Supports your health, supports your beauty...

CRYO SPACE®

www.cryospace.eu

PRODUCTS ON THIS PRESENTATION ARE JUST EXAMPLES AND DO NOT CONSTITUTE AN OFFER AS SUCH. THE MANUFACTURER RESERVES THE RIGHT TO ALTER THE FEATURES AND TECHNICAL SPECIFICATIONS OF ITS PRODUCTS.

Cryotherapy

Technical Specifications

Health & Safety

Target Groups

OPERATION

CryoSpace is designed to provide immediate cooling for the whole body using the vapour of liquid nitrogen via exposure to cryogenic temperatures.

The operation of the unit is based on the system of liquid nitrogen evaporation and its delivery in the volatile form to the insulated cabin in order to produce and maintain the cryogenic temperatures. The lower part of the cabin includes a ventilation opening through which the remaining nitrogen vapour is removed at the end of each session. **The unit is equipped with an electrically operated lift which automatically sets the users position at a height such that their shoulders are level with the upper edge of unit's casing**.

Direct contact between the user and the liquid nitrogen inside the cabin is impossible. The cabin is controlled via a built-in automatic operation system.

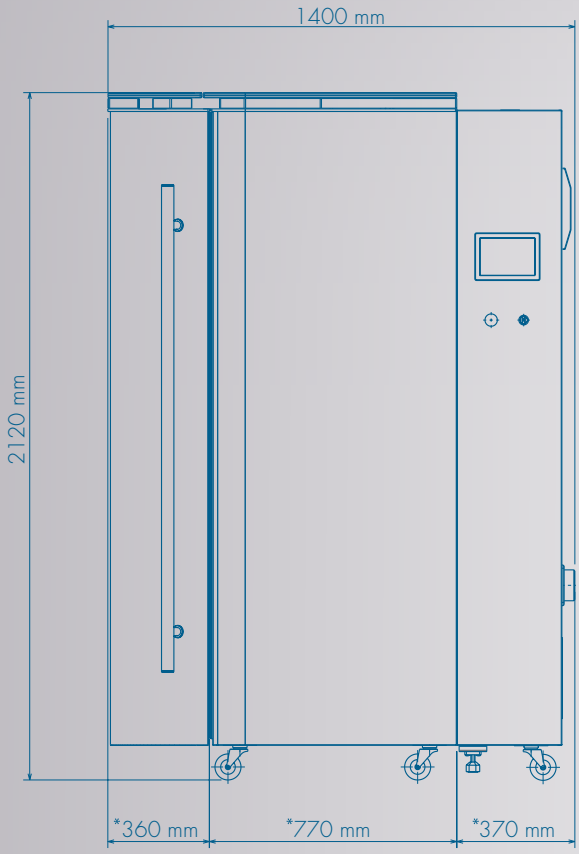
Flexibility in colour designs.

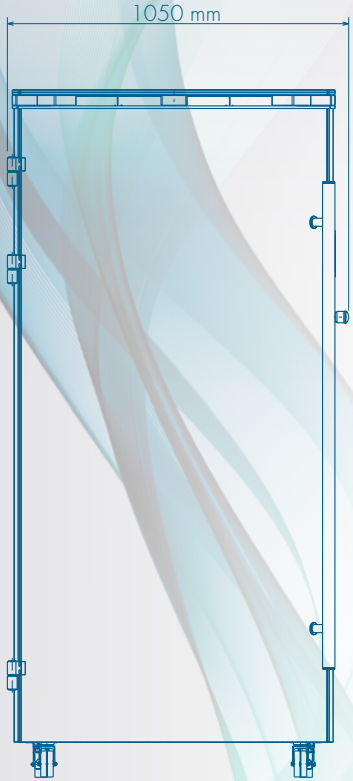
Ergonomic, compact and modular design.

A touch screen is positioned on a sidewall of the cabin, which indicates the unit's parameters and settings and allows control and regulation of the unit. The start-up key and emergency switch are situated under the touch panel.

