Semen collection, evaluation and preservation are important aspects of production animal management. In alpacas, semen collection with an artificial vagina is not always practical. Semen is collected by electroejaculation (EE) under field conditions. Concerns have been raised regarding levels of stress induced by this procedure. The objective of this experiment was to determine if EE would result in significant changes in serum cortisol, respiratory rate, and heart rate in adult male alpacas indicative of a stress response. Males (n=8), aged two to seven years, were used in a randomized crossover design with two treatments (anesthesia with EE and anesthesia alone). All males were anesthetized using a combination of ketamine HCl, xylazine HCl and butorphanol tartrate (KBX). Electroejaculation was performed with a Model 304 EE and #4 probe (P-T Electronics. Boring, OR). Heart rate, respiratory rate, and serum cortisol concentrations were recorded at five time points (2 h pre-induction, 10 min pre-induction, during EE, upon recovery, and 30 min post-recovery). Two males were excluded from analysis because of poor response to anesthesia. Serum cortisol was assessed by radioimunoassay (Coat-A-Count Cortisol [TKCO1], Siemens Healthcare Diagnostics, Los Angeles, CA). Data were analyzed using repeated measures ANOVA at the level of p < 0.05. Overall, the heart rate, respiratory rate, and serum cortisol concentrations were not statistically different between the two treatments (p > 0.05). These data suggest that EE does not increase the stress response under the common field anesthesia technique (KXB). Further studies are in progress to determine the reliability of this protocol in obtaining semen samples for reproductive evaluations.

Keywords: Semen collection, serum cortisol, respiratory rate, heart rate, male alpacas