

# HILOTHERAPY

The thermal procedure,  
controllable to the nearest degree



**HILOTHERM<sup>®</sup>** GmbH

# WHAT IS HILOTHERAPY?

**HILOTHERAPY is a form of thermal healing treatment that promotes the healing process for damaged tissue.**

Particularly after surgical operations, injuries and following chronic diseases and the resulting swelling, internal bleeding, hematomas, edema and inflammations, not only does it promote healing, it also reduces the intensity of pain, which can help dramatically reduce the quantity of drugs needed.

## MEDICAL BASIS

HILOTHERAPY is the product of research in the field of medical science, conducted with a focus on the healing processes for injured or traumatized tissue.

### Findings on the role of oxygen and nutrient supply

- ◆ Surgical interventions or injuries massively disrupt the supply of oxygen and nutrients to the tissue.
- ◆ The accelerated metabolic rate causes overheating due to inflammation of the affected tissue, alongside circulatory disturbances.
- ◆ Under these circumstances, the need for oxygen surges dramatically.

### Consequences

The increased oxygen requirement means that the existing amount of oxygen that actually reaches the affected tissue is insufficient for regeneration.

This lack of oxygen (ischemia)

- ◆ triggers the death of further cells.
- ◆ results in the release of liquid-binding proteins, which trigger the formation of additional edema.
- ◆ triggers a vicious circle, which leads to damage through hypoxia.

### Medical requirement:

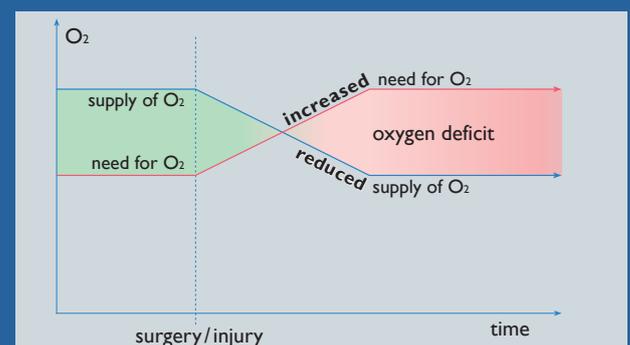
The oxygen requirement for the damaged tissue has to be reduced.

## THERAPEUTIC RESPONSE

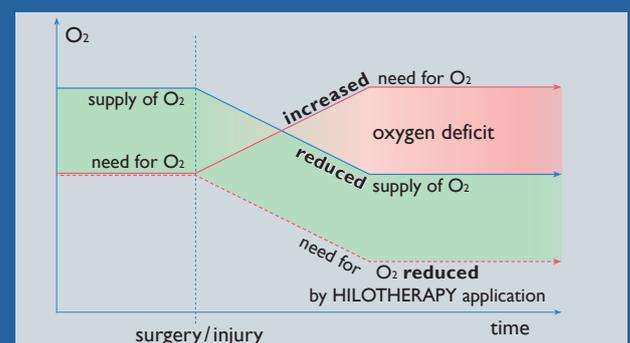
These findings spawned the development of HILOTHERAPY. It works over a wide temperature range and depending on indication can be adjusted to the nearest degree over a spectrum from +10 to +35°C, on the affected portion of the body.

### Effect on the oxygen requirement

- ◆ Lowering the temperature of the affected tissue by 10°C reduces the metabolism by 50%.
- ◆ This also reduces the oxygen requirement.
- ◆ The oxygen quantity now suffices for regeneration.



**Oxygen deficit:** The reduced supply but simultaneously increased need result in a deficit, which, in turn, exacerbates the tissue damage.

