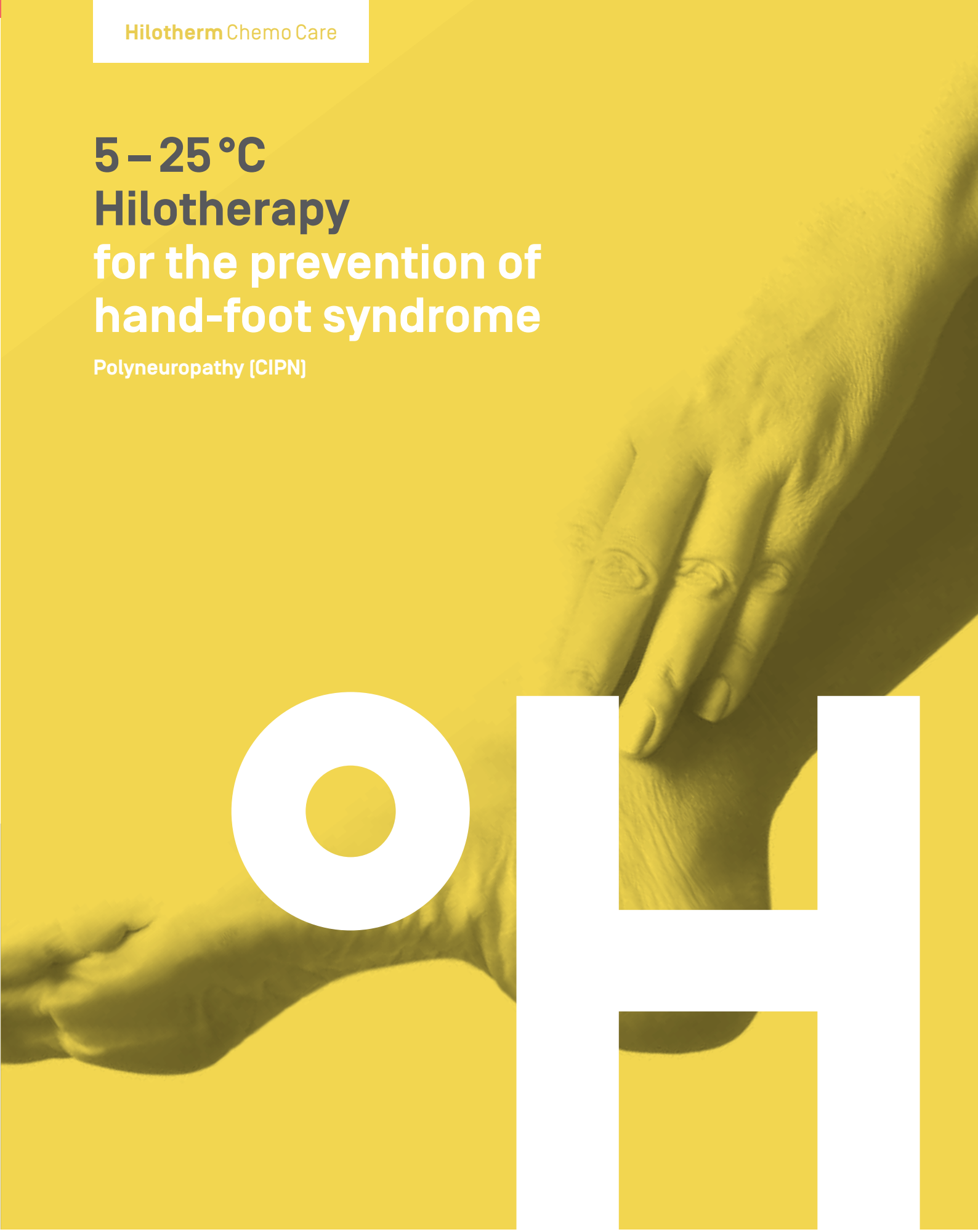
Hilotherm Chemo Care

5 – 25 °C Hilotherapy for the prevention of hand-foot syndrome

Polyneuropathy (CIPN)



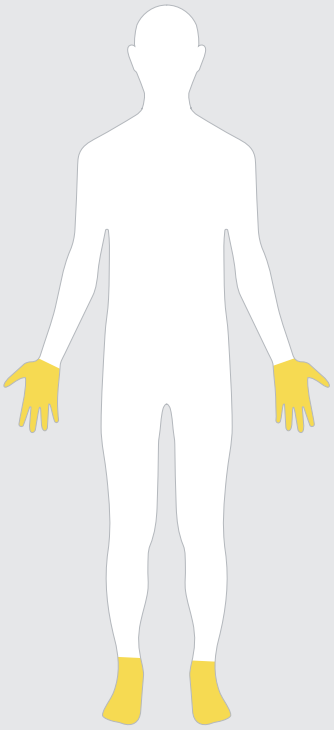
HILOTHERM® GmbH

About the disease

The hand-foot syndrome in chemotherapies

Chemotherapy-induced polyneuropathy (CIPN)

One frequent complication of chemotherapy which occurs with specific zytostatic drugs, such as carboplatin, capecitabin, 5-Fu, cyclophosphamide, cytarabine, docetaxel, doxorubicin, oxaliplatine, paclitaxel, sorafinide and sunitinib, is hand-foot syndrome. This comprises side effects affecting the hands and feet, which may occur right after the start of chemotherapy, during ongoing application of the same or even some months later.

