Recent findings on nutritive and bioactive proteins in breastmilk support the WHO recommendations that breastfeeding should be continued during the first year and beyond

**Nutritive and Bioactive Proteins in Breast Milk**
by Ferdinand Haschke et al.

**Key insights**
The protein intake of breastfed term infants has been used as the basis for estimating an infant's protein requirements during the first year. Daily protein gain is highest in the very young infant and decreases rapidly in later infancy and in the second year of life. The protein content of breast milk evolves depending on the stage of lactation and time since delivery. Indeed, protein concentration in breast milk is high during the first few weeks of lactation and gradually subsides throughout the first year. The quantity and quality of breast milk is critical to support infant growth and long-term development.

**Current knowledge**
Proteins are the third most abundant solids found in breast milk. The variety of functions performed by the bioactive proteins and peptides in breast milk shed light on why breastfed infants have lower morbidity and fewer infections. Lactoferrin, secretory IgA, osteopontin, and various cytokines modulate the infant’s immune system alongside lysozyme, κ-casein, and lactoperoxidase, which have antibacterial functions. Other proteins regulate gut development and aid in the absorption of key nutrients.

**Practical implications**
Based on our better understanding of protein evolution in breastmilk across the stages of lactation, new infant formulas with lower protein concentration but better protein quality have been developed, tested, and made available in many countries. Low-birth-weight infants have higher protein requirements than term infants because of their higher daily protein gain per unit body weight. The concentrations of protein and amino acids in the breast milk of mothers who deliver preterm are higher during the first weeks of lactation compared to those of mothers who deliver at term. Supplementation of breast milk is needed to meet the high protein requirements of infants with very low and extremely low birth weight.

**Recommended reading**