CLINICAL AND OBSERVATIONAL STUDIES

CRYONIC-MEDICAL

HYPERBARIC GASEOUS CRYOTHERAPY

Cryonic-Medical have gathered a large number of clinical/scientific and observational studies to support their claims that Hyperbaric Gaseous Cryotherapy stimulates the nervous system via a rapid drop in temperature . The resulting thermal shock from the sudden drop in temperature under pressure triggers a systemic vasoconstriction.
There is evidence that shows that sympathetic activity modulates inflammation and the release of cytokines [24] and that involvement of the autonomic nervous system is important in the treatment of inflammation. [25]
The translated Clinical and Observational Studies generally all point to the same conclusions.
Advanced Cryotherapy produces :

1) A powerful analgesic effect
2) Anti-inflammatory response
3) Vasomotor Effect - Reflex
4) Muscle Relaxant

Some of the benefits accruing from the above physiological effects to patient and practitioner have shown to be :

1) Generally a quicker than usual recovery time.
2) Reduction in the use of anti-inflammatories.
3) Increase in the amplitude of movement post surgery
4) A higher than normal success rate in treating and rehabilitating chronic injuries.
5) Control of swelling and quick drainage of haematomas
6) Streamlined efficient and effective treatments

The scope of treatment is indeed broad:
Rheumatology:inflammation,sciatica,Sudeck's disease,torticollis,osteo-arthritis,arthritis,epicondylitis,lumbago,tendonitis,etc
Traumatology: Oedemata,haematomas,sprains,muscle strains, contusions.
And many other conditions and injuries:bruising,scars , wounds ,sutures etc

Below is a summary of some of the translated clinical studies . You can download a pdf which has the full report of most of these studies.

Hyperbaric gaseous cryotherapy: effects on skin temperature and systemic vasoconstriction.

Laurent MOUROT (Ph.D), Christian CLUZEAU, Jacques REGNARD (MD, Ph.D)

From the department of Physiology (EA 3920 and IFR133), Franche Comté University, Besançon (Mourot, Cluzeau, Regnard) and Functional Explorations department, University Hospital, Besançon (Regnard), France.

Objective: To compare skin surface cooling caused by application of an ice bag (15 min) and by projection of CO_2 microcrystals (2 min) under high pressure (75 bar) and low temperature (-78°C), a modality called **hyperbaric gaseous cryotherapy** (HGC).

Design: Randomized controlled trial with repeated measure.

Setting: Laboratory experiment.

Participants: 12 healthy male subjects (mean ± SD: 22.9 ± 1.8 years)

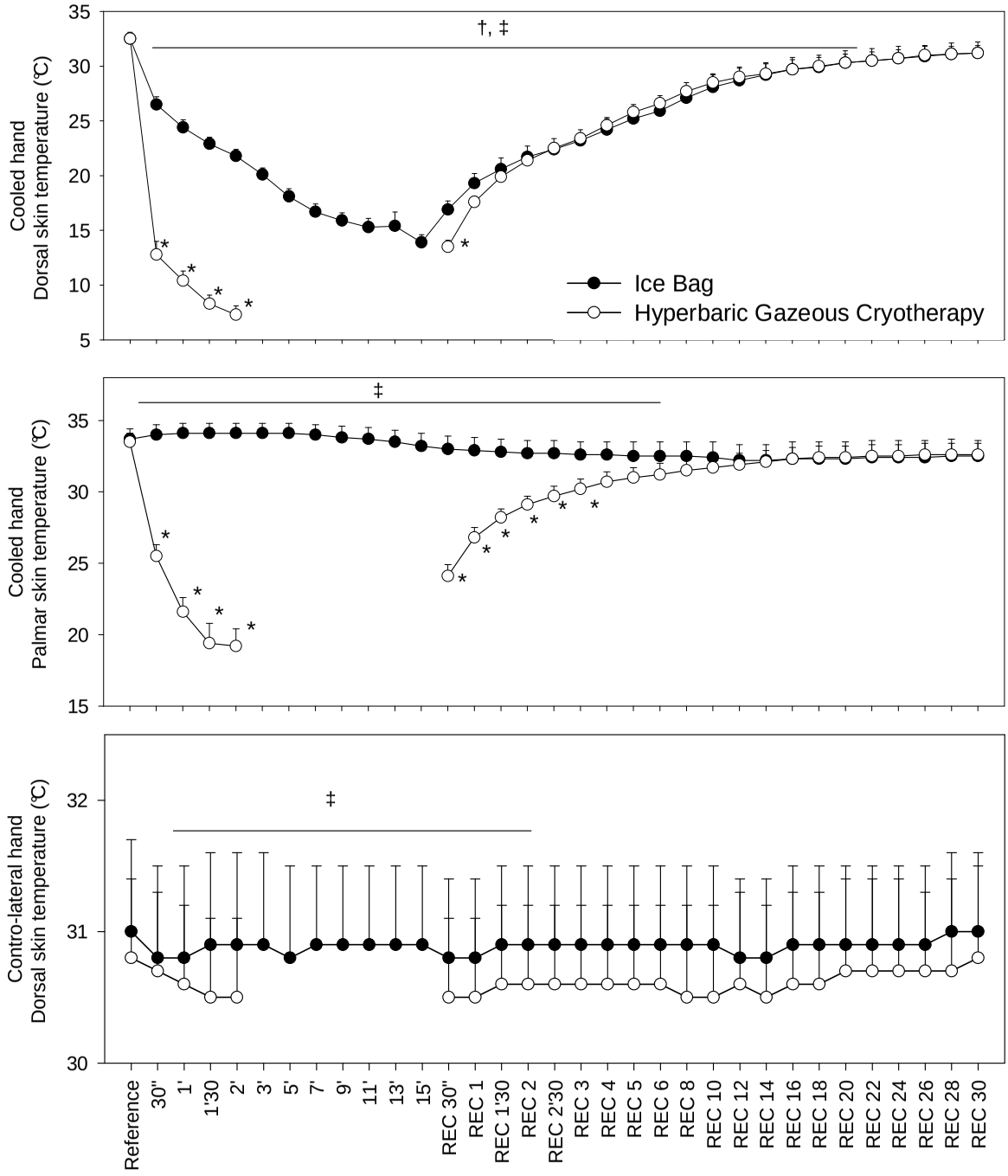
Interventions: Ice bag and hyperbaric gaseous cryotherapy were randomly applied on the skin of the non-dominant hand.

Main Outcome Measure: Skin temperature of the cooled (dorsal and palmar sides) and contra-lateral (dorsal side) hands were continuously measured with thermistor surface contact probes before, during and after (30 min) cooling.

Results: **HGC** projection induced a large decrease ($P<.05$) of the dorsal skin temperature of the cooled hand (from **32.5 ± 0.5°C** to **7.3 ± 0.8°C**), and a significant decrease of the skin temperature of the palmar side and of the contra-lateral hand. The skin temperature of the dorsal side of the cooled hand was decreased with an **ice bag** (from **32.5 ± 0.6°C** to **13.9 ± 0.7°C**; $P<.05$). However, the lowest temperature for ice bags was significantly higher than during HGC, and no significant changes in the other skin temperatures were observed. Rewarming was equal after the two modalities, highlighting a more rapid increase of the skin temperature after HGC.

Conclusion: Hyperbaric gaseous cryotherapy was **superior** to the ice bag in reducing skin temperature. This modality decreased the mean skin surface temperature to levels required for therapeutic effects in all the subjects studied, while ice bag did not. Also, and unlike the ice bag, hyperbaric gaseous cryotherapy triggered a systemic vasoconstriction. Confirmation of these results with a larger population is necessary and the clinical benefits of hyperbaric gaseous cryotherapy need to be evaluated.
Additionally ,the important changes in skin temperature observed with HGC may be of interest, based on the assumption that immediate cryotherapy application will be more beneficial than delayed application because the sooner the metabolic rate is reduced after injury, the **less the secondary damage .**

Figure 1. Skin surface temperatures of the cooled and of the contralateral hand during and after 15 min of ice bag application and 2 min of hyperbaric gaseous cryotherapy (HGC).
Figure 1.



