PRESS INFORMATION

11th International Breastfeeding and Lactation Symposium 2016

Human milk - its constituents makes it unique

Baar/Berlin, 2016. Researchers are fascinated by human milk: since the dawn of mankind it has helped babies to grow up healthy. There has not, however, been sufficient research into the secrets of its composition and its positive effect on the health of mother and child. Leading scientists from nine countries will present the latest findings in this field of research on 15 and 16 April 2016 at the 11th International Breastfeeding and Lactation Symposium, organised by Medela.

Human milk is the natural food for a baby. It not only provides energy and nutrients, but also supplies the infant with a unique variety of bioactive ingredients. These include hormones, growth factors, neuropeptides and anti-inflammatory and immunomodulating substances. They affect the baby's body in many ways. Professor Donna Geddes, University of Western Australia, Perth, will introduce the latest findings on the link between breastfeeding and the occurrence of non-transmissible chronic diseases in later life. Breastfed children are less frequently overweight than children who are not breastfed. In Geddes' opinion, various other factors in addition to human milk composition, such as the slower weight gain of breastfed children and the way in which they feed, are responsible for this effect. Newer research reveals that hunger suppressant hormones in human milk, such as ghrelin and leptin, play an early part in determining growth and hunger and appetite regulation. Obesity is closely linked to the metabolic syndrome, which is in turn seen as a risk factor for many non-transmissible, chronic diseases. For Geddes, early childhood is the ideal time to prevent these diseases through breastfeeding.

Sugars protect against infections
Human milk is unique with regard to the quantity and complexity of the oligosaccharides it contains. Professor Lars Bode, University of California, San Diego, USA will explain in his presentation why these sugars are much more than just food for intestinal microorganisms. Oligosaccharides protect babies against infections caused by bacteria, fungi and parasites, for example, which adhere to the mucous membranes. They act as soluble bait, which traps the pathogens. The polysaccharides also have a bacteriostatic effect on the gastrointestinal and urinary tracts and may influence the reaction of epithelial and immune cells. Bode is particularly interested in the role that certain polysaccharides play in preventing necrotising enterocolitis, which he is researching with the assistance of pre-clinical models and mother-child cohort studies.

Human milk promotes brain development.
Large epidemiological studies have shown that breastfeeding has a positive impact on children's IQs. Virtually nothing is known, however, about precisely

how the constituents in human milk influence myelination of nerve cells and promote cognitive development. Scientific interest has long been primarily focused on the polyunsaturated fatty acids docosahexaenoic acid and arachidonic acid in human milk. Together they make up 20 percent of the fats in the brain and influence nerve tissue development in many ways. In his presentation Dr Sean Deoni, Brown University, Providence, USA, provides a deeper insight into development of the white matter in the brain and the myelination processes. To do this his team investigated the brains of 133 full-term, healthy babies and infants aged 10 months to 4 years, using what is known as quiet magnetic resonance tomography (MRT). The children were divided into three groups according to their diet: one group was exclusively breastfed for at least three months, the second received a combination of human milk and formula and the third formula only. In the children who were exclusively breastfed, the researchers observed stronger brain growth in the areas responsible for language, emotions and cognition. These results support the finding that breastfeeding promotes brain development.

Resources:

Geddes D.T., Prescott S.L: Developmental origins of health and disease: the role of human milk in preventing disease in the 21th century. Journal of human lactation 29(2) 123-127. DOI: 10.1177/0890334412474371

Bode L: Human milk oligosaccharides: Ervery baby needs a sugar mama. Glycobiology 22: 1147-62, 2012. DOI: 10.1093/glycob/cws074

Deoni, Sean C.L. et al: Breastfeeding and early white matter development: A cross-sectional study. Neuroimage 82 (2013) 77-86. DOI: 10.1016/j.neuroimage.2013.05.090