

Whole-body hyperthermia system

**heckel HT3000**



## The three levels of whole-body hyperthermia:

subclinical, „mild“ WBH:  
37,5 – approx. 38,5°C

fever-like, „moderate“ WBH:  
approx. 38,5 – approx. 40,5°C

extreme WBH:  
approx. 40,5 – 42°C

A healthy organism reacts to the threat of illness with regulated increases in temperature, progressing in acute cases to a high fever which can trigger an enhanced immune response.

Body temperature plays a crucial role in the regulation of the immune system. Fever can be considered as being a natural temporary “immunological special program”.

Accordingly, an artificially induced increase in body temperature can result in a sustained stimulation of otherwise inhibited powers of self-healing, even in cases involving chronic or malignant processes.

The controlled increase in body temperature

- besides counteracting symptoms, can also influence faulty regulatory processes within the whole organism
- promotes reparative and regenerative processes in each individual cell and in the entire matrix, particularly in bradytrophic tissues
- results in sustained muscle relaxation even in the deep-lying, most inaccessible muscle layers
- enhances numerous immunological processes, particularly lymphocyte migration to sites of inflammation and malignant processes
- improves delivery of medicinal substances to the site of action
- enhances the efficiency of various antibiotic and chemotherapeutic substances
- is well-founded and can be measured and controlled during application
- utilizes one of the oldest traditional principles of healing

Whole-body hyperthermia can be combined effectively with administration of pyrogenic substances.



Whole-body hyperthermia is a supportive therapy module that can be combined synergistically with other therapies to treat indications such as:

- fibromyalgia, nonarticular rheumatism, muscular tension
- degenerative processes, arthrosis
- chronic inflammatory processes  
bronchopulmonary (e.g. asthma, bronchitis)  
intestinal (e.g. ulcerative colitis, Crohn's disease)  
urogenital (e.g. chronic prostatitis)  
dermatological (e.g. neurodermatitis, psoriasis)
- chronic infections (e.g. Lyme disease)
- malignant diseases (stimulation of the immune system and enhancement of standard therapies)

## A selection of the most recent literature on whole-body hyperthermia

Kraybill, Olenki, Evans, Ostberg, O'Leary, Gibbs, Repasky: A phase I study of fever-range whole-body hyperthermia (FR-WBH) in patients with advanced solid tumours: correlation with mouse models. *Int. J. Hyperthermia* 2002, VOL. 18. NO. 3. 253-266

Rowe-Horwege: Hyperthermia, systemic. in *Encyclopedia of Medical Devices and Instrumentation*, Second Edition, 2006, John Wiley & Sons, Inc.

Heckel, Dickreiter: Ganzkörperhyperthermie - Kontrollierte Erhöhung der Körpertemperatur zu therapeutischen Zwecken. *Natur-Heilkunde Journal*, Okt und Nov 2007

Bull, Scott, Strelbel, Nagle, Oliver, Redwine, Rowe, Ahn, Koch: Fever-range whole-body thermal therapy combined with cisplatin, gemcitabine, and daily interferon-alpha: A description of a phase I-II protocol. *Int. J. Hyperthermia* 2008, VOL. 24. NO. 8. 649-662

Skitzki, Repasky, Evans: Hyperthermia as an immunotherapy strategy for cancer. *Current Opinion in Investigational Drugs* 2009; 10(6): 550-558

## Communication, Training

heckel is committed to the critical and differentiated utilization of whole-body hyperthermia.

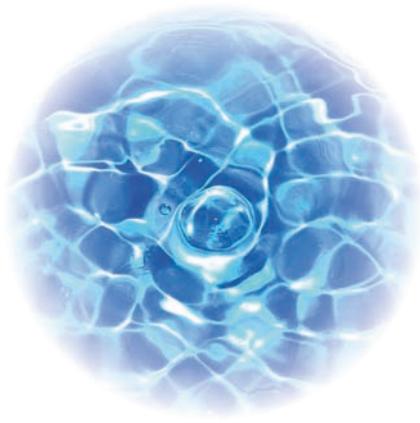
Regular workshops, user forums and demonstrations at trade fairs and congresses facilitate the exchange of experience, discussion and communication.

heckel systems are being used in clinical studies in Europe and the USA.

For more information on the latest activities visit our homepage

[www.hyperthermie.de](http://www.hyperthermie.de)





## The heat source

Nature provides the model for our methodology (keyword: “fever”) and technology:

The hydrosun® irradiators have a patented, sealed liquid filter that enables them to replicate the combination of the sun and the moisture in the Earth’s atmosphere.

A water filter absorbs infrared light of those wavelengths that would otherwise present a thermal burden to the skin.

An important feature of water-filtered infrared-A (wIRA) is its ability to penetrate into deeper-lying tissues while at the same time being gentle to the skin, thus allowing the application of wIRA at higher intensities resulting in increased effectiveness.

The rise in the body’s core temperature is correspondingly rapid and well-tolerated.

In the leg and foot regions, further infrared emitters create a comfortable temperature in the interior of the tent so that the body’s loss of the warmth induced by the irradiators is minimized.

## Irradiation phase:

The patient lies recumbent with his/her head positioned either inside or outside the tent.

The wIRA irradiators are arranged above the exposed upper part of the body.

The patient lies on the comfortable mattress of an adjustable hospital bed.

The tent is made of either synthetic leather which can be easily cleaned or of a washable towelling cloth.