* significant difference between ice bag and HGC, † significant difference from the reference values (ice bag), ‡ significant difference from the reference values (HGC) at the $P<.05$ level.

THE INFLUENCE OF CRYOTHERAPY (CRYOTRON®) ON PAIN AND INFLAMMATION FOLLOWING A SHOULDER ARTHROSCOPY

University of Brussels
Doctor Romain Meeusen and Doctor Franck Handelberg

Objective: To examine the influence of cryotherapy on subacromial temperature, pain and inflammation in the postoperative shoulder.

Participants*:* Twenty patients undergoing diagnostic shoulder arthroscopy.(n=number of patients)

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are needed to see this picture.

Design: Controlled trial.

Interventions: Cold was administered via a *Cryotron*® , a second group received a 'placebo' treatment, while a third group served as control. Visual analogue scores (VAS) were used to obtain pain scores and a patient-controlled analgesia system (PCA) was applied to standardize post operative medication. C-reactive proteins (CRP) were measured to get an idea of the inflammatory reaction**.**

Results*:* Skin temperatures differed significantly after post operative cryotherapy. *Cryotron*® treatment resulted in a very steep temperature drop during the first minute of application. Subacromial temperature was significantly lower for the *Cryotron*® group during the night (when no cold was applied). According to the results of this study, cryotherapy has a positive effect on reducing post operative pain. Both VAS values and medication use were lower in the experimental groups. CRP measurements did not reduce significantly due to cryotherapy, but it seems that cryotherapy used suppresses the inflammatory reaction, as shown by one case with acute gout.

Conclusion: Cryotherapy led to a marked reduction in post-operative pain. Furthermore, the impact of the Cryotron® method on the acute inflammatory reaction was extremely positive. Finally, it was observed that the increase in the level of CRP owing to inflammation was blocked by the Cryotron® treatment in patients with an acute inflammatory response. These results indicate that postoperative pain is influenced significantly when cryotherapy is applied.

Keywords: Cryotherapy, Inflammation, C-reactive proteins, Cold therapy, Pain

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SUMMARIES OF MAIN POINTS

1.Pain

Visual analog scores were analysed by the Kruskal-Wallis one way ANOVA. Figure 1 illustrates the VAS curves. For the control group an irregular course is seen. Pain increases immediately after the operation, while for the *Cryotron*® group there is a decrease in the same period. Over the total measuring period VAS scores for the *Cryotron*® group are

significantly lower.

FIGURE 1 PAIN LEVEL (VAS) VS TIME(HOURS) .

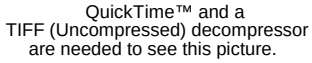

FIG 1

Pain Relief –Self Administered Analgesics {DIPIDOLOR}

Figure 2 shows the results as monitored by the PCA-system. Patients in the *Cryotron*® group perceived the need to use analgesics less often than those in the control group. A lock-out interval of 10 minutes was imposed to avoid overdose. Per dose the patient received 2mg or 1ml "Dipidolor". The maximum amount in 4 hrs was 30mg. The total amount of dipidolor (mg), the number of PCA requests (= demand) and the number of successful administrations (=delivery) were stored by the PCA device.

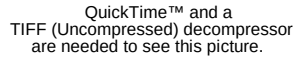

FIG2

The total amount of analgesics (PCA pump), the number of demands, and the number of painkiller received was **significantly lower** for the *Cryotron*® group compared to the placebo group.

INFLAMMATION

C-reactive proteins (CRP) in blood plasma were measured as an indication of inflammation. In our study 3 blood samples were collected. The first one was taken 1 day pre-operative, the
second one 6 hours after starting the measurements and the last one the first day
postoperative. The detection limit was <5mg/l.

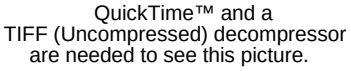

FIG 3

Figure 3. Comparison of the increase in inflammation between treatments. Note that the *Cryotron*® group has lower inflammatory reaction than the placebo or control group.

Surprising are the results of the effect of *Cryotron*® on an acute inflammatory reaction. One subject developed an acute gout attack. This resulted in an extreme inflammatory reaction. The percent increase of CRP's due to inflammation (compared in time) is much suppressed by the application of *Cryotron*® on the individual with an acute inflammatory response .In figure 4 we see that *Cryotron*® created a suppression of the inflammatory reaction (%increase).

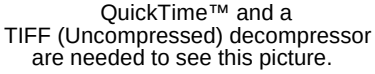

FIG 4

This means that once a large inflammatory reaction is established this is suppressed by *Cryotron*®

STUDY OF THE USE OF GASEOUS CRYOTHERAPY IN MAXILLO-FACIAL SURGERY FOR OEDEMATA

University hospitals of Strasbourg.
Professor Astrid Wilk, head of maxillo-facial surgery unit.

Summary: Gaseous Cryotherapy has been used to reduce facial oedema following facial surgery. The vasoconstriction resulting from the action of very low temperature (-78 degrees) and the pressure of gas allows the lymphatic drainage. This method is a good adjunctive in treating post-surgical oedema and a compliment to the lymphatic manual drainage.

Objective: The subject of this study is the impact of gaseous cryotherapy on patients who all had the same pathology , a zygomatic bone fracture combined with an orbital floor fracture. Such injuries usually provoke a major post-operative oedema.

Design: Randomized controlled trial with repeated measure. For each group we measured :

a) The opening of the palpebral fissure
b)The distance of the tragus of the ear and the nasal area.

Setting: The measurements were made on the operated side and on the healthy side.The treatments were carried out for a minute and a half four times a day. The evaluation was always carried out by the same person .The measures were carried out in the same conditions at the same time and in the same position to ensure that the results are as reliable as possible.

Participants: Group 1: 22 treated patients. Group 2:14 non treated patients .
The two groups were comparable from the age and gender point of view.

Interventions: The measures were made in the evening . 1) The day after the intervention 2) Two days after the intervention. 3) The patients were seen 6 days after the intervention.

Main Outcome Measure: On the day following the intervention a decrease in the oedema was noted in the group of treated patients.

An average difference of **2mm** between the 1st day and the 2nd was noted.

An average difference of **5mm** between the 1st day and 6th one was noted.

The statistical analysis shows that the reduction of the oedema was digressive and was higher in the group of patients that were treated with gas cryotherapy.

