



MEASURE THE ANS  
CONTROL SURGICAL STRESS  
IMPROVE OUTCOMES

**PTA monitor**

# The FIRST parasympathetic tone monitoring DEVICE in the WORLD for PETS.

The purpose of PTA (Parasympathetic Tone Activity) technology is to provide veterinarians a noninvasive, easy to use monitoring system which offers a continuous and reliable measure of the parasympathetic tone of the animal via the ECG.

Behavioral rating scales are widely biased due to their subjectivity and clinical context, which inhibits the behavioral response of the animal. PTA technology allows optimal management of analgesia particularly during surgery resulting in improved recovery.



PTA monitor

## PTA

Following the results of the ANI technology (Analgesia Nociception Index) on the monitoring of non-communicating patients, the algorithm was adapted to develop the PTA. PTA technology offers the evaluation of the parasympathetic tone of the autonomic nervous system of animals.

MDoloris developed a simple to use, non-operator dependent, heart rate variability analysis device, based on the acquisition of ECG signal. This has already been developed into specific measurements for three animal species: horses, dogs and cats.

## Why assess COMFORT?

The PTA technology provides an objective measure to evaluate the autonomic nervous system response to nociception, offering a value between 0 and 100, corresponding to the percentage of activity of the parasympathetic part of the autonomic nervous system of the animal. The higher the PTA value the higher the comfort of the animal is.

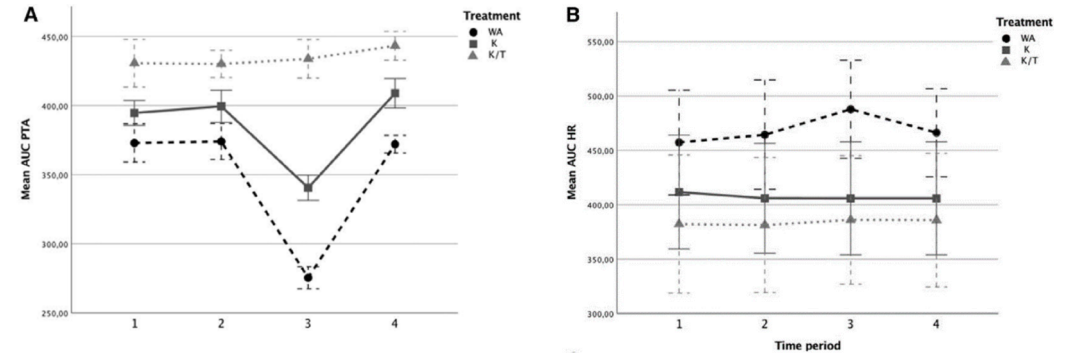
In the absence of clear verbal communication, the expression of pain in animals is behavioral. Behavioral rating scales have been developed, however, these tools have two major limitations: first anthropomorphic ideals are not perfect, and second intraoperative anesthetic context inhibits the behavioral response of the animal.

Pain is a symptom which must be managed in a proportionate way in relation to the potential side effects. The challenge for veterinarians is to objectively assess nociception response felt by the animal during surgery, and adapt the analgesic treatment to suit the individual animal. Better management of nociception response during surgery could mean improved awakening for the animal after surgery.





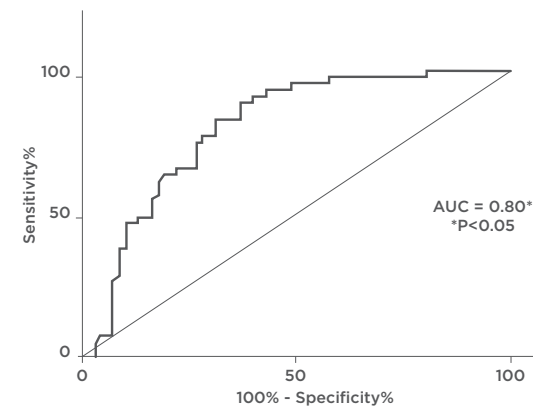
## PTA evaluation to discriminate analgesia level better than haemodynamics



2019 Carlos J Leitão, Juan Rafael Lima-Rodríguez, Fatima Ferreira Catarina Avelino, Francisco M Sánchez-Margallo, Luís Antunes Parasympathetic Tone Activity Evaluation to Discriminate Ketorolac and Ketorolac/Tramadol Analgesia Level in Swine. *Anesth Analg* 2019 Sep;129(3):882-889. doi: 10.1213/ANE.0000000000003573

## Predict haemodynamic reactivity

Mansour et al showed that a PTA below 48 increased the probability of a haemodynamic response, and a fall of 18% predicted with an accuracy of 80% a hemodynamic response.



