which consider ITFA regulation.