See Figures 1 and 2 below

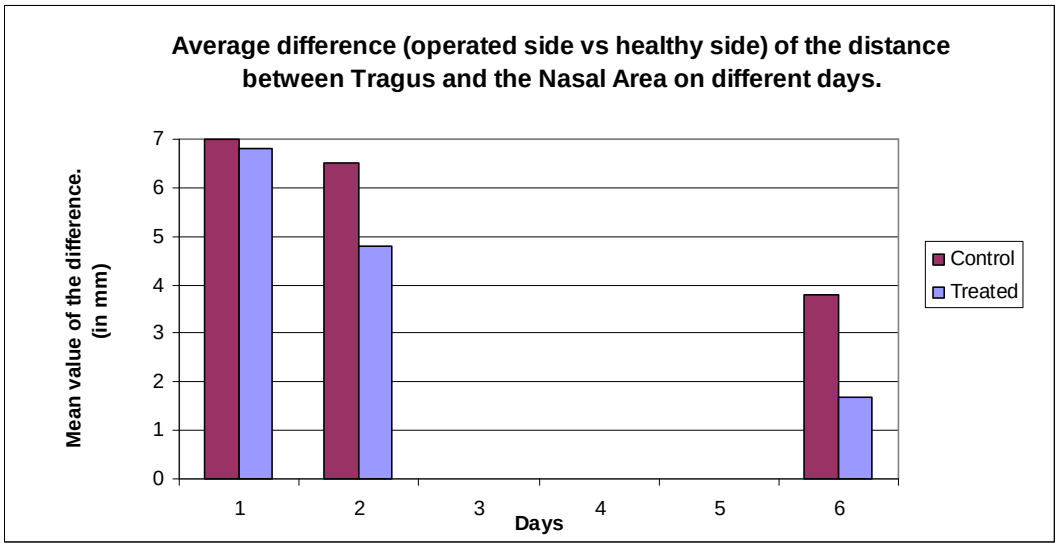

fig1

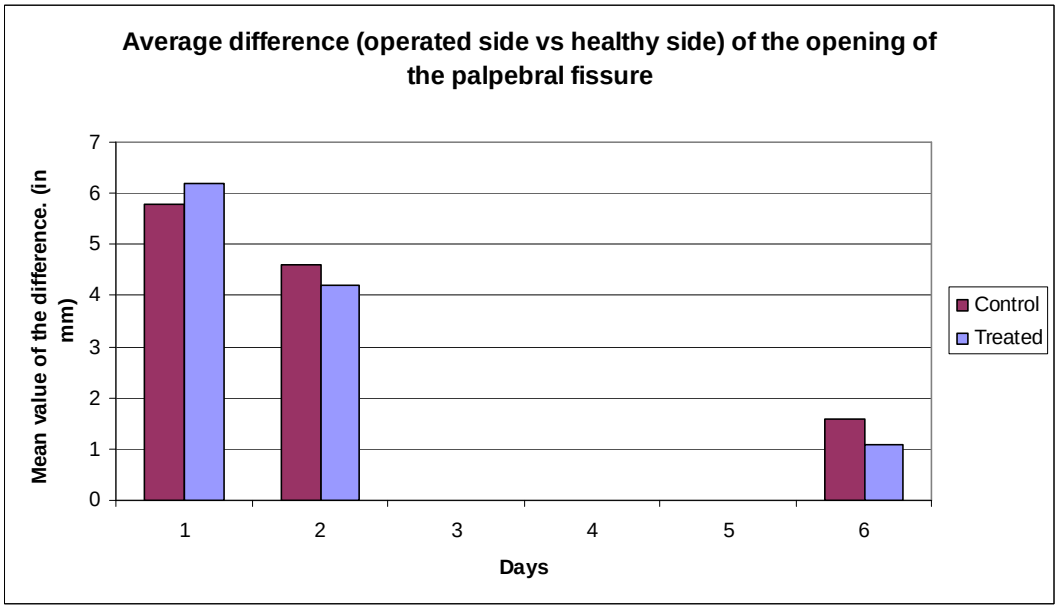

Fig 2

Results: We studied 36 cases . 22 patients treated with gas cryotherapy . 14 control patients . Out of the 22 patients that were treated all displayed a satisfactory improvement.
10 very good results , 6 good results and 6 fairly good results.
The result was very good in 72.72 % of cases .
80% of patients did not encounter any problems with the treatment .
20% of the patients experienced discomfort resulting from the pressure of the spraying ,which caused the need to adapt the distance of the spraying from the face.

We admit an error margin of 1mm.
Our statistics were carried out by statisticians from the department of medical IT of the Centre Regional Hospitalier de Strabourg.

The practise of Gas Cryotherapy was found to be more comfortable than other techniques from other techniques used previously for the following reasons.

-The speed of execution.
-The absence of humidity on recent scars.
-The immediate analgesic effect.

We have extended the usage of the apparatus to the treatment of other pathologies: The Face Lift , Osteotorries ,The Traumatic Le Fort

Conclusion:
Hyperbaric gaseous cryotherapy allowed relief for patients with postoperative oedemas without any medical adjuvant. The comfort of patients was thus improved.
In all cases the post-operative oedema receded without adjuvants and the patient's condition was relieved. Vasoconstriction and the gas pressure allowed a drainage of the tissue. We noticed that the use of the Cryotron apparatus was indicated in the case of post-operative oedema and in the case of an inflammatory reaction. The regular sessions had an effect on their physical and psychological well-being.

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A COMPARISON OF GASEOUS CRYOTHERAPY TO COLD PACKS IN ACUTE POST-OPERATIVE KNEE ARTHROSCOPY

H.E.P.H.O – Haute Ecole Provinciale du Hainaut Occidental
Section: Physiotherapy

Objective: Comparison of Cold Packs to Hyperbaric Gaseous Cryotherapy in patients recovering from knee arthroscopy

Participants: The study is based on 40 patients having undergone an arthroscopy for various reasons:
- Menisectomy (internal or external);
- removal of material from osteosynthesis;
- joining of ligaments;

Each group consisted of 20 patients .
The Cryotherapy was composed of 14 males and 6 females
a) Ages ranged from 17 to 70 (average =34.9 years) .
b)Height between 1.57m and 1.9m (average = 1.74m)
c)Weight between 57kg and 90kg (average=76.5kg)
12 active sports people and 8 Sedentary.

PROTOCOL OF STUDY
The application of the therapy was codified in this manner:
- Removal of the band as well as bandage;
- Taking various measurements in chronological order:
- A perimeter stage in 5 points;
- A goniometry in inflection and extension of the knee;
- A measurement of the cutaneous temperature;
- A verbal scale of the pain;
- Scale of the pain to the active mobilization (flexion&extension).
- Application of the cryotherapy once per day:
- 1st day (D0) into post-operative immediate;
2nd day (D1), the following day before of physiotherapy treatment.
The therapy carried out will be either the COLD-PACK, or the CRYOTRON.
The COLD-PACK will be wrapped in a sponge wipe to avoid cold burns before it is applied to the skin. To put the cold pack in contact with as much skin as possible, velcro was used to secure it for the 20 minutes application .
The CRYOTRON will be used according to the protocols for one 1 minute and 30 seconds. The measurements were made after the treatment on Day Zero (D0)and Day One (D1). For Gaseous Cryotherapy ,the measurements were taken at zero then 1minute and 30 seconds(T1,30) after the treatment. The measurements were then taken at 20 minutes , 30 minutes and 40 minutes post treatment to allow a comparison to ice.
For the Cold- Pack application the measurements were taken at 20 minutes(T20) , 30 minutes (T30) and 40 (T40)minutes post treatment.

General Conclusion: Through this study, we have observed that advanced cryotherapy(HGC) has it's place in post surgical treatments.The study opposed two different therapies each having different properties.