The length of the session is set individually. **It is recommended that the first time session of cryotherapy in CryoSpace last up to 90 seconds at the lowest temperature of -140°C.** Each next treatment can be lengthened by 30 seconds. However the maximum length of a single cryostimulation treatment must not exceed 180 seconds. Typically it is recommended to undergo treatments cyclically once a day: 25 sessions, then 20, 15 and 10 every 6 months. It should only be used by adults of at least 155 cm height.

CryoSpace cross-section





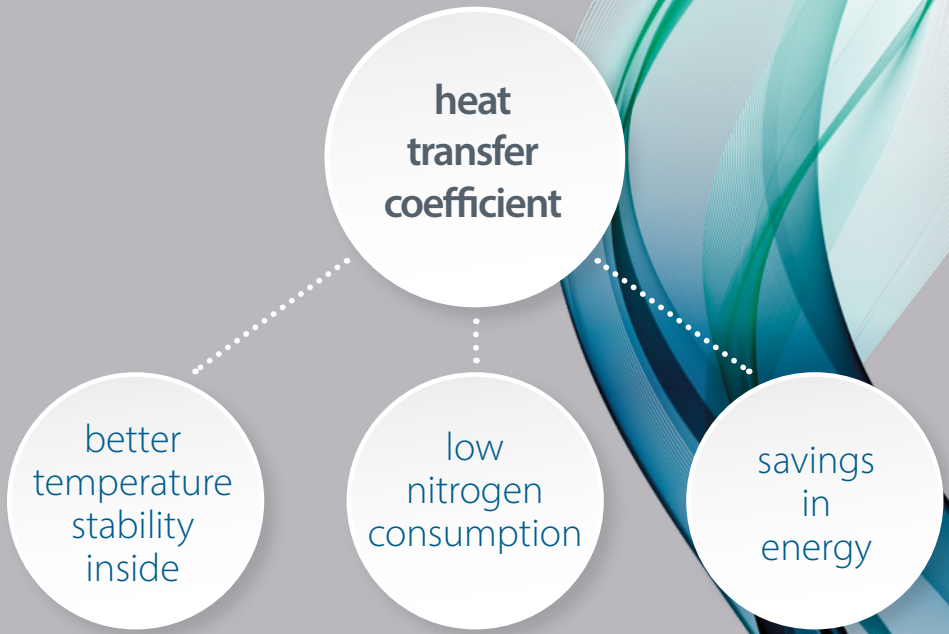
**Dimension after the disassembly*

WHY CRYOSPACE?

1. Achievement of optimal temperatures for cryotherapy (from -100°C to -140°C) proven in certified laboratories.
2. The most favorable ratio of nitrogen consumption to temperatures achieved (construction efficiency).
3. Patented air circulation system (evenly distributed low temperatures inside cabin).
4. Spacious interior with inner dimensions matching wide variety of users in terms of height and weight (User's height: 155-210 cm; weight: max. 150 kg).
5. Mobile unit – on wheels.
6. Flexibility in colour design.
7. Quick start and installation.
8. Durable materials, resistant to low temperatures guarantee product liveliness.
9. Ergonomic, compact and modular design.
10. Comfortable conditions for user during treatment.

CONTROL PANEL MANAGE YOUR CRYOSPACE WITH A TOUCHSCREEN 7" 16 MLN COLOURS


THERMOGRAPHIC CAMERA
Esc
OK



Our isolation material has lower thermal conductivity, thus overall heat transfer coefficient between interior of CryoSpace and ambient air is lower, whereby savings in energy and nitrogen consumption are significant.

WHOLE BODY CRYOTHERAPY AND CRYOSTIMULATION (WBC)

Cryotherapy and cryostimulation are safe treatments, which use the body's physiological capabilities and are not only beneficial but also effective in restoring and sustaining human body balance. The great variety of positive effects resulting from therapy with cold water and ice are utilized by WBC, and while reducing the discomfort and its duration time, cryotherapy becomes a favourable treatment for various target groups.