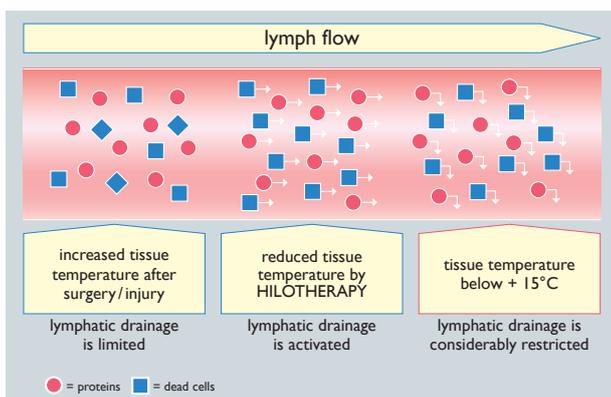


**Oxygen adjustment:** HILOTHERAPY reduces the oxygen requirement and paves the way for regeneration.

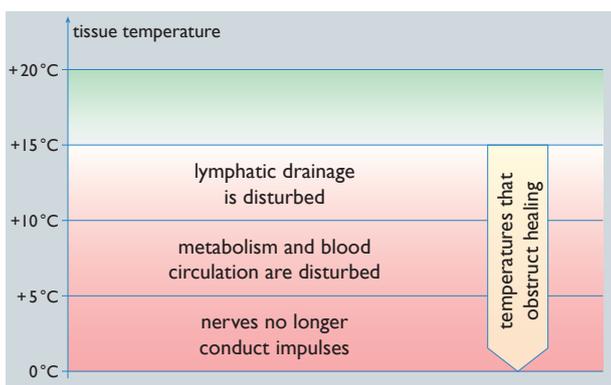
# +10 to +35°C

## Effect of HILOTHERAPY on toxin decomposition

- ◆ To ensure that damaging materials like proteins or dead cells are removed via lymph drainage, the tissue temperature must be lowered, accurate to the nearest degree.
- ◆ Namely, if the tissue temperature goes below +15 °C, the lymph drainage is severely hindered.



## Risks of incorrect tissue temperature



## INDICATIONS

### HILOTHERAPY

is intended for traumatic, pre and post-operative indications

Medical sectors:

- Traumatology/Orthopedics
- Oral and maxillofacial surgery
- Otorhinolaryngology
- Plastic/aesthetic surgery
- Implantology
- Rheumatology
- Oncology
- Vascular and microsurgery
- Dermatology
- Urology
- Sports medicine
- Emergency medicine
- General post-operative wound healing
- Physiotherapy/rehabilitative medicine

### Areas of therapy:

- Edema
- Hematomas
- Pain relief
- Sprains, pulled muscles, muscle tears, dislocations, tendinitis
- Inflammatory rheumatism
- Hand-foot syndrome
- Sciatica
- Fever
- Migraine
- Functional rehabilitation, for example improving mobility and loosening muscles

# HOW DOES HILOTHERAPY WORK?

*The thermal effect is generated by the medium of distilled water. It is adjusted to the desired temperature, accurate to the nearest degree, in special dedicated therapy devices and constantly maintained at this level.*



This helps ensure the temperature consistency required from a medical perspective. It can be applied for multiple hours or even days on end without any deviations. Sensors constantly monitor the relevant figures and ensure consistency.

Within a closed-loop system, the cooled water flows through anatomically formed cuffs, available for various parts of the body in the form of disposable or reusable devices.



# THERAPY DEVICES

***HILOTHERM Clinic and HILOTHERM Homecare are the two devices that have been developed for the purpose of implementing HILOTHERAPY.***

## **HILOTHERM Clinic**

- Particularly suitable for the clinical field of application, pre and post-operatively.
- Allows 2 cuffs to be attached, meaning two patients can be treated at the same time.  
Long-term operation at constant temperature (sensors maintain the configured temperature unchanged).
- Coolant: distilled water  
(once every 6 months, 2 liters of distilled water)
- Temperature range +10 to +35°C  
(selectable in 1°C steps)
- Dimensions 430 x 275 x 268 mm
- Weight: Empty weight: 10 kg  
Working weight: 12 kg
- Transport:  
Use indoors:  
If possible, on the Hiloroll equipment trolley.  
Use outdoors:  
In the original box or a suitable carry bag.
- Power supply (230 V)

