

**ACCOUNT
Of the
Centre for Functional Rehabilitation
Of
SALINS LES BAINS**

TEST OF THE CRYOTRON
Carried out over 6 months
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ACCOUNT OF THE TRIALS OF THE CRYOTRON OF CRYONIC MEDICAL

A CRYOTRON apparatus that distributes cold with CO₂ was used for several months at the CFR of Salins-les-Bains. The Physiotherapy personnel, trained in its use, was able to use it with patients that were referred to them by doctors. It was decided that sessions were to last of 1 and a half minutes. The physiotherapists were required to fill in a chart in each case, in order to specify:

- the pathology and the clinical signs observed or measured
- the dates of application of the cold
- the observed effects.

We did not carry out clinical tests concerning this new technique, but we tried to gather professional opinions about the daily use of this apparatus; this task could not be assimilated with a scientific study.

The results of the free observation were expressed according to two points of view:

- the opinion of the user
- the clinical observations.

THE USAGE:

The usage of the CRYOTRON is simple and agreeable. The training necessary for its use is minimal and accessible to everyone. The comfort of the use and its safety could be optimised by adding a timer and an automatic interruption system in case of prolonged use.

The process of the exchange of the gas refills is simple. An attachment system means that one can install the gas bottles without any tools.

CLINICAL OBSERVATIONS:

It is impossible to reproduce the result of all the applications. On the whole, the summary is as follows:

- Whilst respecting the indications, contra-indications and posology recommended by the manufacturer, we did not observe any clinical aggravation, or degradation of the local or general state of our patients. None of the patients treated had any subsequent allergic reactions.
- The CRYOTRON turned out to be particularly efficient on peripheral pain, contractures, and muscular traumas, inflammatory reactions or circulatory problems. The people who benefited from the treatment with this apparatus usually described a pleasant and lasting sensation of deep cold, along with the progression of the clinical symptoms. The improvement of subjective and objective problems is, in most cases, faster than with the

techniques usually deployed. The therapists noticed immediate effects occurring before the end of the physiotherapy session.

- Some applications did not have the required effect, against our expectations which stemmed from what we had seen in other patients. Mostly, these were isolated cases, independent from each other in terms of pathology or psychology.

We noted a few cases which are representative of what we observed.

Contracture of the pyramidal muscle: 1 session on the 16/02/95
1 session on the 20/02/95

Associated treatment: stretching, relaxing massage

- disappearance of the contracture after the second session.

Serious ankle sprain:

- 1 session on the 29/05/95 disappearance of the inflammatory signs
- 1 session on the 30/05/95 disappearance of the pain, allowing
- 1 session on the 30/05/95 the knee flexion to improve
- 1 session on the 30/05/95 ditto
- 1 session on the 30/05/95 ditto

2 haematoma on an incomplete paraplegic subject at the walking stage:

- 1 on the posterior face of the calf: not treated with the Cryotron
- 1 on the posterior face of the thigh (5 \times 8 cm): treated with the Cryotron

- 1 session on the 16/02/95 reduction of the circumference (5 \times 6 cm), plus a reduction of the cutaneous colouring
- 1 session on the 17/02/95 improvement of the cutaneous colouring
- 1 session on the 16/02/95 disappearance of the haematoma

(The other haematoma, which was smaller, and was not treated, did not regress)

Internal Meniscal Pain:

- 1 session on the 29/05/95 R.A.S
- 1 session on the 30/05/95 Reduction of the intensity of the pain
- 1 session on the 31/05/95 Reduction of the intensity of the pain
- 1 session on the 01/06/95 Reduction of the intensity of the pain
- 1 session on the 07/06/95 No more pain during physio sessions
- 1 session on the 12/06/95 Total disappearance of the pain

Tendinitis of Achilles tendon with below-tendinous induration

- 1 session on the 29/05/95 R.A.S
- 1 session on the 30/05/95 Reduction of the induration
- 1 session on the 31/05/95 R.A.S
- 1 session on the 01/06/95 Improvement of painful symptoms

- 1 session on the 06/06/95 R.A.S
- 1 session on the 07/06/95 R.A.S
- 1 session on the 09/06/95 R.A.S

Sepsis on knee arthroscopy – inflammatory phenomena:

- 1 session on the 14/03/95 Lasting reduction of local pain
- 1 session on the 15/03/95 Reduction of inflammatory symptoms
- 1 session on the 16/03/95 Total disappearance of inflammatory symptoms.

Algoneurodystrophy of the inferior member in the hot phase:

- 1 session on the 15/02/95 Disappearance of nocturnal pain
- 1 session on the 16/02/95 R.A.S
- 1 session on the 17/02/95 Significant reduction of the majority of symptoms
- 1 session on the 20/02/95 Lasting reduction of local heat
- 1 session on the 21/02/95 Disappearance of inflammatory symptoms
- 1 session on the 22/02/95 Total disappearance of inflammatory symptoms.

Post-surgical oedema in the upper member
(Associated treatment: DLM)

- 1 session on the 02/05/95 R.A.S
- 1 session on the 03/05/95 R.A.S
- 1 session on the 04/05/95 R.A.S

Tendinitis of the rotulian tendon:

- 1 session on the 15/02/95 Reduction of algic phenomena
Improved walking kinetics

Intercondylar osteosynthesized fractures and tibial plane fractures:

Painful phenomena + heat + tumefaction + sweating

- 1 session a day for 6 days Visible reduction of pain and inflammatory symptoms.

Old and recurring tendinitis of the long biceps and *sus-epinous*:

Associated treatment: ultra-sounds and rest.

- 1 session a day for 7 days Total disappearance of the pain

Internal *pentade* of the operated knee followed by an A.N.D and a tissular sclerosis:

- 1 session a day for 4 days
- Immediate sensation of well-being
- Noticeable reduction of pain
- Normalisation of the inflammatory symptoms

Total knee prosthesis at D + 3 weeks:

Inflammation + oedema + scar adherence

1 session a day for 8 days

- - Sensation of relaxation
- Persistence of the sedative effect of cold
- Reduction of the oedema allowing an increase in rehabilitation activities.

In conclusion, the CRYOTRON allowed the centre's physiotherapists to discover a therapeutic and deep cold, which lasts and is usually efficient. The apparatus, which is easy to use, has marked therapeutic techniques with its immediate effect, together with a short application. For this reason, the CRYOTRON quickly found a privileged place within our technical methods.

Moreover, it would be interesting to pursue these initial observations with scientific experiments in order to confirm what has been seen, and to discover other areas where it is indicated.

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