
**Abstract**

Behaviour and urinary cortisol/creatinine ratios (C/C) were monitored in twenty-six dogs, on days 1, 2, 3, 5, 7 and 10 following their admission to a rehoming kennel. Half had been relinquished from homes, and half were either strays or returns to the shelter. Drinking and grooming increased with time, while panting and paw-lifting decreased, but only drinking was linked with C/C; dogs observed drinking on the first day had significantly lower C/C than dogs not observed drinking. Mean molar C/C (40×10$^{-6}$±16×10$^{-6}$) tended to decrease with time in the strays and returns, and to increase in dogs relinquished from homes, although C/C on the first day was highly variable and not distinguishable between these two groups. This implies that these populations differed in their long-term, but possibly not their short-term, responses to kennelling. Dogs with rising C/C were more active on average than those with falling C/C, but the opposite trend was detected when making comparisons within-dog.

The relationship between C/C and exercise is therefore complex and warrants further investigation before C/C can be considered as a reliable indicator of welfare in this species.

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