The following list comprises the main benefits of cryotherapy and cryostimulation:

BENEFITS

1. Analgesic, anti-inflammatory, anti-swelling effect.
2. Induction of changes in blood perfusion.
3. Intensification of the heat production processes.
4. Oxygenation of the body.
5. Detoxification of the body.
6. Increase in the level of haemoglobin, leukocyte, platelet (regeneration and immunological function).
7. Decrease in the muscle tension and spasms.
8. Effective in rehabilitation (pain relief, flaccidity of muscles, regeneration function) and in treatment of diseases of kinesis and central nervous system (osteoporosis, multiple sclerosis, paresis).
9. Influence on the hormones production process (increase of endorphin hormones in blood).
10. Preservation of the pro-oxidant-antioxidant equilibrium.
11. Cause of deep relaxation.
12. Stimulation of collagen production.
13. Skin rejuvenation.

STANDARD CHARACTERISTIC

Product presentation CryoSpace by JBG-2

1. Electronic controller with touch panel.
2. Main switch and emergency stop.
3. Electrically raised platform.
4. Door with handle and magnetic strip.
5. One set of keys.
6. Padding inside as indicated.
7. Casing: steel powder coated.
   RAL to choose from:

RAL 9005	RAL 8017
RAL 5010	RAL 1013
RAL 7011	RAL 9007

LARGE SELECTION OF COLOURS

OPTIONS

1. Independent oxygen sensor.
2. Nitrogen container 180 l. *
3. LED lighting.
4. Cryogenic gloves.

** The container does not contain nitrogen*


CRYO SPACE

TECHNICAL SPECIFICATION

1. Nitrogen consumption per treatment: **ca. 1 kg/1 min**
2. Minimum nitrogen consumption per treatment: **ca. 0,5 kg/1 min**
3. Device weight without nitrogen container: **480 kg**
4. Maximum lift load: **150 kg**
5. Protection level of electric equipment: **IP 20**
6. Maximum energy use: **15,5 A**
7. Average power consumption: **0,382 kWh**
8. Power supply: **230 VAC**
9. Display: **7”**
10. Pre-cooling time: **8 min**

11 Continuous work time up to: **3 h**

12 Drying time: **ca. 1 h**

13 Inside temperature:
from -100°C to -140°C

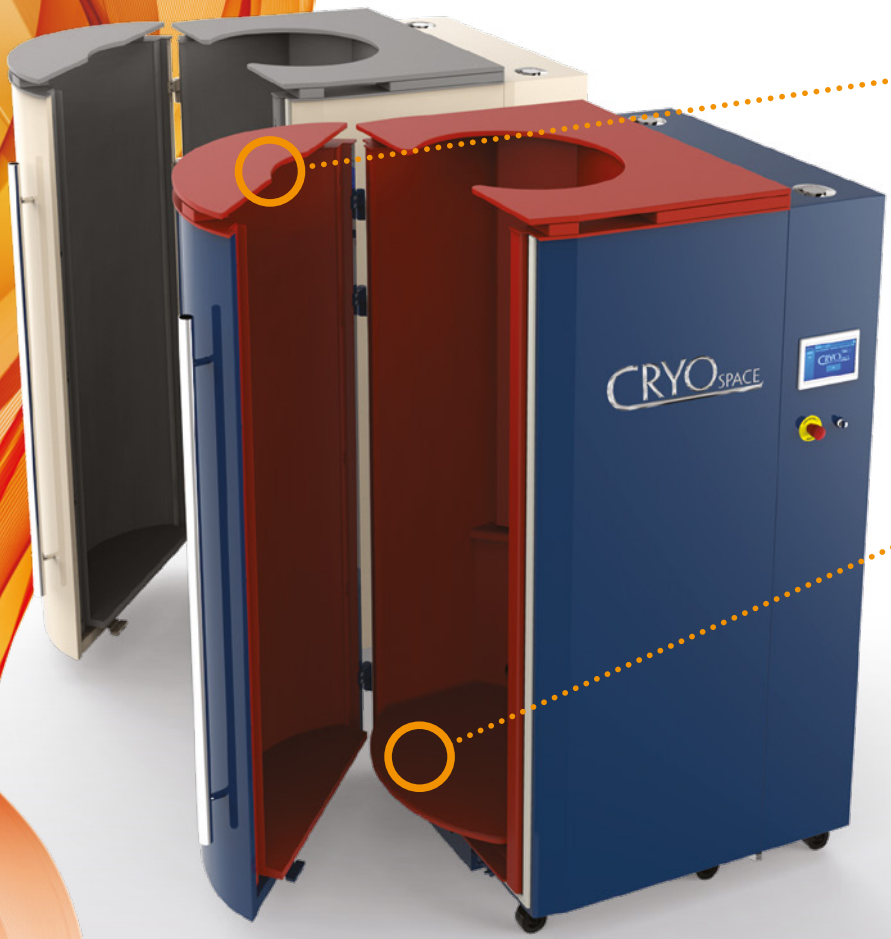
14 Dimensions: **1050 x 1400 x 2120 mm**

