

Case Study

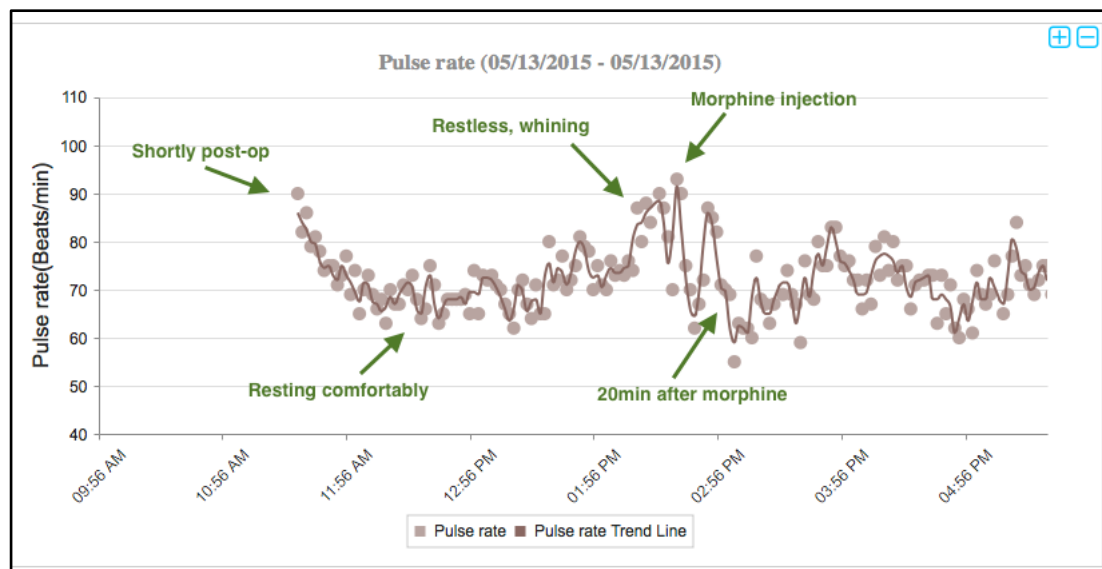
The PetPace Collar in Action - Detecting Post-Op Pain

Nix is a four year-old spayed female Pitbull mix, weighing 43lbs. To fix a torn ligament in her right knee, she underwent orthopedic surgery (TPLO) at TotalBond Veterinary Hospital in Gastonia, NC.

During her recovery from surgery, a **PetPace** smart collar was applied for close monitoring. As you can see in the following graphs, **PetPace** was instrumental in helping caretakers detect, evaluate and treat Nix's post-op pain, as well as her response to analgesics.

Pulse

As the graph below shows, Nix was resting comfortably for nearly three hours after surgery. But then, **PetPace** detected a rise in her pulse rate, while she started displaying signs of pain (restlessness and vocalization). As a result, the veterinarian administered a dose of morphine, which helped Nix relax and continue her recovery.

