The Physiological and Behavioral Effects of Separation on Horses

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Introduction: Herbivores may find safety from predation in herds. It therefore follows that behavioral and physiological adaptive responses may occur in animals that are separated from the protection of the herd. Although domestic horses in isolation display "stress-like" behaviors, this has not been quantitatively verified. Further, it is not known if these behaviors indicate physiological stress or if they are simply patterned responses. We tested the hypotheses that horses separated from the herd would demonstrate quantitative changes in behavior and physiologic stress. **Methods:** 6 domestic horses were put out to field either as a herd or separated from the herd. The percent of time spent in each of 6 different behaviors was calculated using video analysis. Respiratory rate, heart rate, temperature, WBC's and cortisol levels were measured to assess physiologic stress. **Results:** Time standing/grazing was decreased in separated horses (13.6 +/- 4.8% vs 87.7 +/- 8% in herd, $p<0.02$), whereas time with head-up/alert and time spent trotting/canting was increased. Respiratory rate was 3 fold greater (in breaths/min: 9.6 +/- 0.89 baseline; 12 +/-1 in herd; 39.2 +/- 12 separated; $p<0.05$) and serum cortisol levels were increased (in mcg/dl: 4.0 +/- 0.35 baseline; 3.17 +/- 0.52 in herd; 5.6 +/- 0.19 separated; $p<0.01$) when horses were separated from the herd. Other data will be discussed. **Conclusions:** Our data demonstrate a marked behavioral alteration in horses separated from the herd. Furthermore, our data suggest that stress-like behaviors are not merely reflexive behavior patterns; rather they are intimately linked with physiologic stress.