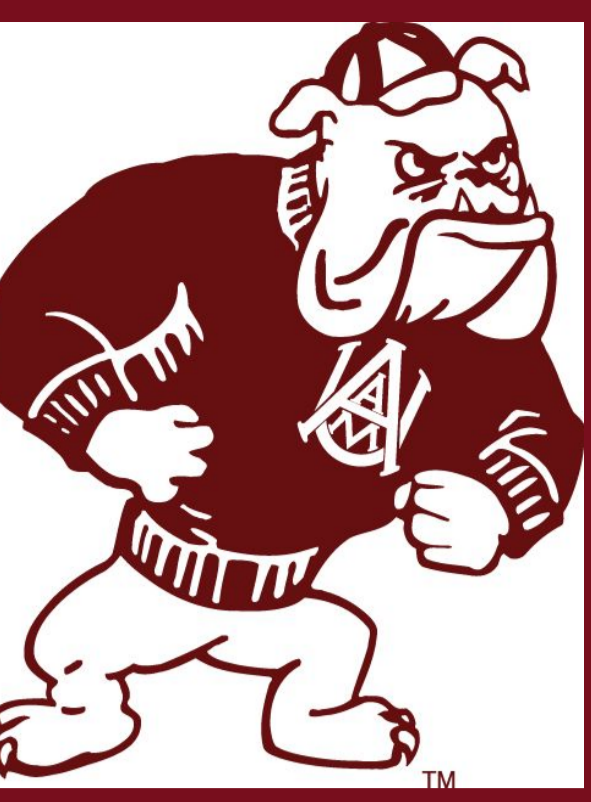




# Effects of Melatonin on Physiological, Behavioral and Hematological Parameters of Weaned Beef Calves



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## Introduction

- Weaning is a stressful period for beef calves as it can impact mental and physical health, generally occurring when a calf is around six to eight months.
- Weaning is a practice utilized in the cattle industry. Producers aim to minimize stress and stress-related diseases during this period to maintain the overall health of the calf and herd.
- Melatonin is a hormone produced primarily by the pineal gland and by every cell in the body with a mitochondria. It is known to aid in sleep and acts as an antioxidant.
- Melatonin was used in this study to minimize the effects of weaning stress in calves.

## Objectives

- Evaluate the effects of Melatonin on physiological, behavioral, and hematological parameters of weaned beef calves.

