Intake of unsaturated fatty acids and HDL cholesterol levels are associated with manifestations of atopy in adults.

BACKGROUND: The increase in allergic diseases is still unexplained. It was hypothesized that the intake of unsaturated fatty acids is a contributing cause of this development. We investigated the relationship between serum cholesterol levels, intake of polyunsaturated fatty acids (PUFA) and manifestations of atopy in a population-based setting. METHODS: A nested case-control study was performed within the population of the 3rd MONICA survey in Augsburg (Germany). The serum levels of total, high-density lipoprotein (HDL) and low-density lipoprotein (LDL) cholesterol of 1537 adults (aged 28-78 years, response 61.4%) and the estimated intake of PUFA in a subset of 139 men were compared with the frequency of a doctor’s diagnosis of asthma, allergic rhinoconjunctivitis (AR), atopic eczema (AE) and allergic sensitization as measured by skin prick and Radio Allergo Sorbent Test. FINDINGS: In bivariate analyses, we obtained a negative linear association between total and LDL cholesterol levels and the frequency of AR and sensitization, which was no longer significant after adjustment for important confounders. In contrast, positive linear associations were found between HDL cholesterol levels and AR and AE and, furthermore, between the intake of PUFA and allergic sensitization in men (P<0.01). After adjustment, an increasing risk for atopic diseases with increasing levels
of HDL cholesterol and an increasing risk for allergic sensitization with increasing intakes of PUFA remained statistically significant. INTERPRETATION: There is indication that HDL cholesterol also plays a role in the complex interaction of fat intake, metabolism and the manifestation of atopy in adults. These findings may contribute to the understanding of time trends and regional differences of allergies.