Abstract


Trans fat consumption and aggression.

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BACKGROUND: Dietary trans fatty acids (dTFA) are primarily synthetic compounds that have been introduced only recently; little is known about their behavioral effects. dTFA inhibit production of omega-3 fatty acids, which experimentally have been shown to reduce aggression. Potential behavioral effects of dTFA merit investigation. We sought to determine whether dTFA are associated with aggression/irritability.

METHODOLGY/PRINCIPAL FINDINGS: We capitalized on baseline dietary and behavioral assessments in an existing clinical trial to analyze the relationship of dTFA to aggression. Of 1,018 broadly sampled baseline subjects, the 945 adult men and women who brought a completed dietary survey to their baseline visit are the target of this analysis. Subjects (seen 1999-2004) were not on lipid medications, and were without LDL-cholesterol extremes, diabetes, HIV, cancer or heart disease. Outcomes assessed adverse behaviors with impact on others: Overt Aggression Scale Modified-aggression subscale (primary behavioral endpoint); Life History of Aggression; Conflict Tactics Scale; and self-rated impatience and irritability. The association of dTFA to aggression was analyzed via regression and ordinal logit, unadjusted and adjusted for potential confounders (sex, age, education, alcohol, and smoking). Additional analyses stratified on sex, age, and ethnicity, and examined the prospective association. Greater dTFA were strongly significantly associated with greater aggression, with dTFA more consistently predictive than other assessed aggression predictors. The relationship was upheld with adjustment for confounders, was preserved across sex, age, and ethnicity strata, and held cross-sectionally and prospectively.

CONCLUSIONS/SIGNIFICANCE: This study provides the first evidence linking dTFA with behavioral irritability and aggression. While confounding is always a concern in observational studies, factors including strength and consistency of association, biological gradient, temporality, and biological plausibility add weight to the prospect of a causal connection. Our results may have relevance to public policy determinations regarding dietary trans fats. Clinicaltrials.gov # NCT00330980.

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