

The Effect of Brushing by a Human on Behavioral and Physiological Stress Indicators of Cows (Advanced Studies on Sustainable Animal Production: Interrelationships among Human, Animal and Environment, 8th International Symposium of Integrated Field Science)

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## **1. The Effect of Brushing by a Human on Behavioral and Physiological Stress Indicators of Cows**

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In the previous study, we revealed that steers used regularly the fixed brush to walling for self-grooming for nine months. They produced higher valued guts and dressed carcasses than those reared in a pen without a fixed brush. In order to investigate the effect of brushing, behavioral and physiological stress indicators were assessed in cows during being brushed by a human. Effective body regions brushed by a human were investigated in six Japanese black cows: loin, belly, neck and head. Behavioral reactions and heart rates were recorded during being brushed for ten days. The head and loin were revealed as the highest and the lowest effective body regions to being brushed, respectively, in this experiment. These regions were brushed in each cow for three min per day for three days. The behaviors of six cows after brushed were recorded to assess the calming effect of brushing. Then oxytocin and cortisol concentrations in plasma and heart rates in three cows were monitored before, just after, 3, 15, and 30 min after brushed under tethering. On the 10th day, heart rates of cows during being brushed of necks were lower than of bellies ( $p < 0.05$ ). Resting behavior tended to increase being brushed. Plasma oxytocin concentration tended to increase just after being brushed of head. Plasma cortisol concentration was constant during 30 min after being brushed of heads and loins under tethering, while that not being brushed was significantly higher after tethering ( $p < 0.01$ ).