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EFFECTS OF OWNER GENDER AND INTERACTION STYLE ON STRESS COPING IN HUMAN–DOG DYADS

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If human–dog relationships are truly social, there should be distinct behavioral relationships between owners and their dogs, and even between the owner's and the dog's stress-coping style. We predicted that the interaction style of humans with their dogs as well as the owner's gender would be correlated with dyadic stress coping. Our pilot study was based on 23 (11 male and 12 female) owners aged 23–68 years, and their medium- to large-sized intact male dogs ranging in age from 1.5 to 6 years. During 3 sessions, 1 at the owner's home and 2 in a standard test room, interactions of the owner–dog dyad were observed and videotaped in different test situations. The last session included, among others, a passive stressor (mild threatening of the dog by moving toward the dog and gazing at it with the owner both present and absent) and an active stressor (leading the dog through a latticed foot path). Saliva samples for the analysis of cortisol were taken before, during, and after the sessions and during 2 control days. Behavior was coded from the videos with THE OBSERVER (Noldus).

The intra-individual cortisol concentration was consistent, so the higher the concentration was during the control days, the higher it was at the beginning of the sessions (Pearson's: $n = 23$; $r = 0.54$, $P = 0.008$ for dogs; $r = 0.660$, $P = 0.001$ for owners). There was a positive correlation between the cortisol concentration of owners and their dogs after the threat situation (Pearson's: $n = 20$, $r = 0.495$, $P = 0.027$). In female owners, we found higher cortisol levels during control days than at the beginning of the sessions (Wilcoxon: $n = 12$, $Z = -2.667$, $P = 0.008$). At the third session, men had higher cortisol levels than women (Mann-Whitney U: $n = 23$; before session: $Z =$

-2.462 , $P = 0.014$; after active stressor: $Z = -2.185$, $P = 0.029$; after passive stressor: $Z = -2.523$, $P = 0.012$). The less aggressively that female-owned dogs reacted to the threat situation, the higher the dogs' cortisol levels after this situation (Pearson's: $n = 11$, $r = 0.675$, $P = 0.023$). The more the female owners interacted with their dogs during the threat situation, the higher the cortisol concentrations of the dogs after this situation (Pearson's: $n = 12$, $r = 0.601$, $P = 0.039$).

Our results support the idea that owners and their dogs function as social teams and that dyadic stress coping of owner and dog is related. Seemingly, owner interaction style and owner gender affect situational stress levels in the dog. In further analysis, we will include more challenging situations, owner attitude and dog personality. We acknowledge funding by IEMT Austria.

Key words: human–dog interactions; dyadic challenges; stress coping; gender differences

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TOWARD THE NATURE OF THE HUMAN–DOG SOCIAL BOND

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With dogs and other higher vertebrates, humans share basic social tools, namely, the brain and physiological mechanisms and a number of evolutionary dispositions affecting social decision making. Most of these similarities are owing to common origin (homology). It is no wonder that humans and their companion animals have the potential to engage in truly social, individualized, long-term dyadic relationships. With our studies (behavior coding; experimental and questionnaire) in 40 human–cat dyads and in 23 human–dog dyads (intact male dogs with their female and male owners), we aimed at elaborating some basic principles of human–companion animal dyadic relationships. As predicted from the biological theory of long-term valuable relationships, partners in human–animal dyads mutually adjust to each other empathically, satisfy each other's social needs, and provide mutual social support, even at no evident operational function (such as dogs assisting police, the blind, or the disabled). However, as in any within-species dyadic bond, distinct dyadic asymmetries and even conflicts are also inherent to human–animal dyads. As predicted, we found that the patterns of dyadic interaction

styles, the behavioral expression, and social role assumed by the animal companion and the temporal patterning of dyadic interactions (as revealed by THEME software) were contingent on the sex and personalities, mainly of the human partners, as well as on owner attitude and attachment style. We conclude that human–animal dyads also show core features characteristic of same-species social dyads and therefore, may be valuable models for investigating higher vertebrate dyadic relationships, including human–human relationships. We acknowledge funding by IEMT Austria.

Key words: cats; dogs; dyadic relationships; human–animal companionship; human–animal interactions

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NONINVASIVE ASSESSMENT OF SPECIFIC STRAIN IN DOGS

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Dogs' reactions to normal training situations play an important role in everyday human–dog interactions. These demands on dogs can lead, in some individuals, to withdrawal, immobility, submission, or aggressive defense. However, the reaction to such situations varies among dogs, which is reflected in individual differences in sympathetic, parasympathetic, and muscular reactivity. In view of the need for validating simple behavioral indicators of emotional reactivity, the aim of this study was to characterize individual differences in the behavioral and physiological responses of dogs to defined stimuli.

Forty-three privately owned dogs were assessed during an obedience training session while they were obeying commands such as “Sit” or “Down.” For noninvasive, real-time measurements of physiological parameters, the responses of the vegetative nervous system based on variation in skin potential, heart rate, and electromyogram were determined. All parameters were sampled at 1 second intervals. The test sequences were videotaped and analyzed on the basis of a comprehensive ethogram. The physiological data were assessed using a time series analysis. Thereby the changes in the regulatory processes in each of the 3 physiological systems were determined in detail. Based on this analysis, characteristic behavior patterns were assessed based on intervals the variability of the regulatory processes. According to temporary shifts in

regulatory processes, stable and unstable regulation states were determined. Defined time windows before, during, and after the execution of the specific stimulus were chosen to decide regulation types. Depending on the proportions of the unstable regulation processes during and after external threat, 4 types of regulation were defined: Control, Cope, Compensate, and Non-cope. These 4 regulation types and the 4 general behavior strategies were compared to evaluate the relative frequency of occurrence of a regulation type or a behavior strategy.

Active submission or avoidance behaviors were the main behavior strategies of the dogs. During the whole obedience training section, the main physiological response of the 43 dogs was muscular regulation: 24 dogs were unstable and were stabilized thereafter, which was determined as Cope type. The vegetative-emotional regulation of 20 dogs, measured by heart rate, was ascertained as Compensate type, which is stable during and unstable after the external threat. The vegetative nervous regulation based on skin potential of 18 dogs was determined as Cope type and as Compensate type for 16 dogs.

The observable behavioral responses of the dogs seem to be qualitatively related to the internal state of physiological arousal. In the future it should be possible to identify behavioral signs which really do reflect internal states of the autonomic nervous system to provide general advice concerning handling and training with the goal of reducing stress in dogs.

Key words: dog; noninvasive, real-time measurements; vegetative nervous system; behavior; chronobiology

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CHANGES IN EMOTION REGULATION AND EMOTION RECOGNITION IN ADOLESCENTS: IMPROVEMENTS DURING ANIMAL-ASSISTED TRAINING

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In the past, many authors documented the importance of effective emotional behavior on various areas of life like personal relations, health, and work (e.g. Goleman, 2002). Animals, especially dogs, can assist individuals in approaching negative feelings more consciously as well as in coping with these emotions (e.g. Olbrich, 2003). Adequate regulation and recognition of emotions can induce emotionally competent behavior. The effects of an animal-assisted group training, MTI, were investigated in this study, with particular focus on changes in the regulation and recognition of emotion in the participating adolescents.