An observational study on the effectiveness of nerve blocks in canines undergoing pelvic limb orthopaedic surgery

Niamh McConville Bsc (Hons) RVN •
Katherine Hart Msc Bsc (Hons) DipAVN CertAVN PgCTSLHE FHEA RVN

Harper Adams University



INTRODUCTION

Peripheral nerve blocks are commonly utilised within veterinary orthopaedic practice due to their ability to provide localised analgesia, thereby reducing reliance on pharmacological analgesics and minimising associated adverse side effect (Peace, 2025; Akasaka & Shimuizu, 2017). Current evidence base regarding the use of nerve blocks within veterinary clinical practice is limited therefore justifying the need for this observational study. The aim is to evaluate current evidence on the use of pelvic limb nerve blocks in canines undergoing pelvic limb orthopaedic surgery, with emphasis on analgesic effectiveness, post-operative recovery and mobility. By assessing these factors, this study aims to offer an overview of current practice and highlights limitations that may impact their use and effectiveness in veterinary clinical practice

HYPOTHESIS

Canines who receive a pre-operative nerve block will have lower pain scores, improved recovery and reduced requirements for inhalational anaesthesia and additional analgesia compared to canines who do not receive a pre-operative nerve block.

METHODS

20 nerve-block cases

20 non-block cases

6 Months data collection window

Data was prospectively gathered from 20 canines undergoing pelvic limb orthopaedic surgery who received a nerve block and retrospectively collected from 20 canines who also underwent pelvic limb orthopaedic surgery but did not receive a nerve block, all within a 6-month timeframe. Statistical analysis was performed using Excel and GenStat, chi-square and Two sample T tests were utilised to assess the extent of statistical significance between cohorts.

RESULTS

P < 0.001	**Lower pain scores**
P = 0.002	**Reduced intraoperative isoflurane requirements**
P = 0.002	**Reduced additional analgesia**
P = 0.804	No association with surgical duration
P = 0.057	Weight-bearing approached statistical significance

Statistically significant associations were identified between nerve block administration and several perioperative outcomes. Canines receiving a nerve block demonstrated significantly lower pain scores (P < 0.001), reduced intraoperative isoflurane requirements (P = 0.002) and a reduced need for additional analgesia (P = 0.002) compared to those that did not receive a nerve block. These findings suggest that nerve blocks may contribute to enhanced anaesthetic stability and reduced reliance on postoperative analgesia based on lower pain scores. In contrast, no statistical significance was observed between nerve block use and duration of the surgical procedure (P = 0.804). Although weight-bearing status did not reach statistical significance (P = 0.057), the result approached the threshold, which may indicate a potential trend towards improved postoperative ambulation following nerve block administration.

Can one nerve block make all the difference?

DISCUSSION / CONCLUSION

Findings suggest that nerve blocks do offer some advantage in relation to intraoperative outcomes. It was found that canines who receive a nerve block had lower pain scores, reduced requirements for inhalational anaesthesia and additional analgesia compared to canines who do not receive a nerve block. These results support the study's hypothesis, with improvements in recovery outcomes approaching statistical significance. It is possible that a larger sample size may have generated statistically significant differences. Nevertheless, these findings contribute to the existing body of knowledge and help address gaps in the literature regarding the use of nerve blocks in veterinary orthopaedic practice.

KEY TAKEAWAY

Nerve blocks were associated with better intraoperative analgesic outcomes, while recovery benefits showed a promising but non-significant trend.

ACKNOWLEDGEMENTS

I would like to extend my sincere thanks to Cedar Grove Veterinary Clinic, without whom this study would not have been possible. I am particularly grateful to the vets and nurses for allowing me to observe and collect patient data, and to the vets for their valuable input on my research topic. I would also like to thank the dog owners who generously allowed me to collect data from their pets; this project would not have been possible without their cooperation.

REFERENCES

Akasaka, M. and Shimizu, M. (2017) 'Comparison of ultrasound- and electrostimulation-guided nerve blocks of brachial plexus in dogs', Veterinary Anaesthesia and Analgesia, 44(3), pp. 625–635. doi:10.1016/j.vaa.2016.08.001.

Peace, B. (2025) 'Impact of femoral nerve block approach on anaesthetic drug requirements in dogs undergoing hindlimb orthopaedic surgery', The Veterinary Nurse, 16(10), pp. 222–227. doi:10.12968/vetn.2025.0046.

Contact: niamhmac1999@gmail.com