

Tie stall housing in dairy cow: does the use of nylon collars reduce neck skin alterations?

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In the production area of Parmigiano Reggiano (Italy), dairy cows are sometimes kept in tie-stall housing system, individually tethered in separate stalls for over half a year (180 days). When kept in tie-stall housing, several studies reported possible interventions leading to a reduction of lameness, lesions, and risk of illness in (1, 2, 3, 4, 5, 6). However, these interventions require important structural and management changes which are not always economically feasible for the farmer. The replacement of neck chains with nylon collars could play a role in the general comfort in tie-stall housing, and it can be affordable for the farmers. The present study aimed to investigate whether the use of nylon collars can reduce skin alterations in cows in tie-stall housing. A pilot study on 2 tie-stall farms was conducted in the production area of Parmigiano Reggiano. Neck chains were replaced by nylon collars on a total of 55 animals. The skin alterations were assessed every week for 10 times: 4 before and 6 after the intervention (3 for the 1st month and 3 for the 2nd month). Skin alterations were defined as the presence of alopecia or open wounds on the neck and in the rest of the body. A generalised linear mixed model was used to assess the effect of the treatment (chains/collars), time, farm and season on the variables. The animal ID, nested within the farm and the time, nested within the treatment, was used as random effect. The models showed a significant higher probability of findings area with alopecia in animals with nylon collars both in the neck (57% vs 28%; $p < 0.001$) and in the rest of the body (59% vs 47%; $p < 0.001$). The increase of skin alterations in the rest of the body was also found to be significantly influenced by time ($p < 0.001$), since there was a higher probability of finding alopecic areas during the 2nd month (68%), when compared with the 1st month after intervention (54%).

Considering the characteristics of the tie-stalls in the Parmigiano Reggiano production area, our preliminary findings suggest that nylon collars do not decrease the occurrence of skin alterations. Further studies are needed to identify novel adjustments of structures and management for improving welfare of dairy cows in tie-stalls housing.

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