15 Automatic extraction of nitrogen vapour from the cabin at the end of the session, or in the case of an emergency

16 Adjustable platform height electronically

17 Connector diameter:
union, both sides inside thread **$^{3}/_{8}$"NPT**

Automatic extraction of nitrogen vapour from the cabin at the end of the session, or in the case of an emergency.



DOOR TEST
15000 CYCLES

LIFT TEST
WITH 150kg
15000 CYCLES

TECHNICAL REQUIREMENTS

1 It is recommended to connect the cryo-cabin directly to the independent ventilation channel (out-let temperature -80°C and minimum channel diameter Ø 100 mm). The localization of the nitrogen gas exhaust must ensure the gas transfer outside the building in a designated place.

2 If there is no possibility to connect the cryo-cabin directly to the independent ventilation channel:

- at the installation place: equipment emits max. 75 m^3/h nitrogen vapour to the installation room
- the owner of the building is obliged to provide ventilation system which meets ventilation requirements based on given nitrogen vapour emission

The room where CryoSpace equipment will be used must have adequate ventilation system and should have an efficient oxygen sensor.

3 The minimum room height requirement: 2,5 m.

4 Dimensions of door opening on site must be bigger than the unit's dimensions (minimum door width 80 cm).

5 Storage and transportation of liquid nitrogen according to the local regulations.

6 Room's temperature should not exceed 45°C.

7 Power supply: 230 VAC/13 A.

There is a possibility of the CryoSpace installation to the external, fixed nitrogen supply system. Such installation should be equipped with outlet safety valve 2,5 bar and with manual stop-valve. Working pressure should account for 1,5 bar.

The manufacturer does not render services in the area of fixed nitrogen supply system.


NITROGEN N

READY FOR THE CHILL?

Make sure your body is dry to prevent frostbites. Wear appropriate protective clothing (**cotton underwear**, **cotton gloves**, **socks**), recommended mask.

The user is not allowed to wear any jewellery during the treatment.

CONTRAINDICATIONS

Existing conditions for which CryoSpace should not be used.

- Irregularities of heart rythm
- Heart attack post condition
- Past embolisms
- Circulatory insufficiency
- Severe illnesses of air-passages
- Unstable arterial hypertension
- Cancer
- Skin injuries
- Atherosclerosis
- Kidneys and bladder disorders
- Feverish condition

- Cold intolerance
- Hypersensivity, sense disturbances
- Frostbite
- Hyperthyroidism and hypothyroidism
- Diabetes
- Pregnancy
- Excessive perspiration
- Cryoglobulinemia
- Peripheral vascular disease

