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Cooling Caps (Scalp Hypothermia) to Reduce Hair Loss

What is it?

Scalp hypothermia is cooling the scalp with ice packs or cooling caps (cold caps) for a period of time before, during, and after each [chemotherapy](#)¹ (chemo) treatment to try to prevent or reduce [hair loss](#)².

Newer versions of these devices use a two-piece cooling cap system that is controlled by a computer, which helps circulate a cooled liquid through a cap a person wears during each chemotherapy treatment. A second cap, made from neoprene (a type of artificial rubber), covers the cooling cap to hold it in place and keep the cold from escaping.

How might it work?

The theory behind scalp hypothermia is that the cooling tightens up or constricts blood vessels in the scalp. This constriction is thought to reduce the amount of chemo that reaches the cells of the hair follicles. The cold also decreases the activity of the hair follicles and makes them less attractive to chemo, which targets rapidly dividing cells. This could reduce the effect of chemo on the follicle cells and, as a result, prevent or reduce hair loss from the scalp.

What does the research show?

Controlled studies of older forms of scalp hypothermia (such as using ice packs) have had conflicting results. However, some studies of newer, computer-controlled cooling cap systems have shown benefits. Recent studies of women getting chemo for early-

stage breast cancer have found that at least half of the women using one of these newer devices lost less than half of their hair. The most common side effects have been headaches, neck and shoulder discomfort, chills, and scalp pain.

The success of scalp hypothermia may be related to the type of chemo drugs used, the chemo dosage, and how well the person tolerates the coldness.

Some research has also suggested that people with a thicker hair layer might be more likely to lose hair than those with a thinner layer of hair. This might be because the scalp doesn't cool down enough due to the insulating effect of the hair.

Cooling caps that are not fitted tightly have also been linked with more hair loss, often in patches where contact with the scalp is poor.

There remain some unanswered questions about the safety of scalp hypothermia. Some doctors are concerned that the cold could keep chemo from reaching any stray cancer cells lurking in the scalp. Some believe that the scalp cooling might protect cancer cells there and allow them to survive the chemo and keep growing. But in people who have used scalp hypothermia, reports of cancer in the scalp have been rare. More studies are needed to answer questions about long-term safety.

What should I do?

Some newer cooling cap systems, such as the DigniCap and Paxman cooling systems, have been cleared for use by the US Food and Drug Administration (FDA). Some older types of scalp hypothermia devices can be rented or purchased online, and some cancer treatment facilities in the US allow patients to use them.

If you are considering whether to use scalp hypothermia, it's important to carefully weigh the potential benefits, discomforts, and risks. Discuss the pros and cons of this option with your cancer treatment doctor. You might also want to ask if the treatment center has experience in using cooling caps and how successful they have been.

Another consideration might be cost. Older types of caps are generally not covered by insurance, and it's not yet clear if the use of newer, computer-controlled systems will be covered, either. It's important to check with your insurance company to see what might be covered before starting your treatment.