

TECAR THERAPY



The new technologies, which have always been related to the world of medicine, allow to give doctors more and more sophisticated equipment that is more and more perfect to face problems and pathologies.

A practical and interesting example of advance technology used by the medicine is the Therapy.

It is not a invasive technique, it is called **TECAR** and it is a therapy that developed in the last few years with a great success for the prevention of injuries, but above all for the rehabilitation of muscle-tendons and osteoarticular pathologies. And not only!

It was first used in the field of sports, and then this new therapy has been spread out in different applications beside medicine with continuous and encouraging experimentations.

What is it and how does it take effect?

The Tecar Therapy uses electromedical equipment that is based on the physical principle of the condenser. This machine, through two knobs or electrodes is able to generate an electromagnetic area and so a biocompatible energy which **focally diffuses** in the different tissues of the human body in a **homogeneous** way; the real news in contrast to the other machines is in the **dissipation** of energy, which means that in this case it is not generated by the electrode and projected outside, but it is called by the tissue toward the electrode and through the formation of **electric charges** which do not have any contraindications and for this, they are considered **natural**.

This energy produces different effects:

- mechanical determining a displacement of fluids with a consequence drain both lymphatic and hematic.
- chemical – biological recalling oxygenate blood balancing the enzymatic insufficiency and accelerating the metabolism of the damaged cells.
- thermal because the currents produce a Joule effect inducing a deep and homogenous endothermia.

The equipment uses two different methods of treatment through the two different electrodes: the resistive and the capable allowing **different actions on biologically different tissues**.



**Focal Diffusion*:* the attraction to the currents and the charges toward the knob, moved from the operator in an adequate way along the treated zones, has an effect that develops exclusively in the zone of the application allowing a millimetric precision and acting on the power of supply and then on the intensity of applied current. The closed area, which do not have to be treated, are excluded.

****Homogeneity of Energy***: the movement of the currents that from the external area go toward the knob or electrode determines a rising of temperature inside the biological tissue. The intensity of this temperature and the current do not depend on the resistance of tissue, but on the attraction force made by the electrode of the system which it is regulated by the operator, acting on a trimmer places on the console of the machine.*

****Dissipation***: the dissipation of energy in the normal physiotherapeutic machines, as ultrasounds, Marconi or Tens, in the 80% of the cases loses itself in the very first micron of the skin determining a superficial over heating and a consequence inefficiency on a deeper level.*

With the Tecar Technique and its way of functioning, the energy has a curve of deterioration very close to the model of ideal dissipation allowing an efficient therapy till the deeper layers.

****Electric Charges***: the Tecar Therapy is very trustable and efficient thanks to the transfer of biocompatible energy toward the pathological tissues; this induces inside the tissues itself what are called currents of displacement thanks to an alternate movement of electric charges that are the essence of every biological layer.*

****Natural Currents***: the generation of current, as explained earlier, does not happen because of emission and so it is not present for direct contact but as movement of attraction and repulsion of natural charges in a ionic shape.*

So the therapy acts in the deepest layer without the skin being crossed by an emission of direct energy.

****Different Actions on Biologically Different Tissues***: acting with two different systems, capable and resistive, the machine acts on two biological different tissues.*

The resistive system is active on the biologic tissues that have a better resistance as for example bones, cartilage, tendons and so on..

What the Tecar Therapy does is mediate a vascularisations of the interested areas from the chronic pathologies where a scarred and fibrous tissue typically forms and where the metabolic process of reparation is slight; this vascularisation, which is a recall for oxygen, is determined by the cellular increase giving back the integrity and vitality. Not producing any superficial collateral effect, the electrode with resistive capacity can be maintained in the zone of application also for several time reaching endothermic values never reached before from any other physiotherapeutic application, which constitutes the therapeutic base for different chronic pathologies with a fibrous and degenerative evolution.

The capable system act superficially on soft tissues as for example the muscular layers, the vascular or lymphatic system determining a preparatory distension, a recovery of the muscular tone and a cellular regeneration induced by the rising of temperature.

****Selective Actions with an Energetic Low, Medium and High Level***: acting on the trimmer of power on the console of the machine, it is possible to create three different types of biological effect.*

The capable system, the first effect so the lowest (athermal), allows a stimulation induced by the increase of energetic transformation (ADP/ATP) with the increase of the consumption of oxygen.

The medium level (moderately thermal) induces a biostimulation, a capillary microhyperemia to satisfy the request of oxygen.

The higher thermal level allows a biostimulation, an increase of velocity of flow and the hematic perfusion with an increase of the lymphatic conduction.

Instead, the resistive system determines at the lowest level a concentration of electric charges in the zone of the maximum resistance where an initial thermal increase expresses.

The intermediate level concentrate the charges more in the zone of maximum resistance with the major increase of temperature and a major involvement of the interested structures as for instance the bone tissue.

The highest level amplifies even more the condition of the intermediate level increasing the therapeutic efficiency.

Indications

The Tecar Therapy can be used in different situations:

- prevention of the traumatic event: reduce and prevent the traumatic accidents in the sport medicine constitutes the fundamental principle; in fact the continuous and repetitive traumas due to the activities, determining a favourable condition to injuries, give problems to the performance and health of athletes.
- rehabilitation: it allows an immediate intervention in the frequent pathologies as for instance bone and ligaments traumas, inflammatory pathologies at the muscular-tendon level, bone and tendon damage. Beside, the Tecar Therapy found an important application even after the surgery (arthroscopies, arthroprosthesis).
- massage: the Tecar allows the operator to determine an efficient massage on the patient in the blood and lymphatic district both at a superficial and deep layer, enforcing the circulation of fluids through different anatomic districts.
- pain therapy: the machine is used in this therapy acting on the potential action of the membrane of the nociceptors and the nervous fibres favouring the block of the painful stimulus and its transmission.

Conclusions

The Tecar Therapy, today used by the biggest sport societies and by many physiotherapy centres, represents the new generation of machines that allows the development of natural and physiological processes of cellular metabolism of tissues, able to allow a primary intervention in different traumatic and phlogistic pathologies of the muscular-tendon tissues and bones.

The studies done so far underlined, on this type of pathologies, a better efficiency with an anticipated coming back to normal functions again compared to traditional treatments.

Keeping in mind that different pathologies require different treatments and that every person reacts in a different way, on average a treatment is efficient after 8 applications that should be done weekly.



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