## Materials and Methods

### Study Design

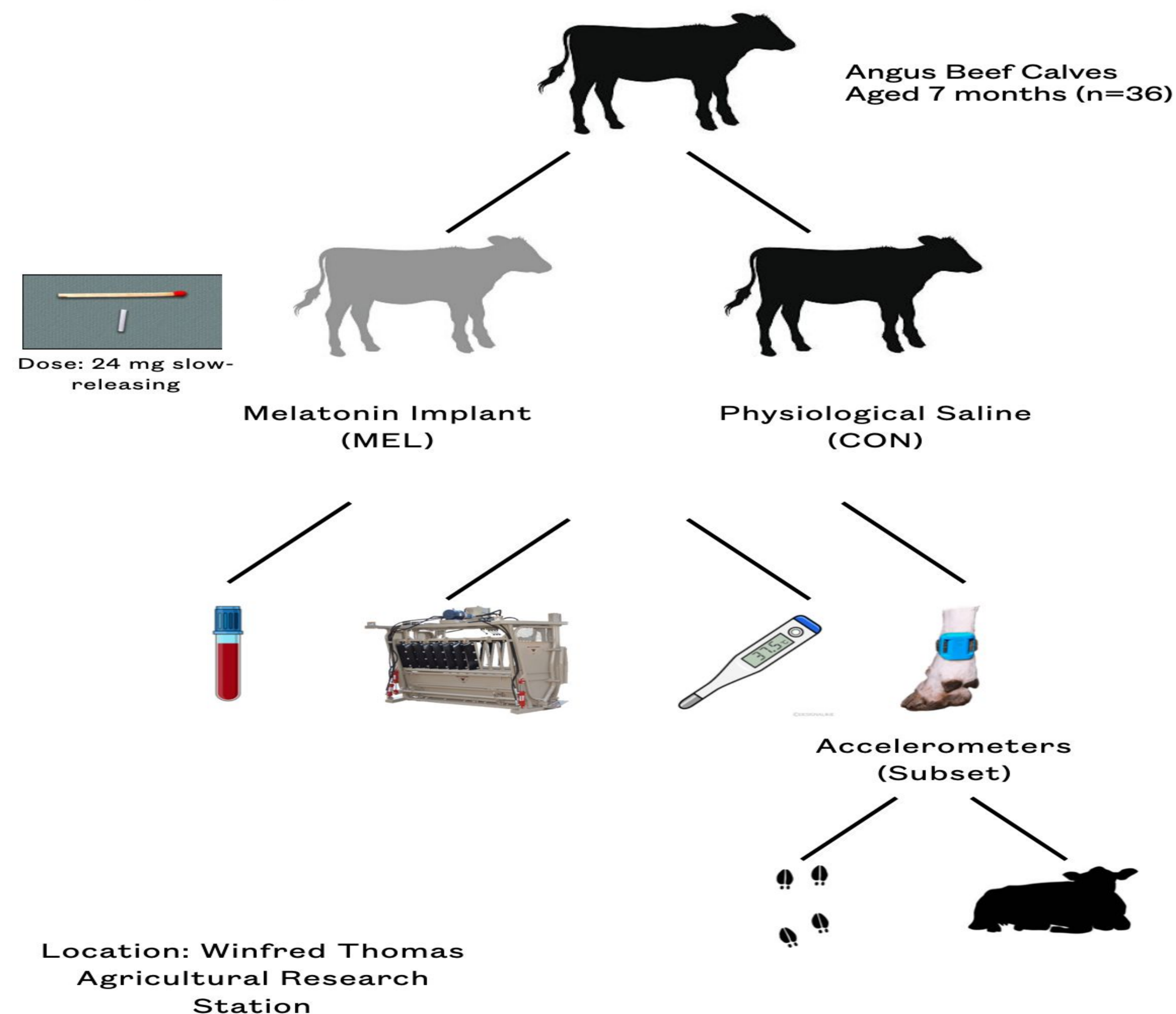


Table 1: Effects of Melatonin on hemogram of weaned Angus Calves

Parameters	Sampling Frequency	Group		P - Value
		Control	Melatonin	
Total white blood cell count ( $\times 10^3/\mu\text{L}$ )	Day 0	6.00 $\pm$ 0.78	9.00 $\pm$ 1.20	0.155
	Day 7	5.00 $\pm$ 0.54	10.00 $\pm$ 1.36	0.736
	Day 14	6.00 $\pm$ 1.30	9.00 $\pm$ 0.90	0.488
Neutrophil lymphocyte ratio	Day 0	6.00 $\pm$ 0.06	8.1 $\pm$ 0.06	0.155
	Day 7	5.00 $\pm$ 0.06	10.00 $\pm$ 0.07	0.033
	Day 14	6.00 $\pm$ 0.20	9.00 $\pm$ 0.06	0.683
Hemoglobin	Day 0	6.00 $\pm$ 1.83	8.00 $\pm$ 1.48	0.268
	Day 7	5.00 $\pm$ 0.58	10.00 $\pm$ 0.84	0.942
	Day 14	6.00 $\pm$ 0.25	9.00 $\pm$ 0.34	0.808
Mean platelet volume	Day 0	6.00 $\pm$ 0.67	9.00 $\pm$ 0.46	0.079
	Day 7	5.00 $\pm$ 0.19	10.00 $\pm$ 0.34	0.975
	Day 14	6.00 $\pm$ 0.08	9.00 $\pm$ 0.10	0.466
Packed cell volume	Day 0	6.00 $\pm$ 5.50	8.00 $\pm$ 3.64	0.214
	Day 7	5.00 $\pm$ 2.00	10.00 $\pm$ 2.63	0.928
	Day 14	6.00 $\pm$ 0.73	9.00 $\pm$ 1.14	0.751