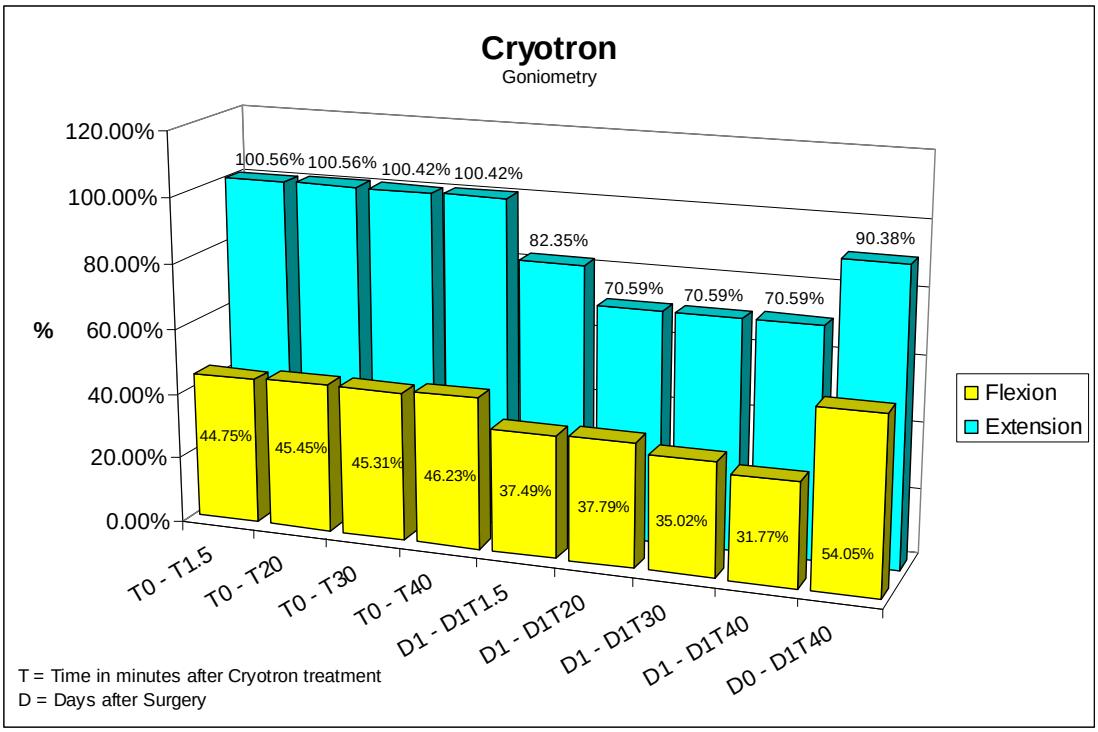
If we compare the effects produced by each therapy on the improvement of oedema resorption, on the improvement in amplitude of movement, on the reduction in pain and the reduction in the use of anti-inflammatories, one can see that the Gas Cryotherapy has better results within a short time
The effect of gaseous Cryotherapy has indeed more obvious and rapid effects in comparison to traditional therapy. The therapy using CO2 brings more advantages for the patient and the therapeutic team. The advantage of this therapy is to treat a large number of patients (with conclusive effects) within a very short time.
The presence of such a therapy in sporting mediums where inflammatory problems are frequent, is more than indicated . We can conclude that the gaseous Cryotherapy has a part in the treatment of inflammatory phenomenon and is a perfect tool for the physio of the new age…….

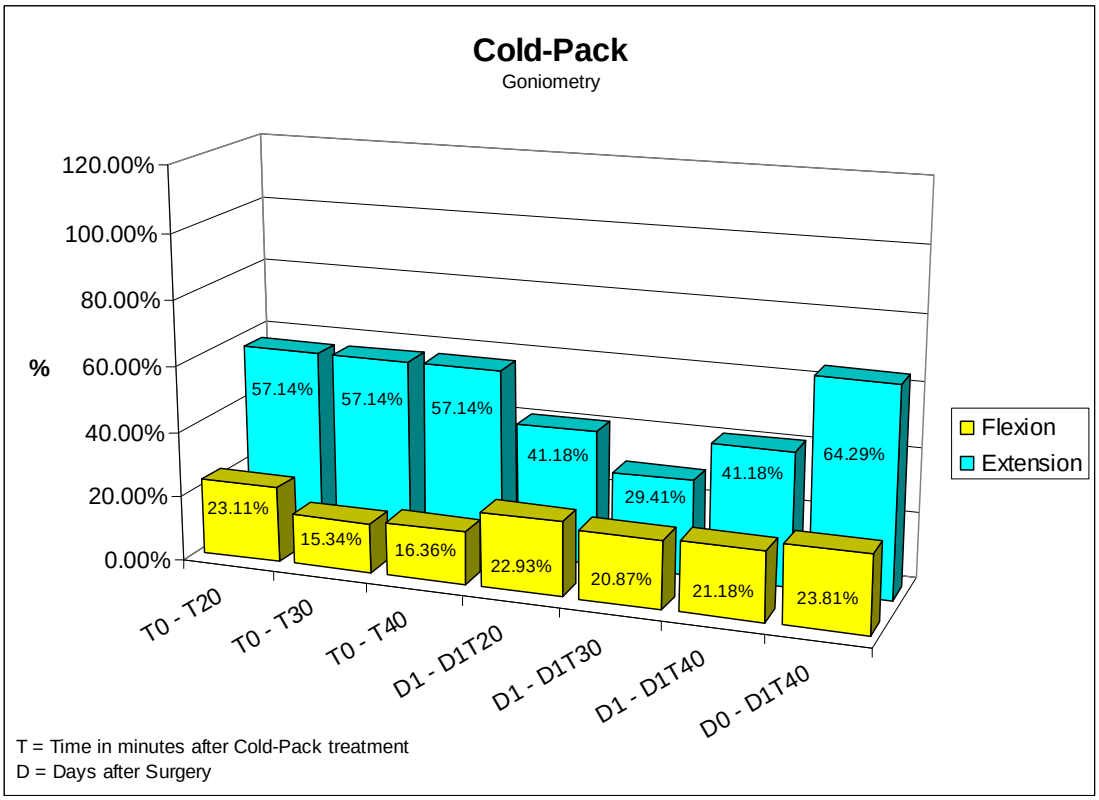
DISCUSSION CONCERNING GONIOMETRY

The contribution of gaseous cryotherapy immediately after treatment is significant in the increase of amplitude. Indeed, we can see following the C02 therapy, an average increase in amplitude of inflection right after the therapy (T 1,30) of 44,75 %. Comparatively with the Cold Pack, just after the therapy (T 20), the increase in amplitude of inflection is 23,11 %.
Hence the difference in the averages for the two treatments was 21,64 %. Gaseous cryotherapy has an immediate contribution, significantly higher when compared to Cold-Pack. When we look at the figures in T20-DO compared to T0-DO for the Gas therapy, we can see that the difference is again significant compared to T20-DO of the Cold-Pack.
When we compare T 30-DO compared to T0-DO of the two therapies, we can see a constant increase in the amplitude of movement (45,31 %) for the gas therapy, whereas the increase of amplitude fell in a significant way for the Cold-Pack (from 23.11 % to 15,34%). This reduction in amplitude - following the therapy by Cold- Pack was confirmed during various times of measurement.

CONCLUSION:

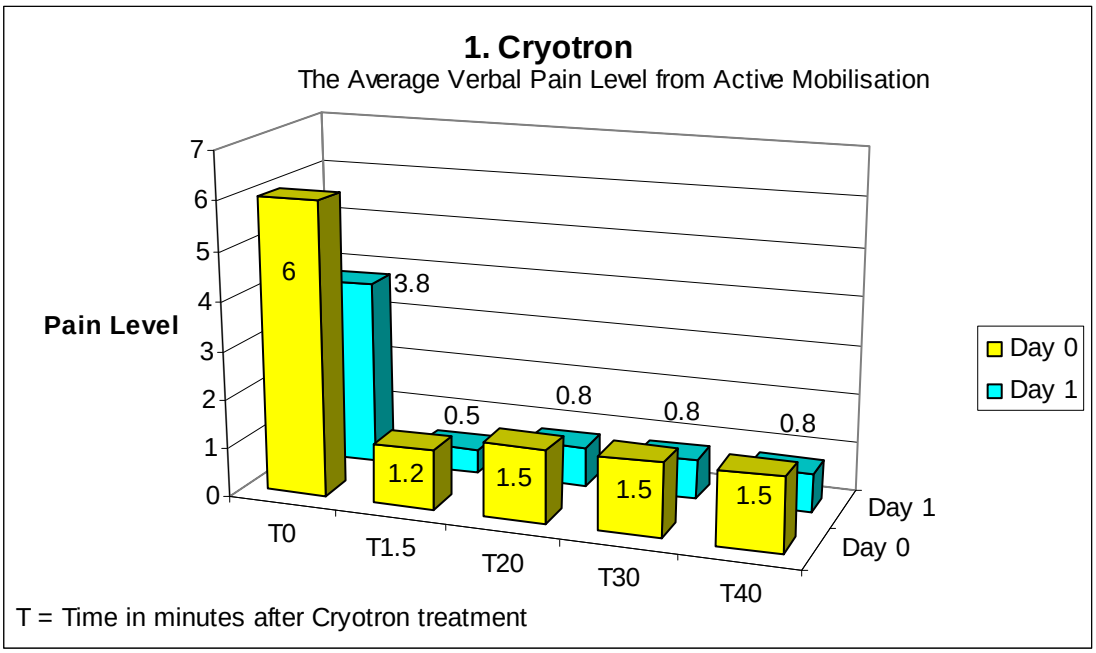
Gaseous Cryotherapy thus has a significant contribution on the goniometry of inflection and extension and that proportionally is clearly superior compared to the Cold-Pack.

