



Innovative tools to accelerate post-surgery recovery

All surgeons know that surgery does not end in the operating room. Post-surgery treatment is key to guarantee a successful outcome from the procedure. So, are you using all the tools available to ensure success?

As an increasing number of veterinarians incorporate new techniques and tools to improve post-surgery recovery times; The use of rehabilitation protocols and equipments are a MUST. Ideally, these should also be painless, non-invasive, and clinically and scientifically proven. Today, very few techniques and technologies does it all, and one of such is INDIBA®.

INDIBA® is a patented technology based on Radiofrequency (RF), which is simply an electromagnetic current that works in a closed circuit. This technology regulates and stimulates tissue cells to do what they normally do, but more efficiently - How? By using a specific frequency of 448 kHz, it regulates key biological and metabolic processes of cell physiology¹; and enables classic hyperthermia. Hence, the treated tissue receives combined electrical and thermal stimulation leading to spectacular results.

Electrical Stimulation

The electrical stimulation comes from the 448 kHz radiofrequency, generating three distinct effects at the cellular and molecular level¹:

- ▶ The increase in the replication of fibroblasts, keratinocytes and osteocytes.
- ▶ Increased synthesis of collagen and elastin.
- ▶ An increase in cellular metabolism, an improvement in the speed and quality of healing, and an increase in the reabsorption of edema and hematomas.

Additionally, it also stimulates tissue regeneration, synthesis of the cartilaginous matrix, and increases microcirculation with immediate drainage effect¹. All combined, resulting in accelerated repair of tissue injuries as well as pain and inflammation control.

In the clinical application these effects were found to be useful for:

- ▶ Reabsorption of hematomas and edemas
- ▶ Revascularization of skin grafts
- ▶ Pain control (analgesic)
- ▶ Anti-inflammatory effects

Since the radiofrequency (448 kHz), when used at very low power, does NOT cause a spike in temperature at a tissue level (see Thermal Effects bellow), it CAN BE USED during the acute stages of an injury, immediately post-surgery, or in any case, the heat is contra-indicated, making the 448 kHz RF an amazing ally in various treatment stages.

 **QUICK TIP**

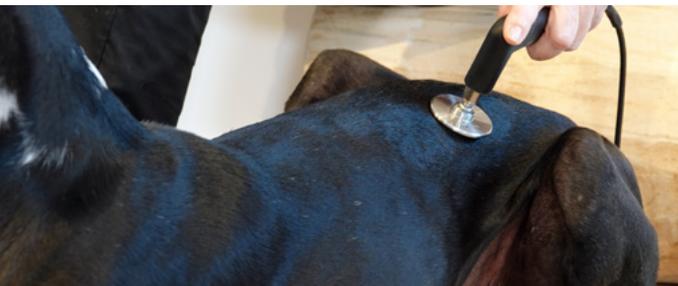
Did you know that INDIBA® can reduce acute pain and inflammation quickly and without the use of medication?



Thermal Effects:

INDIBA® devices deliver the Radiofrequency current using a specific set of parameters: Intensity (amount of power) and time, which interacts with the resistance the tissue offers to the current. The electrical effects can be observed without increasing the temperature even when the intensity setting is set to low. However, as the intensity of the current is increased, the temperature in the tissue consequently rises; an effect called the Joule effect, resulting in the following^{2,3,4}:

- ▶ Increase of blood supply to the treated area and subsequent drainage
- ▶ Supply of oxygen and nutrients from the immune system
- ▶ Removal of metabolites and excess fluid, thereby reducing inflammation and oedema
- ▶ Pain control.



 **QUICK TIP**

Did you know that INDIBA® can also be used in chronic cases, reducing drug usage or even eliminating the need to use them at all?

The Joule effect follows Joule's Law, which states that heat (H) depends on the intensity (I) of the RF current, the resistance (R) of the tissue to that current, and the time (t) that the tissue is exposed to the current. In other words, as you increase power and/or time, the more resistant the tissue is to the RF, the higher the temperature created will be.

In addition to the electrical and thermal effects, another component of INDIBA's technology is that it works in a closed circuit, which means it can penetrate deeper, non-invasively. Hence, it can reach sub-structures that can normally be reached only via invasive methods^{5,6}. Understanding the basics of physics is crucial to understanding how this amazing technology works.

When is INDIBA® useful?

INDIBA® is the solution for a variety of muscle-skeletal problems; whether primary or secondary, INDIBA has the answers. Here are some scenarios where this technology can help:

Managing joint and muscle pain

- ▶ Osteoarthritis
- ▶ Dysplasia
- ▶ Neck pain
- ▶ Pain associated with neurological processes

Accelerating post-surgery recovery

- ▶ Cruciate ligament tear
- ▶ Disc hernia
- ▶ Neurological processes
- ▶ Mass removal
- ▶ Wound repair & skin grafts
- ▶ Seroma, hematoma, oedema etc.

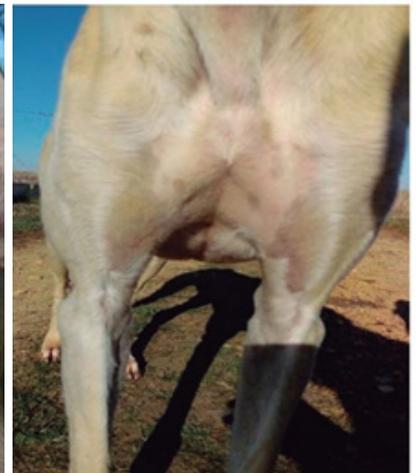
Rehabilitation

- ▶ Fractures
- ▶ Tendon disorders
- ▶ Desmitis
- ▶ Bursitis
- ▶ Fibrillar rupture

Injury prevention for dogs involved in sports

- ▶ Pre-exercise conditioning
- ▶ Post-exercise relaxation and recovery
- ▶ Muscle pain, trigger points, contractures

Dramatic pain and inflammation control - Michela Arena (Spain).⁵



Regeneration and wound repair - Margarita López (Spain).⁵



Before: Week 1

After: Week 4

Getting more curious now?

It's time for you to try INDIBA® Animal Health!

Start your free trial today*

** Free trial period, no buying commitment and for a limited time.
Includes full training, technical support, all accessories.*

References

1. INDIBA independent research in cell therapy and pain – [Visit our Scientific Literature hub](#)
2. Kumaran B., Herbland A., Watson T. Continuous-mode 448 kHz capacitive resistive monopolar radiofrequency induces greater deep blood flow changes compared to pulsed mode shortwave: a crossover study in healthy adults.
3. Tashiro T., et.al. Effect of Capacitive and Resistive electric transfer on hemoglobin saturation and tissue temperature.
4. Yakota Y., et.al. Effect of Capacitive and Resistive Electric Transfer on Tissue Temperature, Muscle Flexibility, and Blood Circulation.
5. <http://www.electrotherapy.org/>

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