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Asthma and allergies: A protective factor in farm milk

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Fresh, unprocessed cow's milk has a higher content of omega-3 fatty acids than does pasteurized, homogenized or low-fat milk. This factor partly explains why children who consume the unprocessed product are less likely to develop asthma.

Children who regularly drink fresh farm milk are less likely to develop asthma than kids who consume the industrially processed product. A

number of epidemiological studies have already pointed toward this effect, and it has now been verified by Ludwig-Maximilians-Universitaet (LMU) in Munich researchers in the Pasture birth cohort. Moreover, this latest study shows that the protective effect is partly attributable to the fact that fresh milk contains more omega-3 fatty acids than does processed milk. Nevertheless, the authors of the study refrain from recommending the consumption of untreated milk, since it may contain pathogenic micro-organisms. The new findings appear in the *Journal of Allergy and Clinical Immunology*.

The long-term research project PASTURE followed over a thousand children living in rural areas, whose mothers kept records of their child's nutrition and it's illnesses up until the age of 6. The analysis of these health diaries revealed that the proportion of children who had developed asthma by that age was significantly lower in the cohort who had regularly consumed untreated farm milk. "The effect can be partly explained by the higher overall fat content and the higher levels of omega-3 fatty acids found in farm milk," says Tabea Brick, a member of the research group led by Erika von Mutius, Professor of Pediatric Allergology at LMU and Head of the Department of Asthma and Allergies at Dr. von Hauner Children's Hospital in Munich. According to the study, this effect is specific and can be clearly distinguished from the possible impact of other modulatory factors.

Omega-3 fatty acids are essential for human health. However, they cannot be synthesized in the human body and must therefore be obtained from dietary sources. The compounds are thought to have a number of positive physiological effects. "For example, they are known to serve as precursors for the synthesis of anti-inflammatory substances," Brick explains.

Less processing = more benefit?

In collaboration with a team at Marburg University, the LMU researchers assessed the composition of untreated farm milk, and shop milk that had undergone different degrees of industrial processing (pasteurization, homogenization, fat reduction). The results revealed that the level of omega-3 fatty acids remaining in the finished product was inversely proportional to the intensity of processing. In contrast, the content of omega-6 fatty acids, which mainly act as precursors for the production of pro-inflammatory modulators in the body, was virtually unchanged by any of the treatments used.

The standard industrial treatment process involves pasteurization of the raw milk at a temperature of between 72 and 75°C, and homogenization to avoid creaming of the milk. The authors of the new study argue for the development of milder methods of milk processing that will ensure the retention of beneficial components present in raw milk, while ensuring that potentially dangerous pathogens are effectively eliminated.

More information: Tabea Brick et al. ω-3 fatty acids contribute to the asthma-protective effect of unprocessed cow's milk, *Journal of Allergy and Clinical Immunology* (2016). DOI: 10.1016/j.jaci.2015.10.042

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