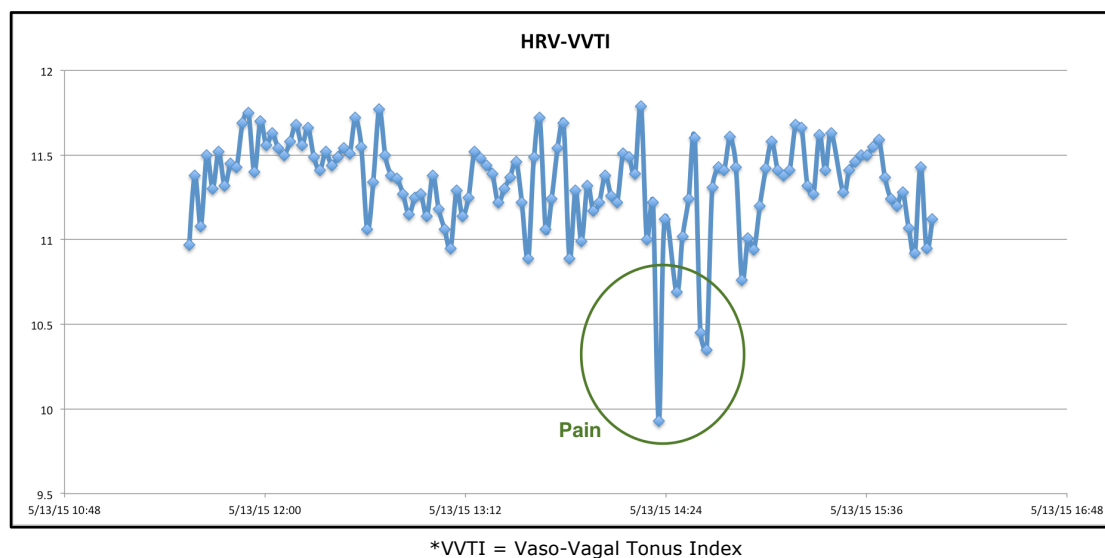


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Heart Rate Variability (HRV)

HRV is a statistical tool to measure the difference in times between heartbeats. Low HRV has been shown to correlate with pain in both humans and animals. Vaso-Vagal Tonus Index (VVTI) is one type of HRV index.

The **PetPace** collar detected a sharp decrease in Nix's HRV, which coincided with the clinical assessment of pain. Following the morphine injection, her HRV returned to normal levels.

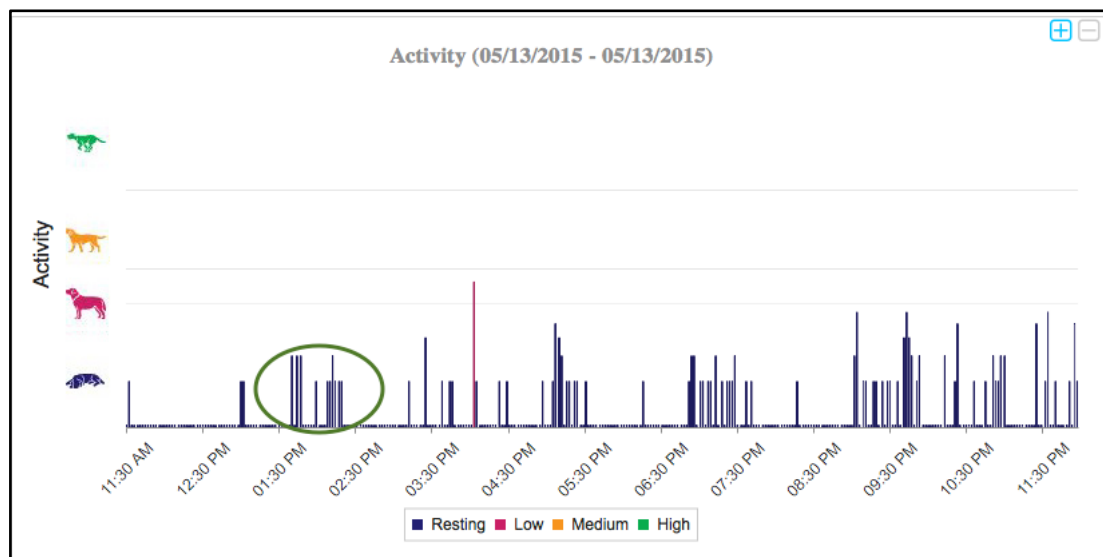


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Activity

Tracing movement levels using accelerometers has been shown to assist in the clinical assessment of pain in dogs.

Concurrently with the rise in pulse rate and drop in HRV, the **PetPace** collar showed an acute increase in Nix's activity level, indicating restlessness. Following the response by her caretakers, who administered morphine, Nix's activity level fell back down to zero.



Summary

This case exemplifies the potential value of the **PetPace** collar in monitoring patients for pain and discomfort, and its contribution to high-level patient care.

References

- Arras M, et al. Assessment of post-laparotomy pain in laboratory mice by telemetric recording of heart rate and heart rate variability. *BMC Vet Res* 2007;3:16.
- Pereira YM, et al. The vasovagal tonus index as a prognostic indicator in dogs with dilated cardiomyopathy. *J Small Anim Pract.* 2008 Nov;49(11):587-92.
- Brown, DC. Et al. Use of an activity monitor to detect response to treatment in dogs with osteoarthritis. *J Am Vet Med Assoc.* 237: 66-70, 2010.