Randomized comparative trial of electro-acupuncture and exercise versus uterine ecbolics in the treatment of persistent post-breeding endometritis in mares
Laura A. Swift,a Ghislaine A. Dujovne,a Mollie B. Samocha,a Sarah S. le Jeune,b Esther M. Millares-Ramirez,c Philip H. Kass,a Bruce W. Christensen,a
aDepartment of Population Health and Reproduction, School of Veterinary Medicine, University of California-Davis, Davis, CA; bDepartment of Surgical and Radiological Sciences, University of California-Davis, CA; cWilliam R. Prichard Veterinary Medical Teaching Hospital, School of Veterinary Medicine, University of California-Davis

Exercise and acupuncture are frequent therapies used for the treatment of persistent post-breeding endometritis, however their actual efficacy to date is unproven. The objective of this study was to determine if exercise and acupuncture are effective methods to reduce intrauterine fluid and compare the effectiveness of these treatments to well-established uterine ecbolics including oxytocin and cloprostenol. It was hypothesized that mares receiving exercise, acupuncture, oxytocin, and cloprostenol will show increased fluid clearance compared to stall-rest control mares. Twelve mares susceptible to post-breeding endometritis were enrolled into the study and followed through six estrous cycles with a randomized crossover design utilizing both positive and negative controls. During each estrous cycle, mares were randomized into one of six treatment groups, including stall rest (SR; negative control), oxytocin (O; positive control), cloprostenol (C; positive control), exercise (E), electro-acupuncture (EA), and oxytocin and exercise (OE). Each mare was challenged with an insemination dose of 500 x 10^6 dead sperm at time 0 h. Intrauterine fluid measurements were taken at 4, 24, 48, 72, and 96 h after breeding and considered cleared if intrauterine fluid measured <2 cm in average cross-sectional depth. Associations between treatment efficacy and fluid clearance were investigated using a random-effects logistic regression model that controlled for positive uterine culture. Compared to the stall-rest negative control, exercise was the most effective treatment and had 31.6 times increased odds of fluid clearance (OR, 31.6; 95% CI, 1.9-513.0). The second most effective treatment was the combined oxytocin and exercise group that had 13.1 times increased odds of fluid clearance (OR, 13.1; CI, 1.2-143.3). This was followed by cloprostenol that had 10.6 greater odds of fluid clearance (OR, 10.6; CI, 1.1-99.6) and finally oxytocin that had 4.9 times greater odds of fluid clearance (OR, 4.9; CI, 0.6 – 40.9). Estimates of electro-acupuncture were not calculable as only five mares tolerated the treatment. To our knowledge, the present study is the first conducted that tests the efficacy of electro-acupuncture, exercise, as well as combined exercise with oxytocin to clear intrauterine fluid accumulation following breeding. Anecdotal reports have suggested that these treatment options are efficacious yet they have long remained unproven. Results from this study can confirm that exercise and exercise combined with oxytocin are effective. Interestingly, these two treatment groups were the most effective in this study though these findings might be the consequence of the small sample size.

Keywords: Equine endometritis, cloprostenol, oxytocin, exercise, electro-acupuncture