

Repeated gentle handling in beef cattle: heart rate and behaviour

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A good animal-human relationship is one important aspect concerning cattle welfare. The aim of this study was to investigate the effect of gentle handling at head and neck on behaviour and heart beat parameters in beef cattle (seven heifers, five bulls, 8.5-11.5 months old). On each of 5 days (over 7 weeks) handling was applied twice for 4min, with 20min between daily sessions, with the animals fixed in the feeding rack. The handler was unfamiliar for the animals before the study. Heart beat parameters were recorded via Polar® system from 4min before until 15min after each handling. Data were analysed using generalised linear mixed-effects models. With increasing number of handling days, more animals reacted positively to the handling indicated by stretching of the neck and absence of defensive behaviours, and this was more pronounced in the second handling session on a given day compared to the first (day*session, $P < 0.001$; 0% each on day 1 to 55% and 81% on day 5, respectively). Heart rate was slightly lower after handling (73.5 ± 1.1 before, 72.6 ± 1.1 bpm after; $P < 0.01$). It also decreased with increasing number of handling days (71.9 ± 1.2 on day 1 to 69.8 ± 1.3 bpm on day 5, $P < 0.05$) and from first to second handling session on a given day (74.1 ± 0.8 to 72.3 ± 0.8 bpm; $P < 0.001$). Heart rate variability (RMSSD) was slightly higher during and after the handling (14.7 ± 0.7 and 15.1 ± 0.8 ms compared to 13.8 ± 0.7 ms; $P < 0.01$). A decrease in heart rate during the course of test and test repetitions is interpreted as the animals calming down suggesting a kind of habituation to the test procedure. However, this effect was small. A clear appeasing effect of the handling, indicated by increased RMSSD during handling could not be detected. Changes in the perception of handling, as indicated by behaviour were not found to be reflected in the heart rate variability.