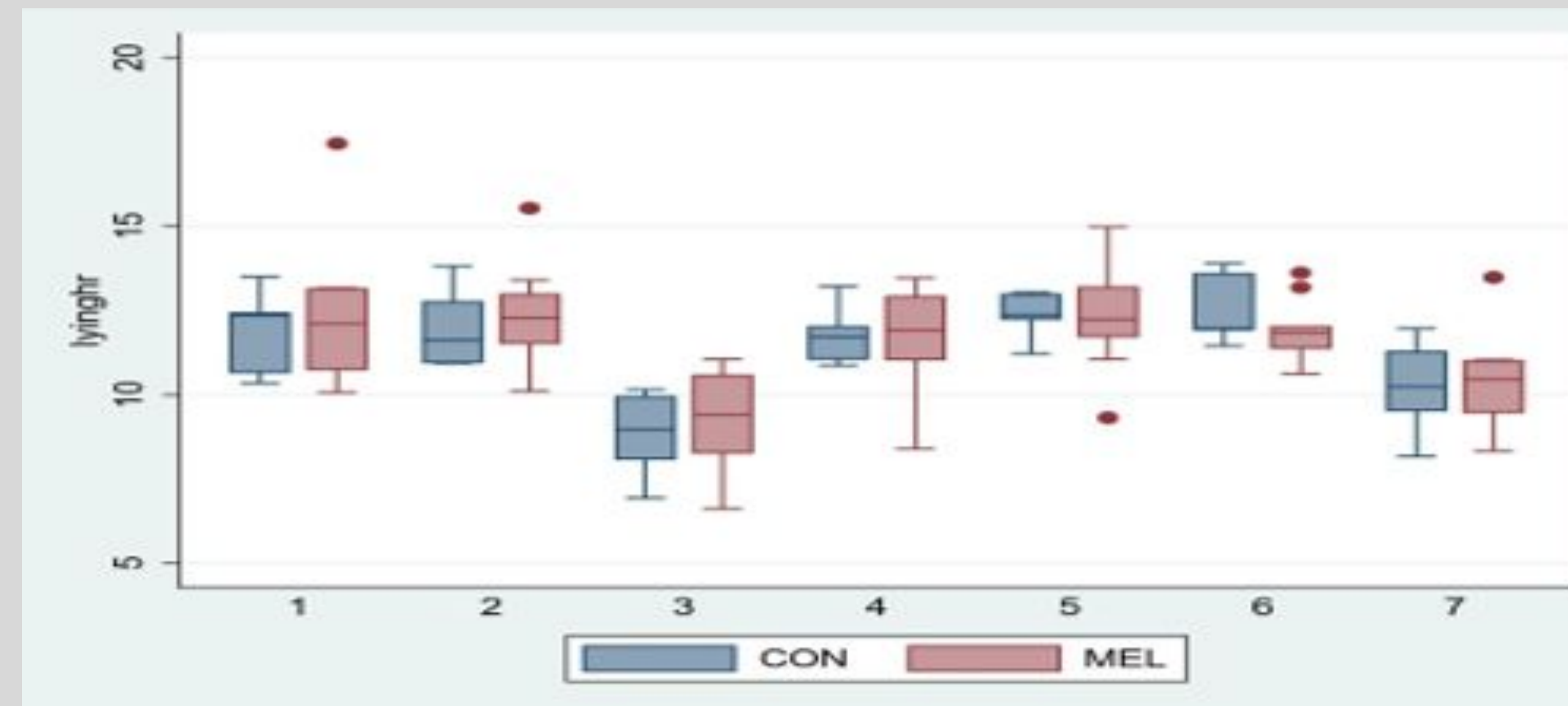


Figure 1. Effects of Melatonin on activity (lying) of weaned angus calves



Figure 2: Effects of Melatonin on average daily gain of weaned angus calves

## Results

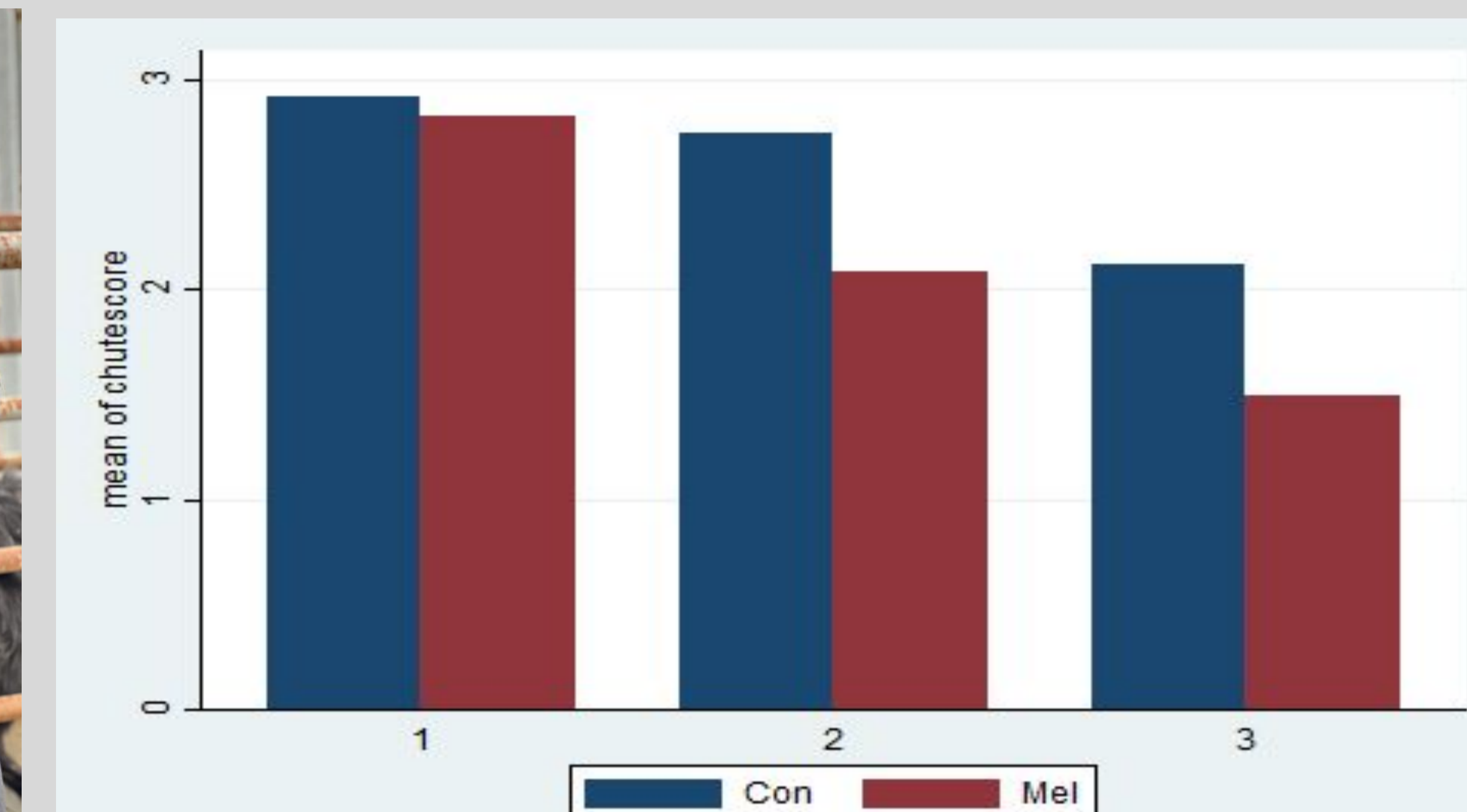


Figure 3: Effects of Melatonin on chute score of weaned angus calves

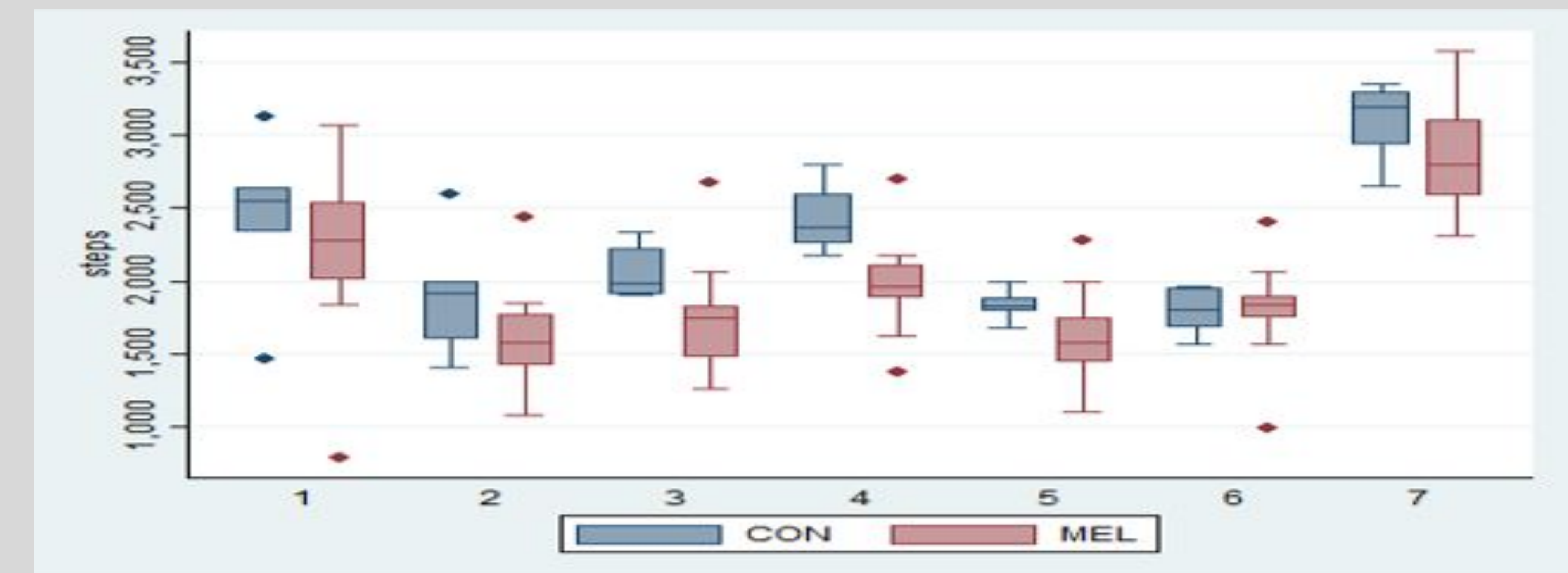


Figure 4: Effects of Melatonin on activity (steps) of weaned angus calves.

## Conclusions

- Melatonin modified the increased activity associated with weaning but had no significant impact on hematological parameters.
- Results of study show promising future of melatonin being used to treat and reduce stress-related responses of weaning.

## References

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