



(Cover of Italian Sports Magazine “Forza atleti” featuring the Atletico Madrid footballer Pernia)

CRYOTHERAPY: THE FORMULA AND THE TREATMENT **(Open letter from the team physios)**

AFTER THE INITIAL TEST

Cryotherapy is the sector of physiotherapy which uses cold as a therapeutic method. Etymologically its meaning comes from “CRYOS”, or cold, and “THERAPEIA”, or treatment. Since time immemorial cold has been used as a method of treating various complaints in combination with other treatments.

There are many ways of using cold, some of which we can list here. Towels soaked in a mixture of water and ice, immersion in water containing ice, for periods of no longer than one-minute, although at frequent intervals (until the ice has melted).

Direct application of ice in bags. There are some bags known as COLD PACKS. A tap with the hand mixes certain internal constituents, thus generating cold. They are convenient but not as effective as ice since their effect does not last very long.

Spraying on a volatile liquid, which, when it comes into contact with the air evaporates and produces cold when it comes into contact with the skin. (This is the white smoke we notice when a player receives treatment on the pitch).

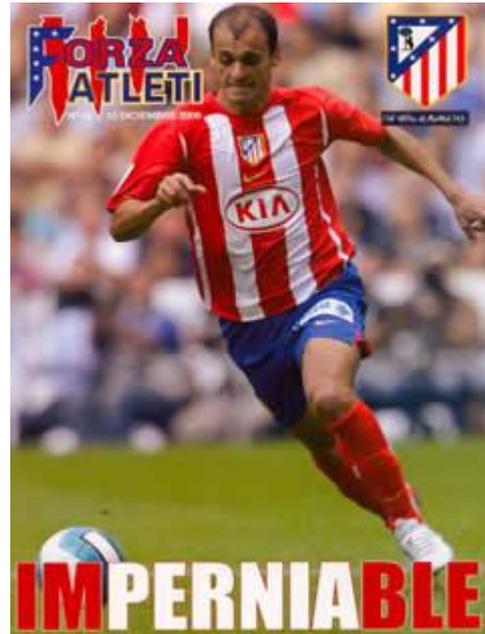
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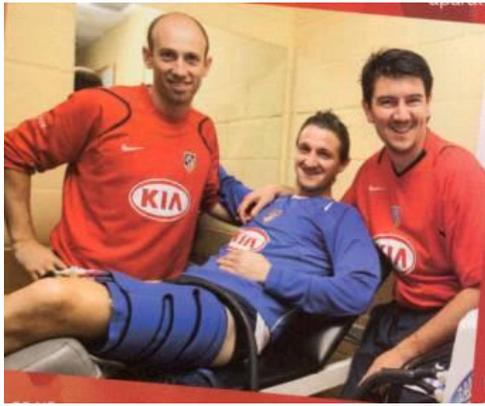
Used in particular for the following:

NEUROLOGY. Reduction of muscle hypertony.

RHEUMATOLOGY. Reduction of inflammation and arthrosis as ice anaesthetises and sometimes facilitates joint mobilisation. Damage to joints such as tendinitis and bursitis.

Vertebral, cervical, dorsal and lumbar pains. Muscle cramps. Post-traumatic inflammation, although it is only recommended for use during the 48 hours following the event, since it could delay the healing process.





Effects:

- Reduces nerve conduction which means that information about pain does not reach the brain
- Vasoconstriction, which means reducing the flow of blood to the injured zone.
- Antalgic and anti-inflammatory effect.
- Reduction of muscle tension.
- Anti-swelling effect, stopping liquid from accumulating in the area and preventing post-traumatic haemorrhage.

When we physiotherapists go out onto the pitch because a player requires attention we normally apply cold using a liquid spray, which turns into gas as it is sprayed out. We try to obtain the effects described above. In the particular case of MAXI and PETROV the cold technique used is applied via a machine known as ZAMAR. It has a compressor with a special refrigerating device combined with a hydraulic device which can supply heat or cold. It sends this to the player, in the area requiring treatment, in a very safe and simple way. Special tubes are used to transfer the liquid, with a coil exchanger and some fabric bags insulated from the exterior with velcro strips.

The bags in the coil exchanger contain a type of polyester which is kept soft at all times, adapting perfectly to the area to be treated. In addition to supplying cold this apparatus has an electronically-controlled massage, compression and decompression function. This regulates the internal pressure of the bags, combining the benefits of massage with those of cold. The temperature can range between +30C and 40oC.

This type of equipment has been used by various football teams, such as Levante and Valencia, teams in the English Premiership and tennis academies such as the Juan Carlos Ferrero academy in Valencia. It is interesting to note that this machine is used to treat injuries at the Real Escuela Andalyuza de Arte Ecuestre (*Royal Andalusian School of Equestrian Art*) in Jerez.

In all cases the results have been very satisfactory.

The use of this compressor on a daily basis allows us to work in a virtually pain-free way since the joint does not accumulate any liquid and can be mobilised both actively and passively.

Esteban Arévalo Sanz

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