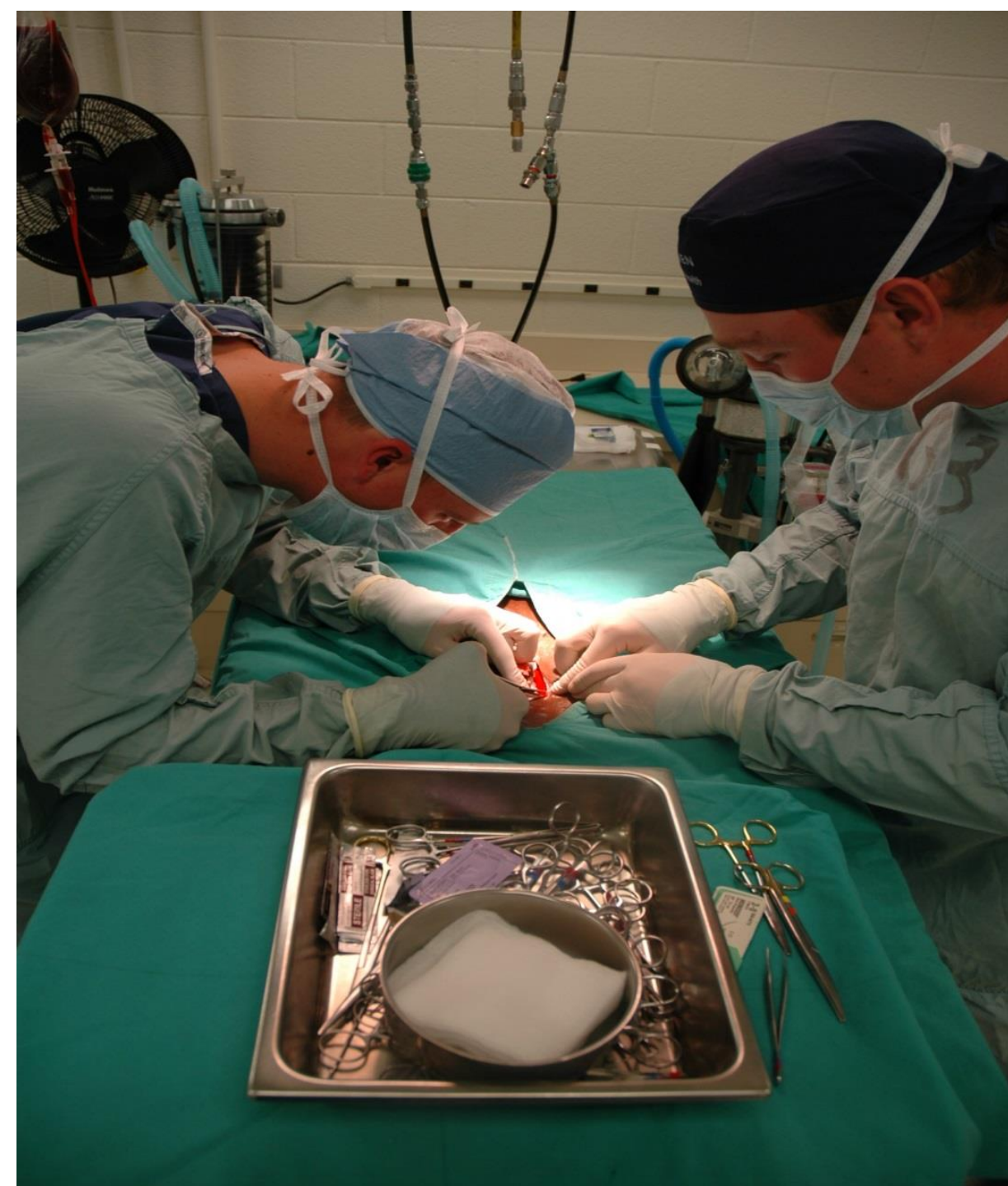


Participation in a surgical simulation review program improves performance in the live animal surgery lab