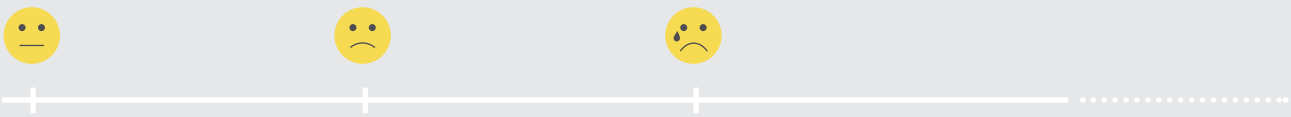


How does CIPN develop?

The general understanding is that any attack on the sensitive nervous system is exacerbated when the blood supply to these nerve cells is populated by fenestrated capillaries. In other words, the altered protein composition of the cell wall is more permeable to specific chemo-therapeutic substances. The substances in question then inflict fundamental damage on the nerve cells. This damage to cellular as well as mitochondrial DNA, plus disrupted calcium balance and oxidative stress, are what encourage the dissolution of ganglion cells. Since the long nerve fibers are more sensitive to these damaging impacts, CIPN tends to be considered length-dependent, with a focus on the lower extremities.

Three degrees of severity for hand-foot syndromes

According to the definition of the World Health Organization (WHO) and the National Cancer Institute (NCI), three degrees of severity can be used to distinguish symptoms.



Grade 1: Numbness, dysesthesia, paresthesia. Difficulties which do not impact on everyday life.

Grade 2: Painful swellings and/or erythema. Difficulties which impact on everyday life.

Grade 3: Extensive blistering; oozing, scaly skin; ulcerations, severe pains. This often results in onycholysis, namely losing one or more nails. Considerable difficulties, which render everyday life impossible.

The lack of any causal therapy for both complexes of clinical signs means that in the worst case scenario, chemotherapy may have to be suspended or abandoned.

5 – 25 °C
Hilotherapy Chemo Care
The degree of prophylaxis

HILOTHERAPY is a form of physical thermo-therapy that involves applying constant temperature within the range 5 to 25 °C in a localized and targeted manner. During this procedure, applications lasting several hours without temperature deviations can be implemented. When deployed prophylactically, HILOTHERAPY can significantly reduce the risk of chemo-therapy-induced polyneuropathy.

How does HILOTHERAPY prevent hand-foot syndrome?

To prevent the chemotherapeutic agent from penetrating the capillaries of extremities, both blood circulation and metabolism have to be slowed down. This is done by lowering the tissue temperature. For example, lowering the temperature by 10 °C already reduces the metabolic rate by 50 %. Using HILOTHERAPY, the localized tissue temperature in the area of the hands and feet can be configured to an individual value and both can be kept constantly cool. Reducing metabolism and blood circulation to a constant level limits the penetration of the chemotherapeutic agent in the extremities and hence the amount which is discharged via the sweat glands.

Chemo Care device for hand and foot with 4 connections incl. 4 cuffs (hand cuff and foot cuff slipper)

Advantages

- A reduced blood flow in the hands and feet throughout the entire chemotherapy process
- A clear reduction in the amount of chemotherapeutic agents reaching the extremities
- Elimination of side effects affecting the hands and feet
- Eliminating the need for related lengthy follow-up treatment
- An enhanced quality of life

Function

HILOTHERAPY works with the HILOTHERM Chemo Care device, which forms a closed-loop system with cuffs and piping, through which the coolant flows. Monitor sensitive sensors ensure constancy of temperature throughout the entire therapy period – even over many hours.

Our product range: Gradual healing and pain relief

Accleration of the healing	Pain relief at rheumatism	Prevention of hand-foot syndrome	Heat therapy before the surgery
10 – 35 °C Hilotherm Clinic	**15 – 22 °C** Hilotherm Homecare	**5 – 25 °C** Hilotherm Chemo Care	**35 – 43 °C** Hilotherm Calido
15 – 22 °C Hilotherm Homecare			

Hilotherapy

HILOTHERAPY is a thermal healing method that operates in a localized manner on damaged parts of the body and affects the oxygen requirement of tissue, metabolism, blood flow and pain receptors in the affected tissue. In the form of cryotherapy, it has a slow-down effect, and a stimulatory effect with hypothermia. The HILOTHERAPY allows such effects while offering temperature controllable to the nearest degree, relative to the respective indication, within the specified temperature range.

Painkiller ice

The ability of this method to maintain a constant temperature gives it a key advantage compared to conventional alternatives, such as ice gloves etc. These will thaw and lose their cooling effect and have to be changed throughout the therapy during the treatment process. They also involve the risk of skin burns due to the nature of the extremely cold temperatures used.

Trial prophylactic use

Dipl.-Med. René Schubert
Specialist practice for gynecological oncology
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“Allowing a half-hour lead time before therapy starts is a tried and tested approach. Patient feedback suggests that consistent exposure to cold is more tolerable than cooling with ice gloves. Trial usage to date has shown significantly fewer side effects (around 10 % minor sense impairment) compared to ice gloves (40 % sense impairment). Without any cooling at all, the rate of side effects involving poly-neuropathies rises to around 80 %. HILOTHERAPY, when prophylactically applied, is currently the only method which largely eliminates peripheral chemo-therapy-induced polyneuropathy.”

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Further information
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