Interaction between diet and genetical predisposition on the fatty acid profile in healthy children and adolescents

by

Vyncke K

Background
Pathophysiological pathways leading to non-communicable diseases generally originate in early childhood and adolescence in function of lifestyle habits, genetical predisposition and early life programming of metabolic pathways. An important player in the pathophysiology of cardiovascular risk is the tissue availability of the omega-3 and omega-6 fatty acids of which the ratio is determined by extrinsic factors (i.e. nutrition and physical activity) and intrinsic factors (i.e. genetical predisposition). The combined influence of these determinants on serum lipids and fatty acid status in children and adolescents will be assessed.

Methods
Anthropometrics, dietary information and blood samples are available from a European cohort of 3950 adolescents (aged 13-17 year) and 16000 children (aged 2-10 years). Similar data will be obtained in an obese population, recruited from the Paediatrics Obesity Clinic of Ghent University. A quantitative study of the influence of dietary habits on serum lipids and fatty acid status will be assessed using the Dietary Quality Index, an index developed to reflect compliance with dietary guidelines. Consequently, the interaction between nutrition and relevant genes will be studied. Also a correlation between fatty acid status and early life factors will be examined. Comparative studies will be performed between a subsample of the cohort of healthy children and adolescents and an age- and sex-matched, obese population.

Results
This abstract describes the core research of the author’s PhD project, which started in October 2009 (promotors Prof. Dr S. De Henauw and Prof. Dr M. Van Winckel). First results are expected to be available by June 2011.

Keywords
Fatty acids, nutrition, genetics, child, adolescence

---

1 Ghent University, Department of Public Health, Ghent, Belgium
krishna.vyncke@ugent.be