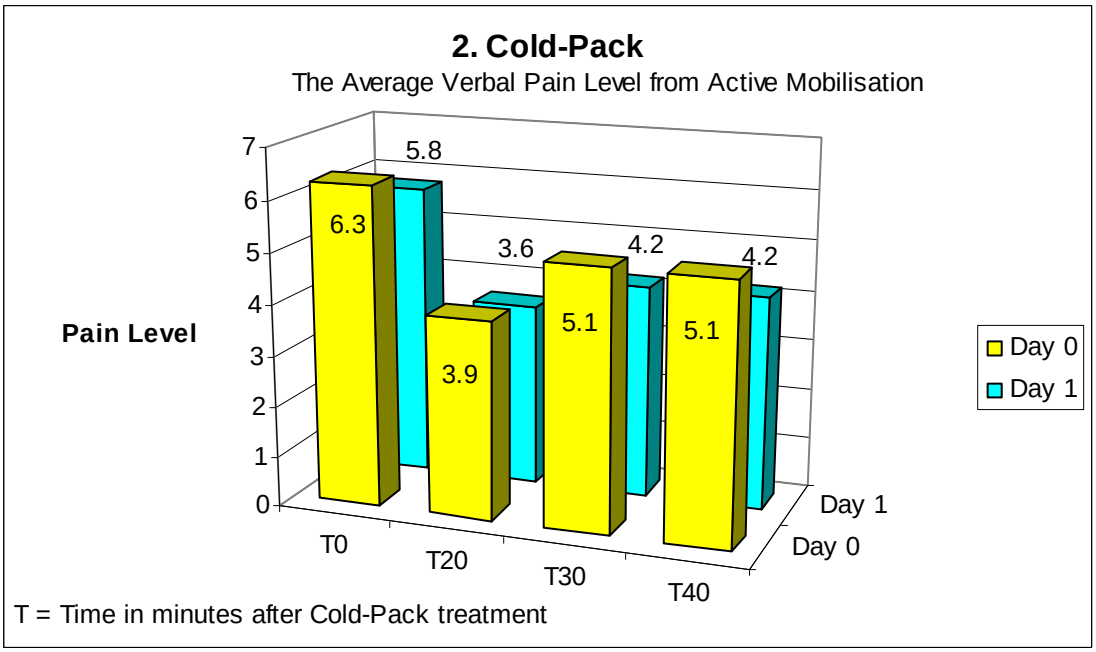




DISCUSSION CONCERNING PAIN AND ACTIVE MOBILIZATION

These figures relating to the importance of pain bring not only subjective information to us but they enable us to appreciate the effect produced by each therapy on the reduction in the pain. Indeed, we can see a reduction in the level of pain in the course of the time which is very obvious following the gas cryotherapy compared to that carried out by Cold-Pack.
For the gas cryotherapy , the average pain decreases from a level of 6 at T0(before treatment) to 1.2 at T 1,30.(1min 30secs after treatment)
For the Cold-Pack, the average pain decreases from a level of 6.3 at T0 to 3,9 at T20 (20 mins).
We can see that gaseous cryotherapy has an obvious effect on the reduction of the pain compared to Cold-Pack, immediately after the therapy.
When we compare the Cryotron to the Cold-Pack at T20, we can see that the reduction in the pain is more signicant by gas therapy at the identical times. It is important to note that the pain slightly increases but then stabilizes for the gas therapy, whereas it increases much more significantly while being stabilized for the Cold-Pack.
For Day 1 - The observations are the same as in Day 0, except that the pain decreases more significantly from the C02 therapy.
CONCLUSION : When compared to the results of the Cold Pack , Gaseous Cryotherapy thus allows a much earlier mobilization for the patient .