## **HILOTHERM Homecare**

- Ideal for use on the move, e.g. in a practice, hospital, sports club or at home.  
After fresh injuries and surgical operations, for chronic inflammations and pains.
- Allows 1 cuff to be connected, treatment of one individual.  
Long-term operation at constant temperature (sensors maintain the configured temperature unchanged).
- Coolant: distilled water
- +15 to +22°C (selectable in 1°C steps)
- Dimensions 240 x 260 x 260 mm
- Weight: Empty weight: 2.9 kg  
Working weight: Max. 3.4 kg  
(with completely full container)
- Transport:  
In transport bag provided (being prepared)
- Power supply (230 V)



HILOTHERM Clinic



HILOTHERM Homecare

# THE CUFFS

**Depending on the indication and affected part of the body, special cuffs are available, which include a delicate system of capillaries. This ensures the uniform impact of temperature on the damaged tissue.**

Disposable and reusable cuffs for the orthopedic field.



Calf cuff



Round cuff



Round cuff small



Knee cuff



Hand cuff



Foot cuff



Underarm cuff



Surface cuff large



Underarm cuff



Area cuff small



Trapeze cuff



Only available as disposable cuffs



Universal cuff mini



Face cuff lower, with divider



Face cuff lower, without divider



Face cuff top



Eye cuff open



Eye cuff sealed



Nose cuff



Nose cuff t-plaster



# REFERENCES

## Oral- and Maxillofacial Surgery



"In our oral, maxillofacial and plastic surgery clinic, we have several HILOTHERAPY devices in constant use. In particular, after bi-maxillary osteotomies, we achieve remarkable results in terms of swelling and pain prophylaxis through using hilotherapy. Additionally, due to the high degree of

acceptance and the increasing demand for postoperative hilotherapy use on the part of the patient, the devices have become an indispensable part of our treatment process both for small and large surgical procedures."

**Prof. Dr. Dr. M. Rana**

*Senior Physican, specialist in oral and maxillofacial surgery, plastic and aesthetic surgery, specialist for oral surgery, Department of Oral and Maxillofacial Surgery, University Hospital Hannover*



"As users of HILOTHERAPY from the early days, we treat our patients after maxillofacial surgical procedures, directly after treatment for

1-2 hours. Ever since the introduction of the HiloTherm Homecare device, we have given it to our patients for three to four days at home in order to be able to continue HILOTHERAPY there. The facts speak for themselves. Our patients are, as far as possible, also spared swellings and haematomas following surgical procedures such as wisdom teeth operation, implants, etc. The healing process is accelerated considerably, combined with a reduction in post-operative pain, which is why our patients hardly ever have to take painkillers anymore."

**Dres. Beck, Birkenhagen, Peters und Partner,**  
*Practice & clinic for oral and maxillofacial surgery, Böblingen*

## Plastic and Aesthetic Surgery



"In our clinic for plastic and aesthetic surgery an important success factor is our use of the HILOTHERAPY for face-lifts. The innovative concept of constant cooling helps our patients to heal faster and reach full recovery sooner. These positive effects of the cooling device is appreciated not only

by our patients, but also by our medical team. The system significantly benefits our work, in particular during post-operative treatment."

**Dr. med. Volker Alt, specialist in plastic and aesthetic medicine.**  
*KÖ-Clinic Düsseldorf*

## Orthopaedics and Trauma Surgery



"By using HILOTHERAPY on patients who have undergone surgery, we achieve an optimal result. The patients find the therapy very pleasant. Post-operative swelling, haemorrhages or the formation of haematomas are clearly reduced through use of this therapy.

HILOTHERAPY is an inherent part of our clinic and is indispensable when it comes to the optimal care of our patients."

**Dr. med. Klaus Steinhauser, Orthopaedist and sports medicine specialist, orthopaedic clinic for outpatient knee joint operations, Karlsruhe**

## Sports Medicine



"We are using HILOTHERAPY already for some time. We apply it pre- and post-operatively prevalent with ligament injuries, bruises, knee injuries etc. With HILOTHERAPY we see a considerable reduction of pain as well a considerable reduction of swelling and hematoma.

We can clearly reduce the down time of our players by applying HILOTHERAPY."

**Dr. Hanns Christian Harzmann, team doctor of the U21 National Team of the German Soccer Federation**

This is just one example from our list of references, which we will be glad to send you on request.

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