

What is Radiofrequency?

Everyday life events, aging or even trauma can change or damage tissue cells on animals just like it does on humans. INDIBA's patented radiofrequency technology can target these changes and restore them using a unique combination of effects.

INDIBA® aids in regulating and stimulating tissue cells to perform at their optimum level. This is done with a specific radiofrequency (448 kHz) that accelerates key biological and metabolic processes of cell physiology¹. It also prompts an effect called classic hyperthermia. Hence, the treated tissue receives a combined electrical and thermal stimulation leading to exceptional results.

Electrical Stimulation

The electrical stimulation comes from a specific frequency of 448 kHz, which generates 3 distinct effects at a cellular and molecular level¹:

- The proliferation of stem cells and fibroblasts.
- Differentiation of stem cells.
- Antiproliferation (or pro-apoptotic) of damaged cells.

Beyond this, it also stimulates tissue regeneration, synthesis of the cartilaginous matrix, and aids in increasing microcirculation with immediate drainage effect¹. All of this results in pain or inflammation control and accelerated tissue repair from injuries amongst a host of other benefits.

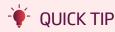
In the clinical application these effects have been proved to be useful for:

- Reabsorption of hematomas and edemas.
- Revascularization of tissue.
- Pain control (analgesic).
- Anti-inflammatory effect.

Since the 448 kHz radiofrequency doesn't cause a temperature increase at a tissue level when used at very low power (see Thermal Effects bellow) - it can be used during the acute stages and even immediately after an injury to accelerate recovery, or in any case the heat is contra-indicated, making RF 448 kHz an amazing ally in the earliest stages of treatment.



Achieving rapid tissue repair with radiofrequency technology



Did you know that INDIBA can reduce and control acute pain and inflammation quickly and from day 1?

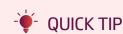


Thermal Effects

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

- Increase of blood supply to the treated area and its subsequent drainage.
- ▶ Supply of oxygen & other beneficial nutrients by the immune system.
- Metabolites and excess liquid are removed leading to a reduction in inflammation and oedema.
- Pain control.



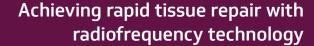


Did you know that INDIBA can also be used in chronic stages, reducing drugs doses or even eliminating the need of using them at all?

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 that current.

In other words, as you increase power and/or time, the more resistant the tissue is to RF, the higher the temperature created will be.

Added to electrical and thermal effect, a third important aspect of INDIBA's technology is that it works in a closed circuit, which means **it can go deeper** in a **non-invasive way** than any other treatment. Therefore, it can reach deeper structures that only invasive^{5,6} technologies can normally penetrate. Understanding the basic principles of physics is crucial to understanding how INDIBA works and to ensure successful treatments.





But don't worry! It is not as complicated as it sounds! There are many tricks that can be applied to perform a good treatment. So, who best to tell you about it than our users:

Recovery of a suspensory ligament after 8 sessions (2 ½ weeks).

Joana Campos (Portugal)⁶







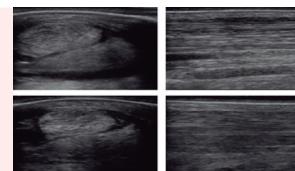






Evident improvement in the echogenicity of the injury with the disappearance of the anechogenic and hypoechogenic areas.

Return to competition after 5-6 months after injury. David Argüelles (Spain)⁷



Feeling curious?

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

Start your free trial today*

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/
- 6. Campos, M., et.al. Use of monopolar capacitive/resistive Radiofrequency at 448 kHz in the treatment of a chronic injury of the suspensory ligament of the fetlock.
- 7. Argüelles, D. et.al. 448 kHz Radiofrequency in the treatment of tendon and ligament injuries in horses.

^{*} Free trial, no buying commitment. Maximum 3 months. Includes full training, technical support, all accessories.