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Short-Term Interaction between Dogs and Their Owners: Effects on Oxytocin, Cortisol, Insulin and Heart Rate—An Exploratory Study

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Abstract:

The aim of this exploratory study was to determine heart rate and the levels of oxytocin, cortisol, and insulin in dogs and their owners in response to a short-term interaction. In addition, the dogs' behavior was studied. The owners' responses were compared with those obtained from a control group. Ten female volunteers and their own male Labrador dogs participated in an experiment during which the owner stroked, petted, and talked with her dog during the first 3 minutes. Blood samples were collected from both dog and owner before (0) and at 1, 3, 5, 15, 30, and 60 minutes after the start of the interaction. Blood samples were analyzed by EIA. Heart rate was monitored telemetrically. The data were analyzed using linear mixed models and paired *t*-tests. The dogs' oxytocin levels were significantly increased 3 minutes after the start of the interaction ($p = 0.027$). Cortisol levels were significantly increased after 15 and 30 minutes ($p = 0.004$ and $p = 0.022$, respectively), and heart rate was significantly decreased after 55 minutes ($p = 0.008$). The dogs displayed normal behaviors during the experiment. The owners' oxytocin levels peaked between 1 and 5 minutes after interaction ($p = 0.026$). No such effect was seen in the controls. Cortisol levels displayed a significant decrease at 15 or 30 minutes in both owners and controls, and insulin levels did so at 60 minutes ($p = 0.030$, $p = 0.002$ and $p = 0.002$, $p < 0.0001$, respectively). Heart rate decreased significantly in the owners at 55 and 60 minutes ($p = 0.0008$) but not in the controls. In conclusion, short-term sensory interaction between dogs and their owners influences hormonal levels and heart rate. However, further studies need to be performed in order to better understand the effects of interaction between dogs and their owners.

Keywords: [CORTISOL](#); [HEART RATE](#); [HUMAN-DOG INTERACTION](#); [INSULIN](#); [OXYTOCIN](#)

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