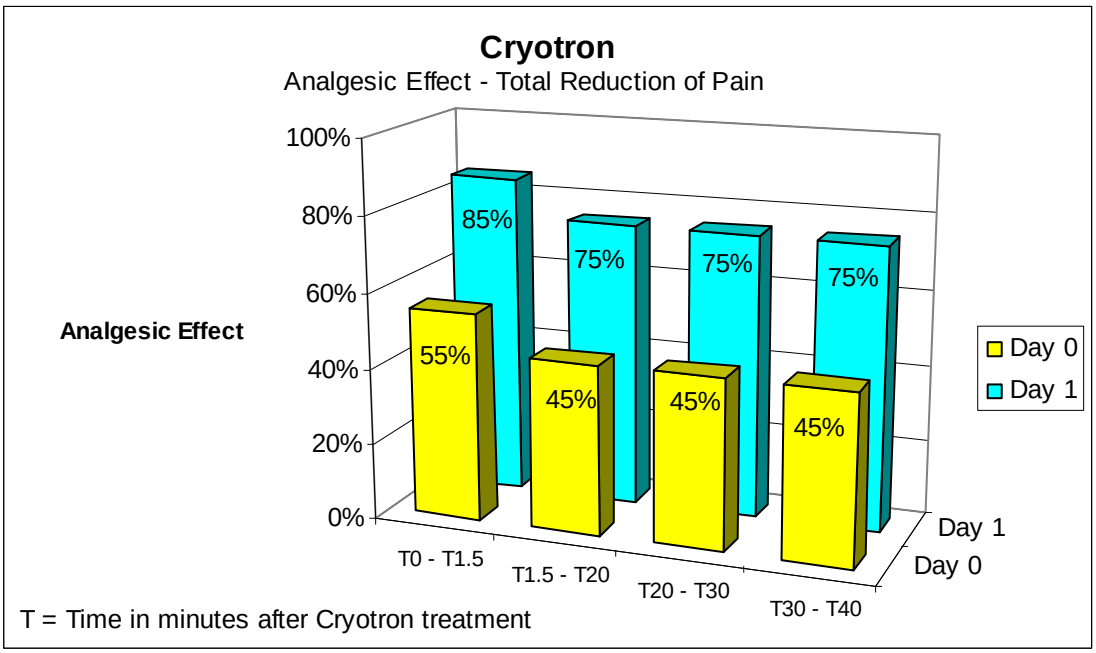


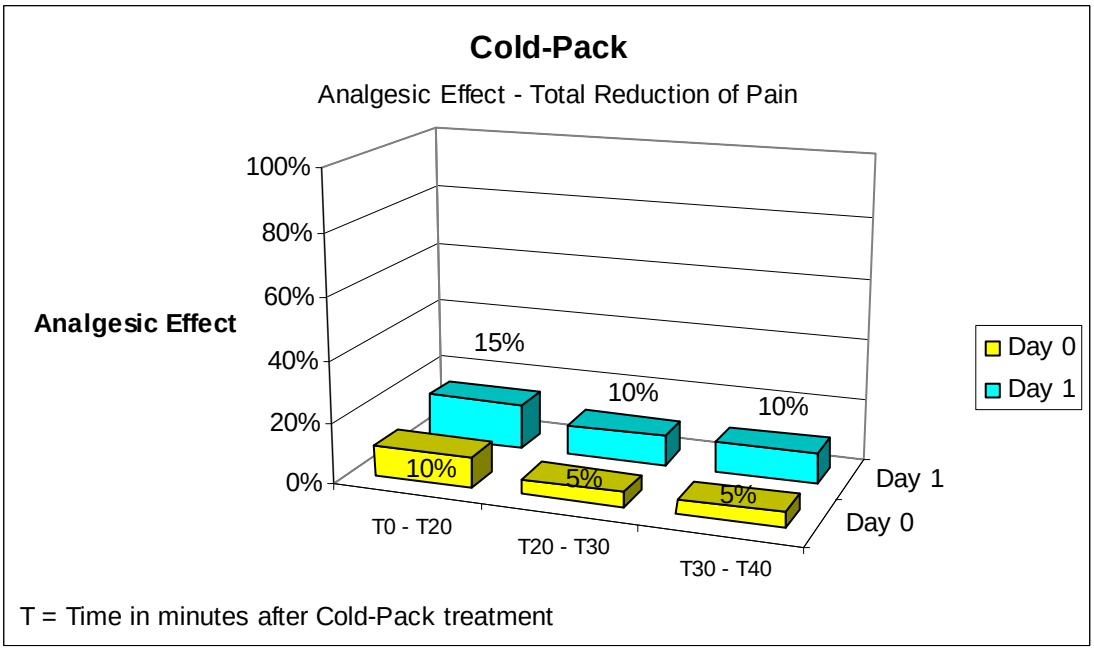


DISCUSSION CONCERNING TOTAL ANALGESIA

Cold therapy is supposed to bring a reduction in the pain by an inhibition of the cutaneous thermoreceptors, hence it was deemed important to note the percentage of patients not feeling any pain ("total analgesia") immediately after the therapy, for both techniques.
We can see from the figures obtained - that gaseous cryotherapy generates a total reduction in the pain (= “analgesic”) more effectively than the application of a Cold-Pack. Indeed, immediately after the gas therapy (T 1min,30sec), 55 % patients on Day 0 have affirmed that they did not feel any pain, against only 10 % of the patients treated by Cold-Pack. On Day 1(always after the therapy); 85 % of the patients treated by gaseous cryotherapy did not feel any pain against only 15 % for the Cold-Pack.
The percentage of patients feeling total analgesia from the reduced temperature of gaseous cryotherapy

is largely superior compared to the results obtained by Cold-Pack. The carbon dioxide therapy thus has a much more important effect on the inhibition of the sympathetic nervous system as shown by the induction of this total analgesia.
(See graphs below)

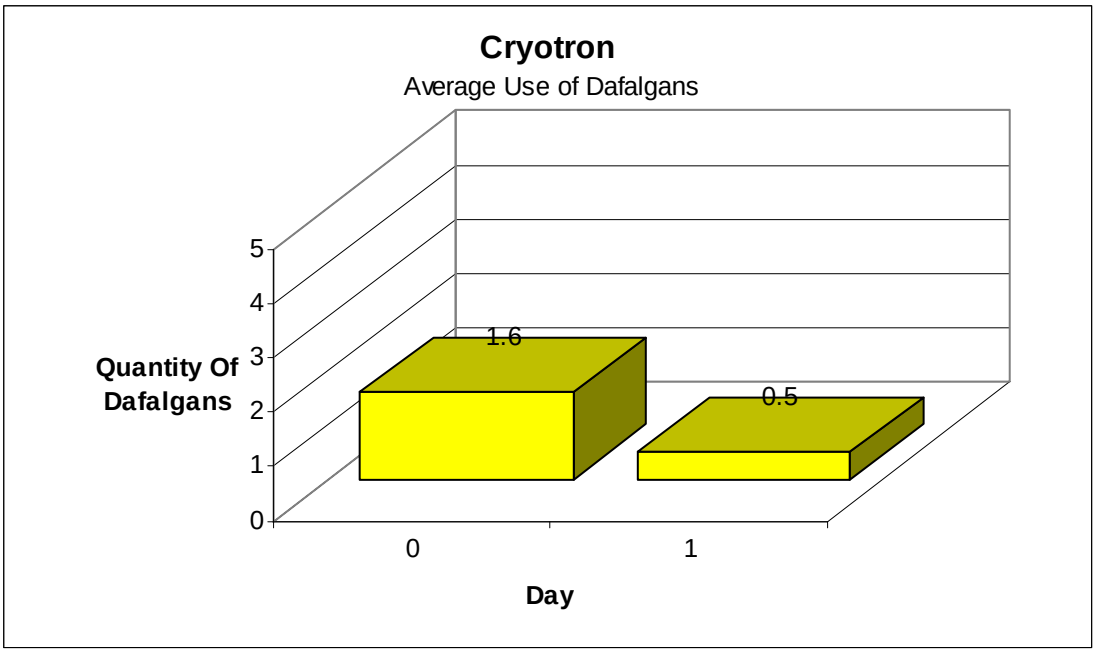


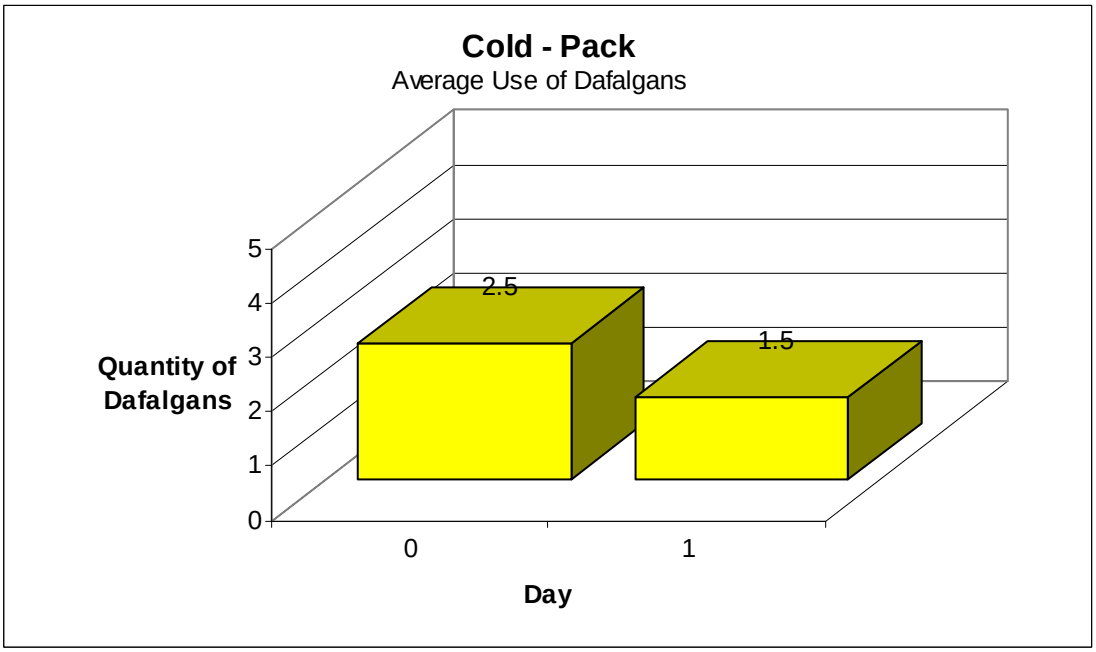


DISCUSSION CONCERNING THE DAILY USE OF DAFALGANS

The figures shown in the graph inform us about the average use of anti-inflammatory drugs consumed per day (DO and D1). If one compares the use of DAFALGAN per day, for each therapy, one can note a reduction of more than 60 % (from 1,6 in DO to 0,5 in D1) anti-inflammatory drug use following the gas therapy. Following the application of Cold-Pack, one can note a reduction of 40 % in the consumption of DAFALGAN (from 2,5 in DO to 1,5 in D1).
CONCLUSION : Considering the results obtained on the reduction in pain by gas therapy,we can say that gaseous cryotherapy has a considerable effect on the reduction of the anti-inflammatory drug use comparatively to the Cold-Pack.