TARGET GROUPS

1 Biomedicine & Rehabilitation Centres

2 Sports Clubs, Fitness & Sports Medicine Centres

3 Spa & Beauty Centres

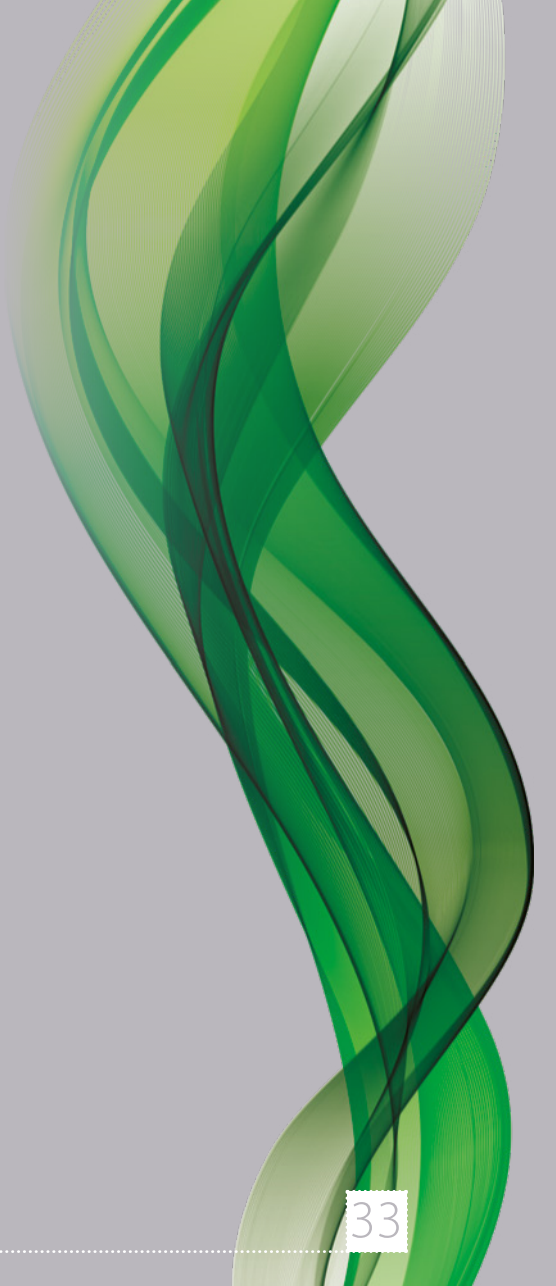
BIOMEDICINE & REHABILITATION CENTRES

The introduction of cryogenic temperatures within the field of biomedicine successfully influences the main treatment results and has a positive impact on related illnesses.

Just as traditional methods of cryotherapy, the body stimulation in cryo-cabins triggers analgesic, anti-inflammatory, anti-swelling effect. It is reported to reduce the pain intensity and improve mobility parameters.[1]

Available research provides data on cryotherapy as a potential treatment modality for depression and anxiety conditions.[2] It seems that **improvements in sleep and mood disorders** are bound to occur while regularly applied.[3] The hormone management system reacts to the cryogenic temperatures and it is assumed the **hormone release** has a direct impact on the affective and anxiety disorders.[4]

With its high **antioxidant and anti-inflammatory** power WBC is suggested to be useful in preventing Alzheimers[5] and to some extent



in treatment of multiple sclerosis and fibromyalgia.[6] The improvements are noticeable not only in dexterity and psychomotor functions of the body but also in diminishing of nystagmus and limb spasticity.[7]

An extensive scope of studies confirms the beneficiary influence of cryotherapy on treatments of diseases in the fields of **rheumatology and orthopedics**.[8] WBC generates important short-term effects and other results over the treatment period. Short-term pain reduction enables intensive application of physiotherapy and Occupational Therapy. This treatment accounts for an indescribable aid in kinesis therapy. The anti-inflammatory and analgesic effects enable the body

to undertake sessions of intensive exercise. The procedure of WBC is practicable, and generally well tolerated. From the users' point of view, whole-body cold therapy is an essential part of the rehabilitation process.

Cryotherapy improves the blood circulation.

What is more cryostimulation is said to influence the **cardiac parasympathetic modulation** similar to that reached with systematic and long-term exercise training. Both, regular exercise and WBC decrease the sympathetic nervous system's effect on heart rate variability.[9] However changes in blood perfusion increase the heart preliminary burden without changes in heart after-burden, that is no adaptive responses occur.[10]

Additionally the valuable results from WBC can be noticed in the field of dermatology. Although the use of cryogenic temperatures in this field of biomedicine is mainly connected with the possibilities in cryosurgery, the **basic skin issues may be eliminated with WBC**. As already mentioned in

previous section the exposure to very low temperatures directly impacts **the skin quality.**

The direct exposure to cryogenic temperatures can **affect lipid metabolism.** The induced changes in blood circulation due to cryostimulation significantly increase white blood cell count.[11] Thus it is worth mentioning that immunological effects of WBC contribute to the positive response from interested parties.

