
The effect of relocation on milk removal in primiparous dairy cows reared in different rearing systems during early postnatal period

*M. Uhrincat¹, V. Tancin¹, P. Kisac¹, S. Mihina¹, A. Hanus¹,
D. Tancinová² & J. Broucek¹*

*¹Research Institute of Animal Production, Hlohovska 2,
949 92 Nitra, Slovak Republic
E-mail: uhrincat@vuzv.sk*

²Slovak University of Agriculture, Nitra, Slovak Republic

The milk removal process in dairy cows is negatively influenced by many factors in dairy practice (Tancin and Bruckmaier, 2001). These factors can influence milk removal at central (inhibition of oxytocin release from pituitary) and peripheral levels (inhibition of oxytocin effect in udder). The central disturbances are the main reasons of the milk removal problems in the dairy practice, however, the mechanisms involved are not understood in dairy cows (Bruckmaier et al., 1998). The change of the milking environment is one of the negative factors influencing the milk removal (Macuhova et al., 2001). However, there is a high individual variability in milk removal efficiency during milking in a new milking place (Tancin et al., 2000). The development of responses to stress is dependent on the early experiences of the infant rats (Zimmerberg et al., 2003).

The aim of present experiment was to determine whether different rearing systems for calves in early postnatal period could influence the milk removal in response to unknown milking place in maturity.

During pre-experimental period ninety-six primiparous Holstein calves were reared in three different housing systems (32 in each group) before weaning at 60 days. First group were reared in loose housing and fed by automatic milk replacer drinker; second group were reared in individual hutches and third one were kept in loose housing with nursing cows during first two months of life. After weaning all calves were reared under the same housing and feeding conditions in loose housing barn. Then 33 of them (13 from first group, 12 from second and 8 from third) were used for the experiment as lactating dairy cows. After morning milking the cows were relocated from the loose housing where they were milked in the parlour to tie housing and milked in the stall. The parameters

of both systems of milking were similar. The volume of milk recorded in first three minutes of milking was reduced during first evening and following morning milking after relocation ($P < 0.05$). Furthermore, the negative effect of relocation was stronger in the group reared under nursing cows as compared with other two ones but only during first evening milking ($P < 0.05$).

In conclusion, the first milkings after relocation negatively influenced the commencement of milk ejection, which should be considered by milkers to put more attention to such cows. Also the individual response of the cows to relocation could be influenced by their rearing conditions in early postnatal period of life. However, the endocrine study is needed to explain the possible effects of rearing conditions on milk removal in the new place.

Reference

Bruckmaier R. M., Blum J. W., 1998: Oxytocin release and milk removal in ruminants. *J. Dairy Sci.* 81, 939-949.

Macuhova J., Tancin V., Kraetzl W. D., Meyer H.H.D., Bruckmaier R. M., 2002: Inhibition of oxytocin release during repeated milking in unfamiliar surroundings: importance of opioids and adrenal cortex sensitivity. *J. Dairy Res.* 69, 63-73.

Tancin V., Bruckmaier R. M., 2001: Factors affecting milk ejection and removal during milking and suckling of dairy cows. *Vet.Med.-Czech* 46, 108-118.

Tancin V., Kraetzl W.-D., Schams D., Mihina S., Hetenyi L., 2000: The oxytocin secretion and milk letdown during milking immediately after the change of milking and housing conditions. *Vet. Med.-Czech* 45, 1-4.

Zimmerberg B., Rosenthal A. J., Stark A. C., 2003: Neonatal social isolation alters both maternal and pup behaviours in rats. *Dev. Psychobiol.* 42, 52-63.