GRAPHICAL REPRESENTATION OF THE QUANTITY OF "DAFALGANS" TAKEN DAILY DUE TO THE PAIN INDUCED BY THE SURGERY AND POST-OPERATIVE TREATMENTS .





THE IMPACT OF GASEOUS CRYOTHERAPY IN THE TREATMENT OF TENDINOPATHIES.

LYON HOSPITALS GROUP,EDOUARD HERRIOT HOSPITAL
Place d'Arsonval 69437,LYON
Dr E. Brunet-Guedj, Dr B. Brunet, Dr J. Girardier, Dr E. Renauld, Dr M. Daubard, Dr R. Manigand, Sports Medicine Unit.

INTRODUCTION

A randomized comparative trial in athletic patients was undertaken to evaluate the efficacy of gas cryotherapy in the treatment of acute and chronic (**present for more than two months**) tendinopathies.

Participants: 21 patients were treated in a randomized comparative trial using gas cryotherapy or standard methods.
- Hobby or competition sport.
- Age over 18.
- Micro-traumatic tendinopathy of the shoulder, elbow, wrist, knee or Achilles tendon.

Classification as acute or chronic tendinopathy was arbitrary according to how long pain had been present, i.e. a month or more.
The equipment used was a Cryotron apparatus (CRYONIC MEDICAL

Interventions: The treatment protocol was as follows :
- **Acute tendinopathies** : 6 sessions of gas cryotherapy (one session a day) with thermal shock by scanning the painful area in one group, and standard treatment (systemic and topical anti-inflammatory together with ice packs) in the other group.
- **Chronic tendinopathies** : 6 sessions of gas cryotherapy (three sessions a week) by slow and regular scanning of the painful area until the patient reported a burning sensation, in one group, or standard treatment (systemic and topical anti-inflammatory together with ultrasound and stretching) in the other group.

None of the patients took analgesics.
The study population consisted of :

- **Acute tendinopathy group** : 12 patients, 11 men and 1 woman, **mean age 25**.
- **Chronic tendinopathy group** : 9 patients, all men, **mean age 43**.

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Symptoms had been present on average for 10 days before treatment in acute tendinopathies, and for 4.5 months (excluding a patient with the problem for 10 years) in chronic tendinopathies.

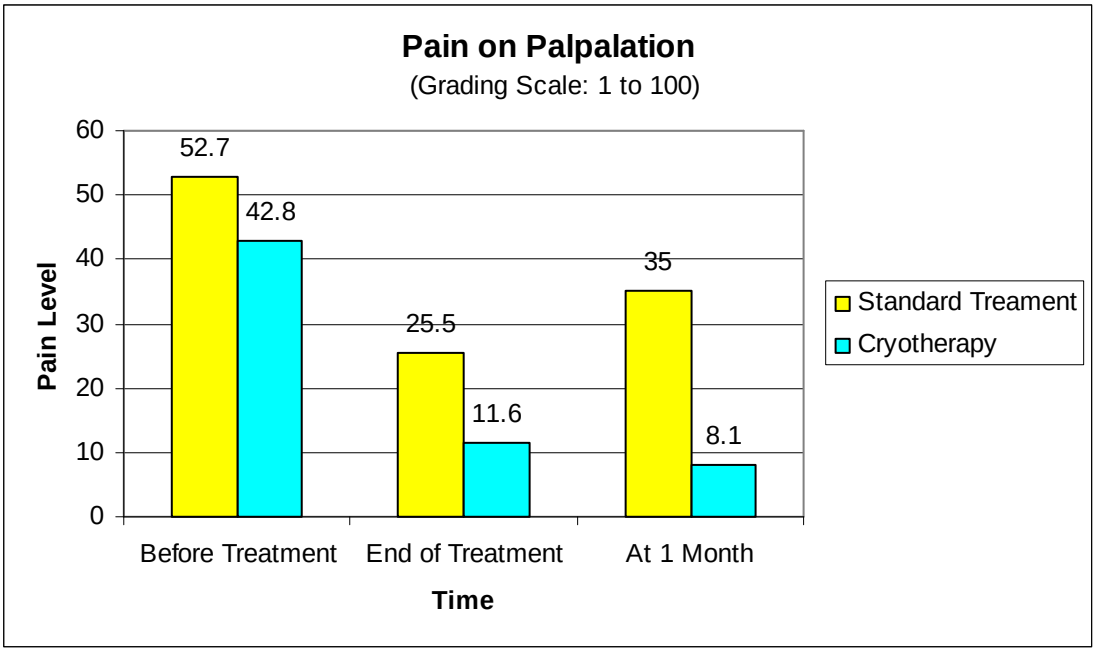
RESULTS:

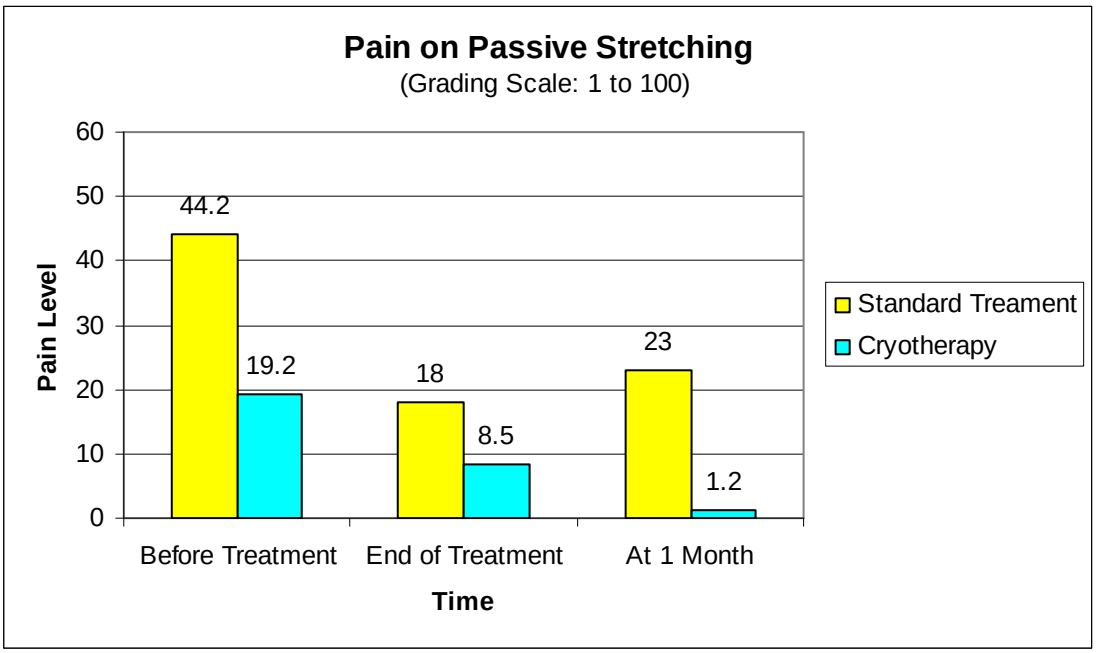
- Grading of pain using a visual analog scale at pre-treatment examination, at the end of treatment and a month later : palpation, opposed movements, stretching.
- Variations in the clinical stage of tendinopathy.
- Sports activity a month after the end of treatment.