The following points represent the fields of biomedicine where WBC may play important role as modality treatment:

1. **Orthopedics**
   (analgesic, anti-inflammatory, anti-swelling effect)

2. **Neurology**
   (considerate improvement in auto-immunological diseases, decrease in muscle tension, trigger of changes in functional state of central nervous system)

3. **Cardiology**

4. **Mental issues**
   (mood improvemen: hormones, deep relaxation, pacification)

5. **Immunology**
   (blood perfusion/flow, the level of hemoglobin, leukocyte, platelet)

6 **Pain therapy**

7 **Rheumatology**
(pain therapy/relief, reduction of muscle tension, regeneration – function, anti-inflammatory, anti-swelling effect)

8 **Physiotherapy** / kinesis therapy

9 **Rehabilitation**
(pain therapy/relief, flaccidity of muscles, regeneration function, anti-inflammatory, anti-swelling effect)

10 **Dermatology**
(collagen production, oxygenation, anti-inflammatory, anti-swelling effect)

SPORTS CLUBS, FITNESS & SPORTS MEDICINE CENTRES

Whole body cryotherapy constitutes a process which has an impact on the physiological indices in the human body. A review of academic literature confirms the **benefits of cryostimulation in athletic performance and rehabilitation.**[12]

As far as rehabilitation is concerned cryostimulation may accelerate a recovery to full physical ability and remove the results of muscle fibre damage caused by intense exercise.

The application of cryogenic temperatures on the muscular system induces a gradual decline in the temperature of the skeletal muscles and simultaneously decreases the blood flow via the capillaries. This prevents from further swelling and **causes simultaneously a soothing effect.**

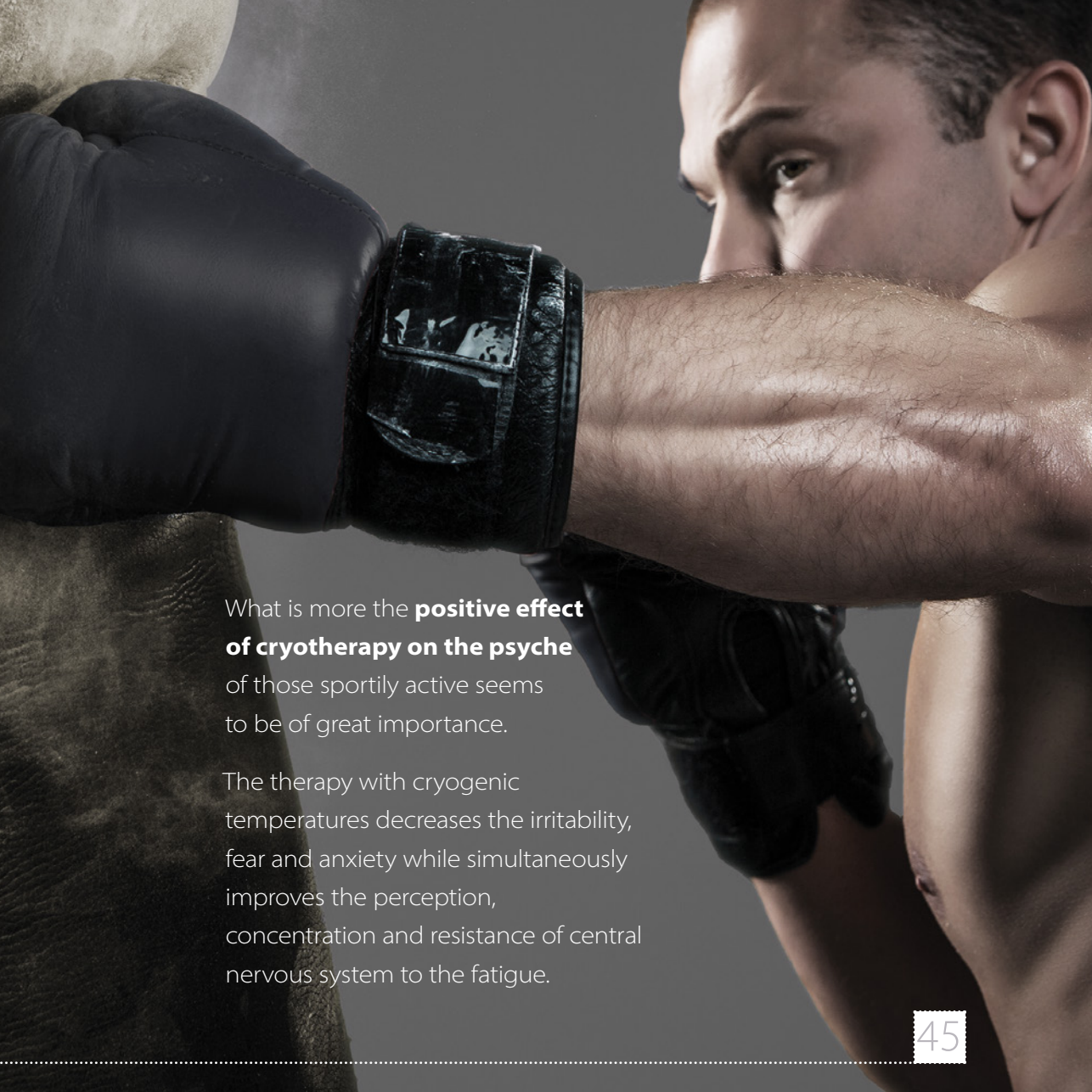
Immediately after the exposure to low temperatures the capillaries dilation takes place **which increases the perfusion of blood together with oxygen and nutrients into the body**. In consequence the process of elimination of metabolic waste products is accelerated.[13] Furthermore **anti-inflammatory, anti-swelling** and **pain relieving** effects contribute to the **elimination of results of training overload.**

