

# Hyperthermia

## What is hyperthermia?

Hyperthermia is defined as having a body temperature higher than normal. Severe hyperthermia is when your body temperature reaches above 40°C, this can be life threatening. Normally your body controls your body temperature through sweating, this will bring your body temperature down. In relation to cancer, hyperthermia is a type of cancer treatment whereby certain parts of the body are heated up to temperatures of up to 50°C.

## What is the history of hyperthermia use on cancer and are there different types of hyperthermia?

Applying heat to the body as a means of treating disease has been around for hundreds of years, for centuries humans have benefited from sweating from Turkish baths to modern saunas. Back in 1891 a Dr. William Coley published a paper on how inducing a fever in the body can stimulate an immune response which can cause cancer remission.

There are two main types of hyperthermia application, local and whole body hyperthermia. In local Hyperthermia heat is applied to a small area, typically where the tumor site is. Different types of

energy may be applied to deliver the heat, including microwave, radiofrequency and ultrasound. At Life Clinic we use an external approach, whereby external applicators are positioned around or near the appropriate region and energy is focused on the tumor to raise its temperature.

Whole body hyperthermia is used to treat metastatic cancer that has spread throughout the body, this can be accomplished through several techniques that raise the body temperature to 45-50°C. using thermal chambers or hot water blankets.



## What is the evidence that hyperthermia is effective on Cancer?

Research has shown that high temperatures can kill and damage cancer cells, usually with minimal injury to normal cells.<sup>1</sup> By killing cancer cells and damaging cancer cell proteins, hyperthermia may shrink tumors.<sup>2</sup> Numerous clinical trials have studied hyperthermia in combination with radiation and chemotherapy. The studies have focused on many types of cancer, including sarcoma, melanoma, head and neck cancers. Many of these studies have shown significant reduction in tumor size when hyperthermia is combined with other treatments.<sup>3</sup> Not all these treatments have shown an increase in survival, it other factors need to be taken into account like diet, lifestyle, stress and supplement regime.

## Is hyperthermia safe, does it have any side effects?

Most normal tissues are not damaged during hyperthermia if the temperature remains under 44°C. However due to regional variations in tissue compositions, higher temperatures make occur in various spots. This can result in burns, blisters or discomfort. Most of these side effects are minimal and temporary. Whole body hyperthermia can cause diarrhea nausea and vomiting but again the symptoms are temporary.

## What will I feel during a hyperthermia treatment?

You will feel an intense warming sensation to the area where the heat is applied. The nurse will accompany you and monitor the heat applied to ensure minimal discomfort is experienced. The nurse will be with you during whole treatment period.

## How many treatments will I need?

The number of treatments recommended will depend on the severity of cancer and its location. Normally our recommendation is a minimum of 3 treatments per week. We build up the intensity of the heat applied as each application is applied.

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1 Van der Zee J. Heating the patient: a promising approach? *Annals of Oncology* 2002; 13(8):1173-1184

2 Hildebrandt B, Wust P, Ahlers O, et al. The cellular and molecular basis of hyperthermia. *Critical Reviews in Oncology/Hematology* 2002; 43(1):33-56.

3 Wust P, Hildebrandt B, Sreenivasa G, et al. Hyperthermia in combined treatment of cancer. *The Lancet Oncology* 2002; 3(8):487-49