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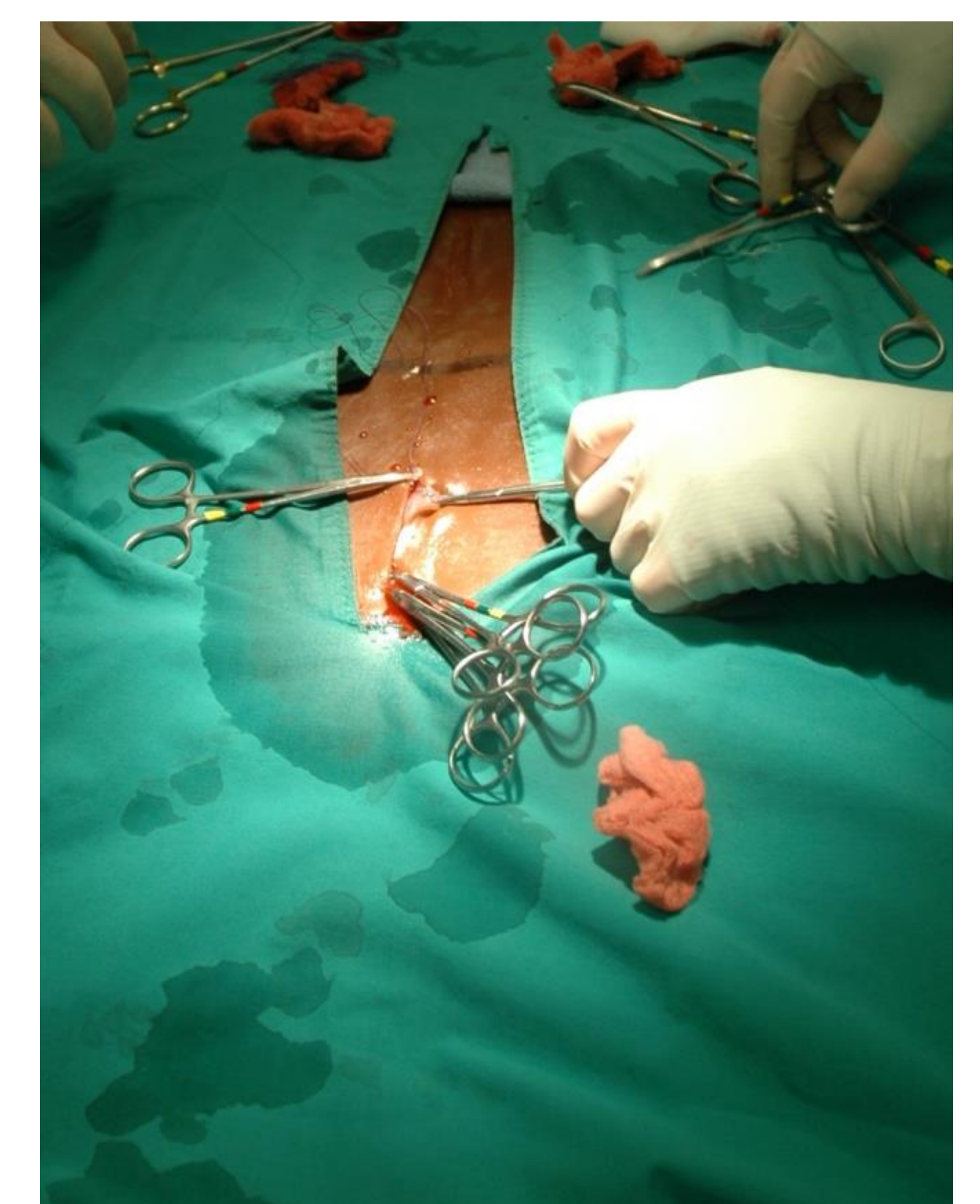


INTRODUCTION

There is a need for veterinary students to build a framework of basic surgical skills before carrying out surgical procedures on live animals. Simulation provides the opportunity for the acquisition and continued practice of surgical skills such as suturing, knot tying and tissue handling. The goal of the study was to determine if a surgical simulation program, administered prior to a live animal lab, would improve the performance of third year veterinary students.

METHODS

Eighteen third year veterinary students were randomized to either the **control group**: participation in the live animal surgery lab or the **study group**: participation in the surgical skills simulation program followed by the live animal surgery lab. The simulation program was conducted one week prior to the live animal surgery laboratory. Specialized suture pads that mimic texture and tissue handling were used for demonstration and hands on practice in the surgical skills program. The skills practiced included simple continuous suturing, knot tying, tissue/instrument handling, surgical incision and hemostatic techniques. Each student's performance was evaluated using a procedural checklist and global rating scale (see charts). Tests for statistical significance utilized ANOVA and student T test (significance : $p \leq 0.05$).



RESULTS

For the procedural checklist statistical significance was found for, use of the instruments, suturing procedure, suture technique and incisional technique. The global rating scale analysis found statistical significance for tissue handling, instrument handling and use of an assistant .

Procedural Checklist

	Control (mean score)	Study (mean scoring)	Maximum Possible Score	P value
Instrument Procedure	1.67	2.91	4	0.05
Instrument Technique	1.67	2.09	3	0.34
Suture Procedure	6.11	8.45	10	0.01
Suture Technique	1.38	2.91	4	0.01
Knot Procedure	2.75	3.45	4	0.18
Knot Technique	1.88	2.00	2	0.25
Incision Procedure	5.67	6.64	8	0.19
Incision Technique	2.00	3.20	4	0.01
Total points	23.67	31.55	39	0.001

Conclusion

Student participation in the surgical simulation program improved student performance in the live animal laboratory. There was a 38% improvement in the global rating scale and 50% in the procedural checklist. Advantages of using simulation included the opportunity for repetitive and deliberate practice, participatory rather than observation learning and the ability to tolerate and correct performance errors.

Global Rating Scale

	Control (mean score)	Study (mean scoring)	Maximum Possible Score	P value
Tissue Motion	2.13	3.44	5	0.001
Instrument handling	2.63	3.11	5	0.33
Instrument knowledge	2.05	3.44	5	0.01
Use of an assistant	3.13	3.22	5	0.81
Flow of operation	2.50	3.11	5	0.04
Knowledge of procedure	2.50	2.78	5	0.58
Comfort	2.75	3.22	5	0.23
Total points	2.63	3.00	5	0.36
	20.75	25.33	40	0.07

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