

# The effect of breastmilk leptin on breastfeeding behaviour and gastric emptying

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Epidemiological studies show that extended breastfeeding, beyond six months, is associated with reduced risk of becoming obese later in life. Infants that are exclusively breastfed on demand self-regulate their nutrient intake demonstrating a wide range of feeding patterns. However, it is not well understood what affects short-term appetite control and gastric emptying, which also influences nutrient regulation, in breastfed infants. In recent years, research has focused on the hormonal regulation of appetite. Appetite regulating hormones such as leptin, ghrelin, adiponectin, resistin and obstatin are present in breastmilk, which suggests a potential role for appetite regulation in breastfed infants.

We have recently undertaken studies to investigate the role of breastmilk leptin on the breastfeeding behaviour and gastric emptying in a cohort of term fully breastfed infants. We explored changes in skim milk leptin concentration with respect to both, the volume of breastmilk consumed by the infant and across the 24-hour period, and found that there were trends in changes of leptin suggesting the possibility of a circadian rhythm. This however requires confirmation over longer study periods. Interestingly leptin dose at a breastfeed was not associated with the time interval to the next feed for the 24-hour period. Similar results were found when infants gastric emptying was tracked, with no association with the interval to the next feed or the residual prior to the infant cueing for another feed.

Further research is required to elucidate the mechanism of action of breastmilk leptin as well as other appetite control hormones present in breastmilk. Considering the plethora of appetite hormones, it is likely that multiple factors contribute to infant breastfeeding behaviour.

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## References

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