2017-Mansour C, Merlin T, Bonnet-Garin JM, Chaaya R, Mocci R, Ruiz CC, Allaouchiche B, Boselli E, Junot S. Evaluation of the Parasympathetic Tone Activity (PTA) index to assess the analgesia/nociception balance in anaesthetised dogs. *Res Vet Sci*. 2017 May 10;115:271-277 doi: 10.1016/j.rvsc.2017.05.009

## PTA can detect comfort in awake animals

Marzuk et al showed that PTA is able to detect the comfort effect that pheromones produce in cats.

	Feliway	Control	CV	SEM
PTAI	35.16 <sup>a</sup>	30.83 <sup>a</sup>	33.7	3.21
PTAF	58.50 <sup>a</sup>	44.00 <sup>b</sup>	21.6	3.21

2020 Camilo Romero Nuñez, Ariadna Flores Ortega, Rafaela Laura Reyes Climaco Heredia Cardenas\*, Laura Miranda Contreras, Mario Marczuk Dyurich EVALUATION OF THE EFFECT OF FELIWAY ON PARAMETERS OF PARASYMPATHETIC ACTIVITY IN CATS International Journal of Current Advanced Research ISSN: O: 2319-6475, ISSN: P: 2319-6505, Volume 9; Issue 07(A); July 2020; DOI: <http://dx.doi.org/10.24327/ijcar.2020> 28th July, 2020



## PTA can be used on dog, cats and horses





## The main benefits of using PTA technology

The PTA technology can be used to monitor animal comfort at the end of the surgery and anticipate analgesia needs. The assessment of pain in animals is not easy and animals are often given a standard dose of analgesics. This is not appropriate treatment and should ideally be avoided.



**Titrate opioids to avoid infra and overdosing**

Leitao et al showed that PTA is better able to detect stimulation than HR, is able to clearly recognize the analgesic level between treatments, and may be used to optimize analgesic drug delivery in animals.

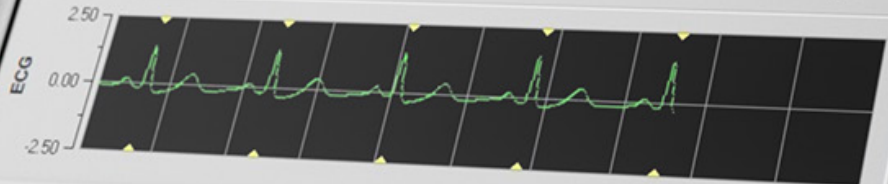
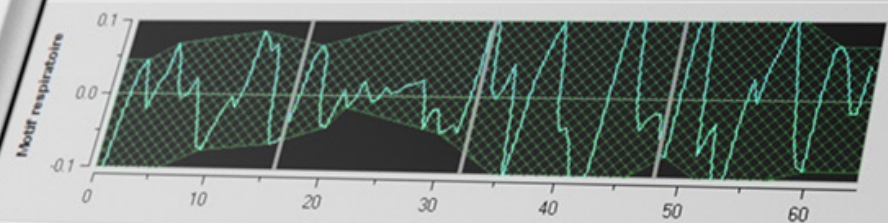
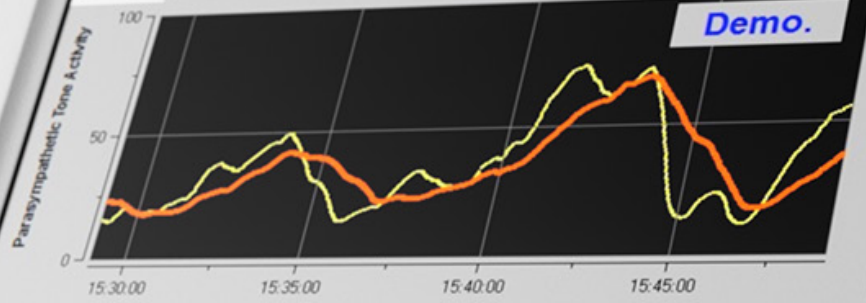




Qualité du signal **Bonne**

15:48:30

Sortie patient



PT



Navigation

C

En

0.

Fréquence Ca

70

Reset EC





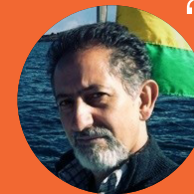
## Testimonials



*“In my opinion, the inclusion of PTA in the monitoring protocol allows us to complete the information and refine the treatment in something as complicated as nociception, thinking not only intraoperatively but also in postoperative pain.*”

**Miguel Angel Cabezas**

**Head of the Anesthesia at Hospital Veterinario Puchol, Madrid**



*“Currently, the clinical assessment method for nociception (intraoperative ‘pain’) is based on simple but basic responses, such as sudden increases in heart and respiratory rates or blood pressure. These responses imply that we are late in providing a good pain reliever and stability plan for our patients. The PTA monitor is a novel approach and a significant advance to detect the presence of nociception, and to anticipate situations where our patients do not have sufficient analgesic coverage.*”

**Ignacio Álvarez Gómez de Segura**

**Chef of the Anesthesiology department at Universidad Complutense de Madrid**



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