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**Effect of suckling on the release of oxytocin, prolactin, cortisol, gastrin, cholecystokinin, somatostatin and insulin in dairy cows and their calves.**

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**Abstract**

The aim of the present study was to examine how different types of early interaction between dairy cows and their calves influence milking/suckling-related hormone release in the cows and sucking/bucket-drinking related hormone release in calves. Eighteen cows of the Swedish Red and White breed were studied during the first week after parturition. The cows were machine milked twice daily, and allotted to one of three treatments: [1] cow and calf were kept together and the cow was allowed to suckle the calf for 30 min about 1 h before each milking; [2] cow and calf were kept together and the calf was bucket fed twice daily; and [3] cow and calf were separated immediately after parturition, and the calf was kept in a single box and was bucket fed twice daily. Blood samples were collected around day 7 from both cows and calves. The plasma levels of oxytocin, prolactin, cortisol, gastrin, cholecystokinin (CCK), somatostatin and insulin were analysed. In the cows the levels of oxytocin, prolactin and cortisol were influenced by all three treatments, except for the level of cortisol which did not respond to suckling. The main finding was that the release of oxytocin was as significantly greater during suckling compared with machine milking. In the calves, the hormone levels were also influenced by the different milk feeding routines. The plasma concentrations of oxytocin, gastrin, CCK and insulin increased in response to milk ingestion in all treatments. However, during sucking, the increase of oxytocin was significantly greater than during bucket drinking. In addition, a strong correlation between oxytocin and insulin was found in response to sucking. Further, significant increases in prolactin and somatostatin, and a decrease in cortisol were found during sucking. The level of somatostatin also increased in response to bucket feeding when calves were kept separately. During bucket feeding, no significant correlation was found with oxytocin, but strong correlations between the gastrointestinal hormones gastrin, CCK, somatostatin and insulin were seen. Together these data suggest that different hormonal patterns were triggered in the cows by suckling and milking and in the calves by sucking and bucket drinking. This is further supported by different correlation patterns observed in the calves in response to sucking and bucket feeding. The present findings imply that management routines for cows and calves during the first week after parturition have consequences for the physiology of the animals.