Trans fatty acids in adipose tissue and risk of myocardial infarction: A case-cohort study - DTU Orbit (09/10/2018)

Trans fatty acids in adipose tissue and risk of myocardial infarction: A case-cohort study

Background: The risk of coronary heart disease associated with intake of individual trans fatty acids (TFAs) is not clear. Adipose tissue content of TFAs is a biomarker of TFA intake and metabolism. Objective: We investigated the rate of myocardial infarction (MI) associated with the adipose tissue content of total 18:1t, isomers of 18:1t (18:1 Δ6-10t and 18:1 Δ11t) and 18:2 Δ9c, 11t. Methods: A case-cohort study, nested within the Danish Diet, Cancer and Health cohort (n = 57,053), was conducted, which included a random sample (n = 3156) of the total cohort and all incident MI cases (n = 2148) during follow-up (14 years). Information on MI cases was obtained by linkage with nationwide registers and validated. Adipose tissue was taken from the participants buttocks and the fatty acid composition was determined by gas chromatography. Results: Women with higher adipose tissue content of total 18:1t had a 57% higher MI rate (quintiles 5 versus 1, hazard ratio, 1.57; 95% confidence interval, 1.12–2.20; P-trend = 0.011) and women with higher content of 18:1 Δ6-10t had a 76% higher MI rate (quintiles 5 versus 1, hazard ratio, 1.76; 95% confidence interval, 1.23–2.51; P-trend = 0.002). No association between 18:1 Δ11t content and MI rate was observed. In men, no associations between adipose tissue content of total 18:1t and 18:1 Δ6-10t and MI rate were observed. However, men with higher content of 18:1 Δ11t had a 48% higher MI rate (quintiles 5 versus 1, hazard ratio, 1.48; 95% confidence interval, 1.17–1.86; P-trend = 0.003). Adipose tissue content of 18:2 Δ9c, 11t was not associated with MI rate in women or men. Conclusions: Adipose tissue content of 18:2 Δ9c, 11t was not associated with MI rate in women or men, whereas higher contents of isomers of 18:1t were associated with higher MI rates but the associations for individual 18:1t isomers differed, however, in women and men.

General information
State: Published
Organisations: National Food Institute, Research Group for Risk-Benefit, Aarhus University, Danish Cancer Society, University of Copenhagen, Aalborg University Hospital, Aalborg University
Authors: Jakobsen, M. U. (Intern), Gorst-Rasmussen, A. (Ekstern), Eriksen, H. H. (Ekstern), Stegger, J. (Ekstern), Joensen, A. M. (Ekstern), Tjønneland, A. (Ekstern), Dyerberg, J. (Ekstern), Schmidt, E. B. (Ekstern), Overvad, K. (Ekstern)
Number of pages: 14
Publication date: 1 Aug 2018
Main Research Area: Technical/natural sciences

Publication information
Journal: PLoS ONE
Volume: 13
Issue number: 8
Article number: e0202363
ISSN (Print): 1932-6203
Ratings:
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 3.01 SJR 1.164 SNIP 1.111
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 3.11 SJR 1.236 SNIP 1.101
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.427 SNIP 1.136 CiteScore 3.32
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.559 SNIP 1.148 CiteScore 3.54
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.772 SNIP 1.153 CiteScore 3.94
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.982 SNIP 1.156 CiteScore 4.15
Web of Science (2012): Impact factor 3.73
ISI indexed (2012): ISI indexed yes