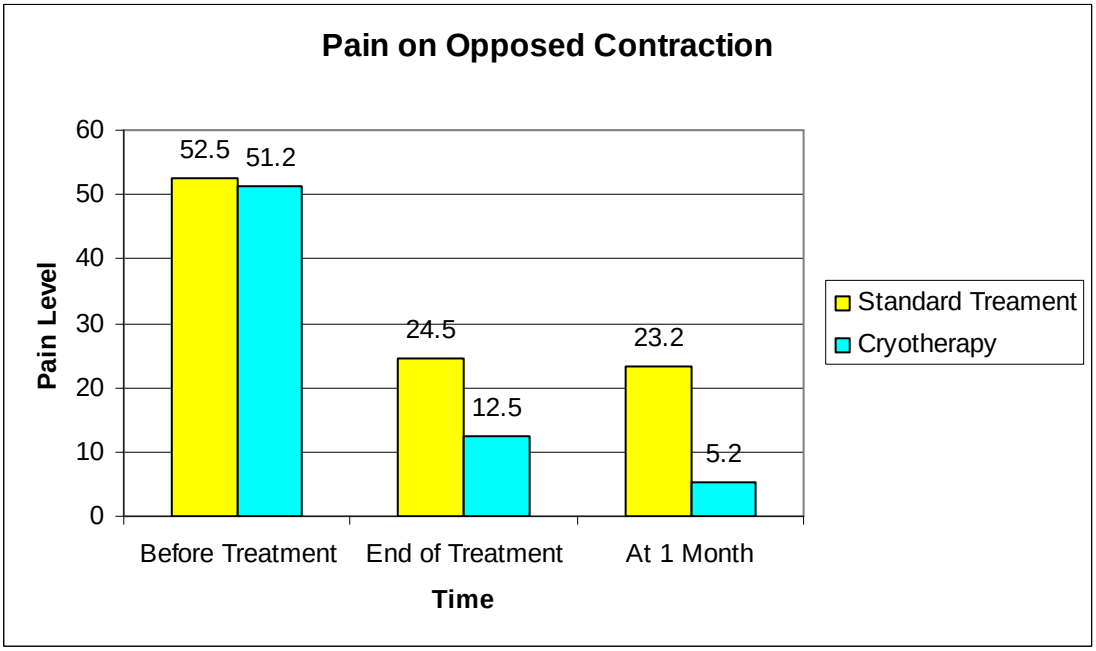
These factors are reported in the two summary tables concerning acute cases (Table 1) and chronic cases (Table 2).

Global functional result was graded according to return to sports activity and persistence or not of pain.

Excellent: return to sport at same level without pain.
Good: return to sport at same level with pain.
Average: return to sport with pain and at lower level.
Poor : no return to sport because of pain.







Conclusion: The use of gaseous cryotherapy in recent acute tendinopathies provided more satisfactory and faster results than standard treatment, with 75% excellent and good results, without any adverse effect being seen. Results on pain were fast, and 5 out of 8 patients were able to restart their sport by the end of treatment wihout any relapse afterwards.

In contrast, in chronic tendinopathies, cryotherapy, in the few cases in which it was used, showed no evidence of efficacy greater than that of standard treatment, though the latter lasted longer. At any event, conclusions must be prudent because of the small number of cases, such that no statistical study was possible.

It can be concluded overall that this is certainly a technique to be used first line in the treatment of acute tendinopathies, because of its rapid efficacy and absence of adverse effects. As far as chronic tendinopathies are concerned, more refined analysis in large series of cases is required before any final conclusion can be drawn.

Table 3 : ACUTE TENDINOPATHIES

Sex	Age	Site	Time	Sport	Sport level	Type of treatment	Blazina before	Blazina after	Sport at 1 month	Same level	Pain D0	Pain end Treat.	Pain 1 mo. after	RESULT
M	22	Shoulder Supraspinatus	8 d	Gym	National	Standard	2	1	YES	YES	42* 51** 35***	15 15 15	11 11 11	GOOD
M	18	Wrist Anterior cubital	8 d	Gym	National	Cryo	3	0	YES	YES	0 32 0	0 0 0	0 0 0	EXCELLENT
M	22	Shoulder Long head biceps	21 d	Gym	National	Standard	3	1	Relapse Stade 3	NO	65 48 52	15 10 0	70 55 40	POOR
M	23	Shoulder Long head biceps	10 d	Gym	National	Standard	2	2	YES	NO	53 48 42	45 40 40	40 40 32	AVERAGE
M	18	Knee Patellar tendon	4 d	Gym	National	Cryo	2	0	YES	YES	31 35 5	0 0 0	0 0 0	EXCELLENT
M	20	Shoulder Cuff	2 d	Gym	Int'l	Cryo	2	0	YES	YES	79 88 35	0 0 23	0 0 0	EXCELLENT
M	18	Achilles	15 d	Gym	National	Cryo	3	2	YES	NO	0 10 21	0 0 5	15 0 10	AVERAGE
M	51	Elbow Epicondyle	8 d	Tennis	Hobby	Standard	3	2	YES	NO	51 63 48	27 32 15	22 25 10	AVERAGE
M	28	Shoulder Cuff	21 d	Volley	Regional	Cryo	3	2	NO	NO	45 72 0	47 38 0	50 42 0	AVERAGE
F	46	Shoulder Cuff	8 d	Tennis	Hobby	Cryo	3	2	YES	YES	52 80 0	23 37 15	0 0 0	GOOD
M	20	Knee Patellar tendon	8 d	Volley	National	Cryo	3	0	YES	YES	75 40 48	5 0 0	0 0 0	EXCELLENT
M	21	Shoulder Supraspinatus	7 d	Gym	National	Cryo	3	0	YES	YES	60 52 45	18 25 25	0 0 0	EXCELLENT

Pain on palpation (scale graded from 0 to 100)
Pain on opposed contraction
Pain on passive stretching

Table 4 : CHRONIC TENDINOPATHIES

Sex	Age	Site	Time	Sport	Sport level	Type of treatment	Blazina before	Pain daily life	Blazina after	Pain daily life	Blazina at 1 month	Sport at 1 month	Same level	Pain D0	Pain end Treat.	Pain 1 mo. after	RESULT
M	62	Elbow Epicondyle	3 mos	Golf	Hobby	Cryo	2	+	1	≠ 0	1	YES	YES	55* 55** 40***	38 48 27	42 45 18	GOOD
M	42	Achilles	3 mos	Soccer Tennis	Depart.	Standard	1	0	1	0	1	YES	NO	68 0 0	58 0 0	36 0 0	AVERAGE
M	42	Elbow Epicondyle	10 mos.	Tennis	Regional	Standard	1	+	1	±	1	NO	NO	60 50 30	8 8 8	12 10 10	POOR
M	45	Elbow Epicondyle Epitrochlear	6 mos	Tennis	Hobby	Cryo	2	+	2	0	1	YES	NO	35 45 20	0 0 0	19 0 7	AVERAGE
M	35	Achilles	3 mos	Soccer	Hobby	Cryo	3	+	3	+	3	NO	NO	82 0 0	62 0 0	57 0 0	POOR
M	29	Elbow Epicondyle	2 mos	Squash	Hobby	Standard	3	+	0	0	0	YES	YES	59 65 48	0 0 0	0 0 0	EXCELLENT
M	66	Achilles	10 yrs	Jogging	Hobby	Standard	3	+	1	0	0	YES	YES	62 25 20	15 0 0	11 0 0	EXCELLENT
M	22	Knee Patellar tendon	6 mos	Basket	Regional	Cryo	2	+	2	0	2	YES	NO	71 0 25	60 0 20	50 0 22	AVERAGE
M	50	Achilles	3 mos	Basket	Hobby	Standard	3	0	2	0	2	YES	NO	63 21 25	50 0 0	55 0 0	AVERAGE

Pain on palpation (scale graded from 0 to 100)
Pain on opposed contraction
Pain on passive stretching