Breastfeeding and Infant Appetite Regulation

Kim Fleischer Michaelsen Professor in paediatric nutrition
Department of Nutrition, Exercise and Sports, University of Copenhagen

Breastfed infants play an active role in regulating breastmilk intake, but little is known about which factors influence the volume of breastmilk being taken. Most mothers can produce more milk than the infant is consuming, but the infant regulates the intake to a level which is typically lower than the volume a formula fed infant is taking. This lower level is likely to contribute to the slower weight gain in breastfed infants. Several factors have been suggested which influence the regulation of intake of breastmilk. Mothers do not have the same visual control as in formula feeding and might therefore not push intake. Fat content increases markedly during the emptying of a breast and the high fat content in hindmilk might serve as a signal to the infant to stop sucking. There are also appetite regulating hormones in breastmilk like leptin and adiponectin, but the role of these are not well described. New studies have suggested that free amino acids (FAA) in human milk could have a regulating effect on appetite. Infants consume less of a formula with hydrolyzed protein and thereby high levels of FAA. Furthermore, an intervention study which added free glutamate to infant formula showed that the intake was significantly less. If the mechanism regulating breast milk intake is better understood it might open possibilities to support exclusively breastfed infants who are not thriving and regulate intake in those who have excessive weight gain.