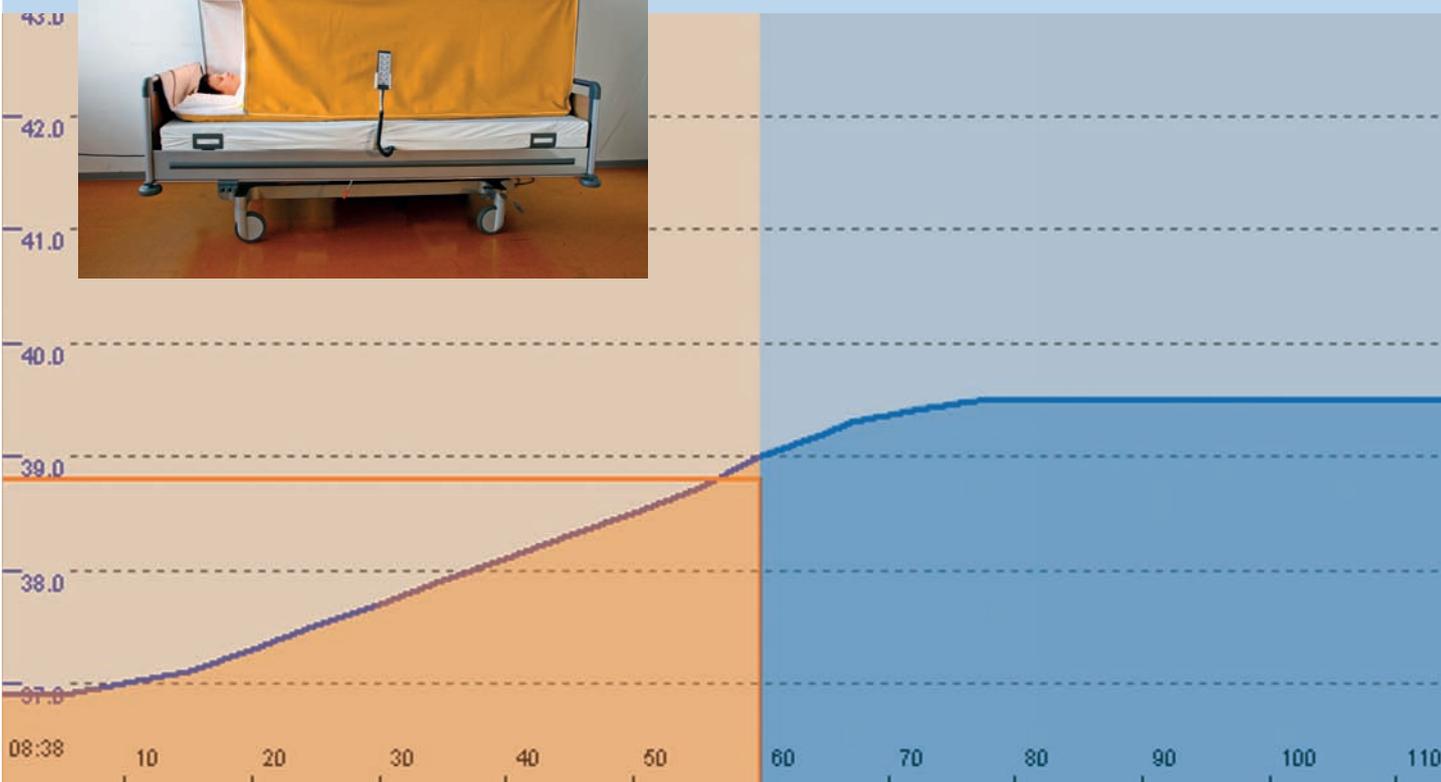
## Heat retention phase:

The patient lies wrapped in the walls of the tent. The temperature generally still increases by a few tenths of a degree and can be maintained at this plateau level for as long as required.

The electrically adjustable treatment bed allows the patient’s position to be altered according to his/her wishes and needs – from a horizontal position with the patient lying on the back or side to an upright seated position.

In this way, comfortable positioning can be ensured even during a treatment lasting several hours (“long-duration whole-body hyperthermia”).

Using the optional electrically powered heckel-Lift 3000, the irradiator can be raised high above the bed.





heckel-HT3000 is a joint development of heckel medizintechnik GmbH and Hydrosun Medizintechnik GmbH. These two companies have entered into a strategic partnership in the field of whole-body hyperthermia.

Broad-based, well-founded expertise derived from technological and clinical research on water-filtered infrared-A radiation (Hydrosun) has been combined with a wealth of technical and clinical know-how in the field of whole-body hyperthermia (heckel).

heckel-HT3000 is manufactured by Hydrosun and sold and distributed throughout the world exclusively by heckel.





# Whole-body hyperthermia Monitoring, documentation, quality assurance

- The temperature course is saved and analyzed (irradiation and treatment duration, gradient of the rise in temperature, integral over the designated base temperature)
- Various temperature curves can be superimposed and compared for any given patient
- The accompanying medication can be recalled directly from self-administered lists and marked on the time axis
- A full-year calendar is created for each patient, allowing a rapid overview of a patient's previous hyperthermia sessions, along with other treatments

- For cancer patients, a tumor-based documentation library can be accessed
- Statistical functions allow a direct overview of the patient cohort treated in terms of gender, age, indications, number of treatment sessions and temperature levels
- Up to 4 parallel treatment sessions can be monitored on a single PC screen

