

The Effects of Preoperative Warm-Ups on the Performance of Live Dog Laparoscopic Ovariectomy by Veterinary Medical Students.

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Objective: To determine the effect of warm-ups on the performance of laparoscopic ovariectomy on a live dog by veterinary medical students. We hypothesized that students who warm-up using a simulator and a laparoscopic video game before surgery perform a laparoscopic ovariectomy on a live dog more quickly with fewer mistakes and complications than those who complete the procedure without warming up.

Study Design: Experimental, post-test only, control group design

Materials & Methods: Fifteen fourth-year veterinary students (DVM 2022) received a standardized four-day laparoscopic surgery training course before performing live dog ovariectomy on the last day of the course. The participants were randomly assigned to Group A (n = 8) or Group B (n = 7). The training program was identical for both groups. On the final day, Group A performed laparoscopic ovariectomy on a live dog without any warm-ups prior to surgery. Group B engaged in a 20-minute warm-up before surgery using a laparoscopic simulator and a video game. The surgeries were video recorded to measure the time of each procedure and each participant's performance. A board-certified surgeon evaluated each student surgeon's performance using a previously evaluated grading rubric.

Results: Results indicate that the procedure time and performance of students in Group B were significantly better when compared with Group A. Surgery time was lower for the students who had completed the warm-up activity before performing the laparoscopic surgical procedure (Group B – mean= 63 minutes; range= 58 to 86 minutes) compared with students who directly performed the surgery without warm-up (Group A – mean= 84 minutes; range= 54 to 111 minutes). On the 160-point scoring system, laparoscopic ovariectomy scores were higher for the students who completed the warm-up activity before performing the procedure (Group B – mean= 138.4; range= 122 to 152) compared with students who directly performed the surgery without warm-up (Group A – mean= 121.5; range= 106 to 130). A T-test was used to compare the performance of the two groups. It was found that there was a statistically significant difference in the average time of procedure and score of the two groups, at $p=0.045$ and $p=0.027$, respectively.

Conclusions: The results suggested that veterinary medicine students who did warm-ups on a laparoscopic simulator and video game before laparoscopic surgery effectively decreased surgical time and increased efficiency than students who performed surgery without warm-ups. The results also indicated the need for additional studies. Using this study, surgeons and educators can more safely and effectively provide training in laparoscopic procedures than before by incorporating warm-ups in their training design.