The regeneration function induced by cryostimulation prepares the body to endure higher load of exercise thus have an impact on better sports results and in turn makes it possible to implement full training cycles.

It was observed that even a unique session of cryostimulation performed immediately after exercise **enhanced muscular recovery** by restricting the inflammatory process.[14] Syndromes of **overuse are reduced, recovery time is shortened and the healing process accelerates.**

The decrease in muscle spasms not only serves in regeneration process but also **facilitates the kinesis therapy** and accounts for indisputable aid in rehabilitation.

There are also reports of improved exercise tolerance, expressed by a lower level of lactates, heart rate and increased threshold capacity.[15]



What is more the **positive effect of cryotherapy on the psyche** of those sportily active seems to be of great importance.

The therapy with cryogenic temperatures decreases the irritability, fear and anxiety while simultaneously improves the perception, concentration and resistance of central nervous system to the fatigue.

The following list sums up the key effects of whole body treatments with the use of cryogenic temperatures for sportsmen and sportwomen:

1. **Elimination of the results of training overload** (flaccidity of muscles, regeneration function, analgesic effect, anti-inflammatory, anti-swelling effect)
2. **Aid in recovery from sport injuries** (flaccidity of muscles, regeneration function, analgesic effect)
3. **Preparation of the body to endure higher load of exercise** thus have an impact on **better sports results** and in turn make it possible to implement full training cycles
4. **Acceleration of healing process**
5. **Regulation of muscle tone** and decrease of muscle tension/spasms
6. **Pain relief**
7. **Reinforcement of body immune system**
8. **Maintenance of the pro-oxidant-antioxidant equilibrium**
9. **Mood improvements**

