

Does the cow-calf develop bond in the absence of nursing?

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In dairy production, rearing the calf by suckling has received increasing attention due to potential welfare benefits. This study evaluated if nursing is important for the establishment of the cow-calf bond after birth. We compared affiliative behaviours between the dam and her calf using 30 Holstein cow-calf pairs that were randomly allocated to three treatments differing only in nutritional dependency on the dam: *milk feeder*, *combined* or *nursing*. For *milk feeder* calves, suckling was prevented by an uddernet and calves were fed milk from an automated feeder. *Combined* calves suckled, but had additional access to a milk feeder whereas *suckling* calves suckled the dam and had no access to an additional milk feeder. All cow-calf pairs were housed in a partial suckling system which implied that cows and calves were kept together during the night and were housed adjacent to each other during the day. Direct live observations were performed 2 h following the opening of the gate that allowed calves to mix with cows at night. All pairs spent more time (% of observations) allogrooming each other (i.e. own cow/calf) than they did grooming other cows and calves within the same group ($10 \pm 0.8\%$ vs. $0.4 \pm 0.7\%$, $t_{29} = 168.8$, $P < 0.001$). The time cow-calf pairs spent allogrooming did not vary with treatment; $10.0 \pm 0.8\%$, $F_{2, 27} = 0.4$, $P = 0.696$). Similarly, time spent in close proximity without nursing did not differ among treatments; $31 \pm 2.6\%$, $F_{2, 27} = 0.6$, $P = 0.543$). Latency to reunite (among pairs that did so within 180 seconds) was highest for the *combined* pairs and tended to be lower for *milk feeder* and *nursing* calves; 52.5 ± 16.0 , 23.3 ± 8.3 and 12.9 ± 5.8 ; $F_{2, 24} = 3.1$, $P = 0.062$). These results indicate that the cow-calf bond can be established independent of nursing thus including elements of caretaking and emotions. The study was published in Applied Animal Behaviour Science 163(0): 50-57: Johnsen, J. F., A. M. de Passille, C. M. Mejdell, K. E. Bøe, A. M. Grøndahl, A. Beaver, J. Rushen and D. M. Weary (2015). "The effect of nursing on the cow-calf bond."

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