

# STUDY ON THE EFFECT OF GAS CRYOTHERAPY TREATMENT ON MUSCULAR CONTRACTING

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**SPORTS TRAUMATOLOGY**

**DISEASES OF THE BONES AND THE ARTICULATIONS**

## **OBJECT OF THE STUDY**

Cryotherapy has been used for a long time in sports and rehabilitation medicine in the treatment of haematomas, thanks to an anti-inflammatory and an anti-oedema effect (1).

The study of the treatment of the oedema in maxillo-facial surgery with gas cryotherapy showed the regression of the post-operative haematoma to be superior to the control group (2).

Travel and various other American authors showed the efficiency of cold and of passive stretching on muscular contracting, through the medullar inhibition of the cutaneous reflex.

The aim of our study is to show the efficiency of gas cryotherapy on muscular contracting, with no other therapeutic intervention.

## **METHODOLOGY:**

The technique uses cold through gas cryotherapy (medical CO<sub>2</sub>) at -78 °C shot through a gun, while the muscle is at rest.

The application of the cold is done by sweeping the painful area for 60 to 90 seconds depending on the size and importance of the muscle, until the thermal shock is obtained (phenomenon of reflex vasodilation, which takes 20 minutes to obtain with ice).

The reading of the results is carried out by a different practitioner than that who applied the cold.

The muscles studied are as follows:

The middle buttock muscle, the patient being in lateral decubitus, measure of the active abduction by the distance in cm between the knees;

Twin internal muscle, the patient being in ventral decubitus, measure of the plantar flexion;

Spinal lumbar muscles, the subject standing up, measure of the distance in cm between the fingers and the ground;

Deltoid muscle, measure of the active abduction.

We excluded patients affected by degenerative articulation or neurology, which could affect movement from the study.

The treatment was repeated 4 to 5 times on the patient at 1 or 2 day intervals.

The reading of the results was carried out by a different practitioner.

## **RESULTS**

See table attached.

### **ANALYSIS OF THE RESULTS**

In eight out of ten cases, results were good, with a reduction of the pain and the contracting, and improved active amplitude.

In one case (patient n 4), the lumbalgia persisted despite the fact that the DDS was improved.

In one case (patient n 6) with a contracting of the middle buttock muscle, the pain and the contracting persisted, however the amplitude was improved.

Finally, in the case of patient n 8, the interruption of the treatment for 8 days caused a recurrence of the pathology, and the movement amplitude was subsequently improved at the 4<sup>th</sup> or 5<sup>th</sup> session.

### **CONCLUSION:**

Gas cryotherapy improves muscular contracting, regardless of which muscle is treated, in terms of pain and articular amplitude, presumably caused by the thermal shock effect which can be obtained very rapidly with this equipment, due to the power of the spray and the extreme cold. We need to study the way in which the cryotherapy works and its applications in tendino-muscular pathology through random trials.