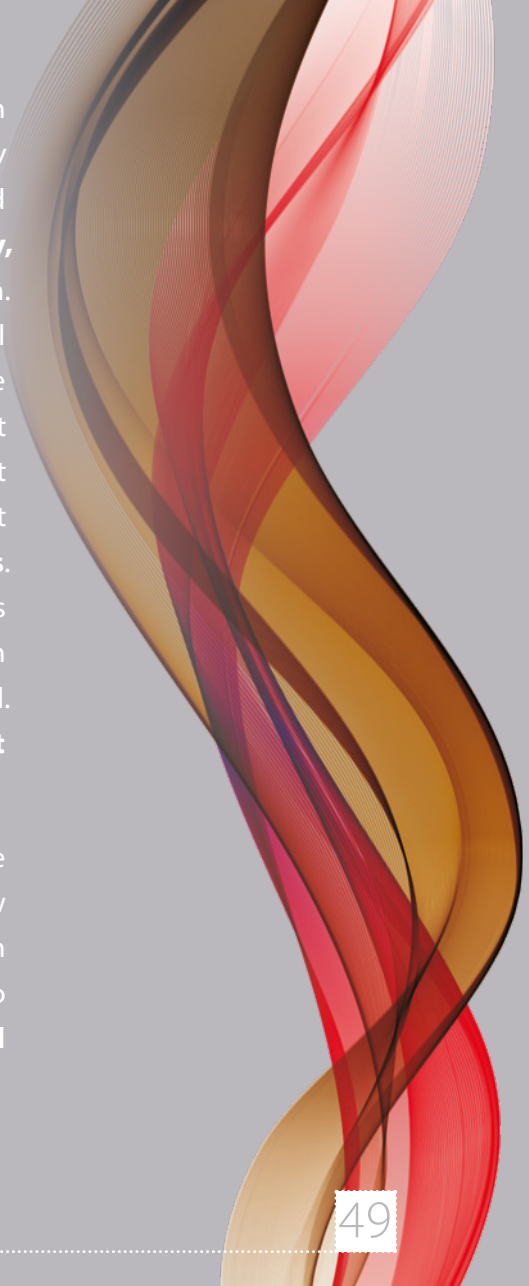
SPA & BEAUTY CENTRES

The consequences of therapy with the use of cryogenic temperatures include syndromes highly sought by beneficiaries of Spa and Beauty Clinics. Available research confirms the **release of endorphins and other hormones** as a direct consequence of exposure to such low temperatures.

This in turn influences the hormone management system and has a genuine impact on the **reality perception and frame of mind**. Additionally there are numerous skin benefits of cryotherapy. The preservation mode prompted by the human brain during the treatment rushes blood to the core for protective reasons and resulting from

the physiological thermoregulation process of the body. After the therapy enriched blood hurries back out and through the body **improving immunity, cell renewal and collagen production**. The treatment converts dry and dull complexions to radiant and flawless. The low temperatures close pores, which not only influences the skin appearance, but also prevents it from losing important emollients **effecting the skin softness**. What is more the reduction of pores does not allow the oils and dirt to gather on skin making it smooth and even toned. **The acne-prone skin seems to benefit the most.**[16]

The literature provides evidence on positive effects of extremely low temperatures on reactivity of the skin microcirculation.[17] Therefore it is safe to state that this treatment has got a **real influence on skin quality**.



Cryotherapy improves blood circulation, ensuring adequate delivery of oxygen and nutrients to bodily tissues, while improving its quality and the body's natural ability to eliminate toxins.

Another important factor where cryostimulation can play a supplementary role is the **boost of metabolism**. Short-term exposure to extremely cold temperatures on a regular basis may stimulate the production of heat due to the body's increased metabolic rate. The changes in blood perfusion intensify the heat production processes. This is a method to induce a hyper-thermic response, that is an increased metabolic state, which may have a beneficial effect on **weight loss**.

The anti-swelling effect has got its merits not only in the field of sports and rehabilitation.

Recovery after cosmetic plastic surgeries ought to last as briefly as possible. **Swelling and inflammation** following the procedure may decrease via therapy with cold temperatures.

The main benefits derived from cryotherapy in relation to beneficiaries of spa and beauty clinics are as follows.

1. Feeling of wellbeing.
2. Boost of metabolism.
3. Improvement in skin quality (firm, smooth, uniformly tighten skin, elasticity, nutrition and oxygenation).
4. Boost of collagen.
5. Inflammation reduction.
6. Contribution to recovery of cells.
7. Preserving effect.

Endnotes

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