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# Should You Try a Cold Cap to Prevent Chemo-Related Hair Loss?

There are several cold cap options available to you if you're trying to prevent hair loss during chemotherapy. But how well they work for you depends on several variables.

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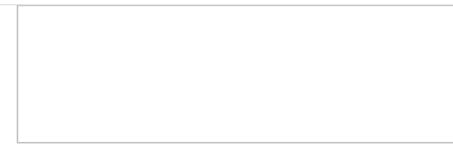
Cancer patient Saskia Speth wearing a cold cap for hair retention during chemotherapy treatment at the Jerusalem hospital in Hamburg, Germany, on October 13, 2016. Daniel Bockwoldt/Getty Images

For many people, especially women, losing hair as part of cancer treatment can be almost as devastating as the diagnosis. In fact, research suggests that for many patients chemotherapy-related hair loss is associated with depression, negative body image, lowered self-esteem, and a reduced sense of well-being. Some women are so concerned about chemotherapy-related hair loss that they opt to forgo the chemotherapy their doctor has recommended.

In the past, the only "solution" for people who didn't wish to remain bald was to get a wig once their hair had fallen out. While that's still an option, it's no longer the only one. A technology called cold cap therapy, also known as scalp cooling, might reduce your chances of losing your hair in the first place.

## How Cold Cap Therapy Works

During cold cap therapy, patients wear a cap (or set of caps) designed to dramatically lower the temperature of the scalp and its hair follicles. "Chemotherapy works by killing cells that are rapidly proliferating, which includes cancer cells as well as healthy cells like hair follicles," says [Sagar Sardesai, MD, MP](#), a breast medical oncologist at The Ohio State University Comprehensive Cancer Center. "We believe [scalp cooling] works by temporarily restricting blood flow to the follicles so that the chemotherapy drugs can't penetrate them."



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The caps are worn for 30 minutes to one hour before chemotherapy, during the infusion, and for an hour or two afterward. "Most of the damage to hair follicles happens during or right after infusion, though patients don't start losing hair for a few weeks," Dr. Sardesai explains.

At the moment, there are three main scalp cooling options available to patients in the United States. Two of them — [DigniCap](#) and [Paxman](#) — have been cleared by the Food and Drug Administration (FDA) and are available at select cancer centers around the country. The third, [Penguin Cold Caps](#), can be used anywhere, but it's up to patients and their families to obtain them and implement their use.

**Related:** [Scalp Cooling Caps Can Minimize Hair Loss During Chemotherapy](#).

## DigniCap and Paxman: Findable in Select Cancer Centers

DigniCap and Paxman employ slightly different technologies, but the general concept behind both of them is the same. In order to use them, you'll have to find a cancer center that has one of these systems on-site. You'll wear a cap that's attached to an apparatus that pumps a coolant into it. The hospital staff takes charge of hooking everything up. The catch: Your mobility will be somewhat limited while you're wearing it. "You can still take bathroom breaks or leave the room, but you'll need nurses to disengage the device and restart it," says Sardesai.

Clinical trials have yielded promising results. At Mount Sinai, [Paula Klein, MD](#), an associate professor of oncology and hematology at the Icahn School of Medicine at Mount Sinai, led a [DigniCap trial](#) on early-

stage breast cancer patients. "We were able to demonstrate that 70 percent of patients retained about 50 percent of their hair," she says. A [literature review evaluating the efficacy of both Dignicap and Paxman caps published in October 2017 in the \*Journal of the European Academy of Dermatology and Venereology\*](#) came to similar conclusions.

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## Penguin Cold Caps: A Patient-Operated Solution

Penguin Cold Caps have been on the market for over 20 years. Patients who use them must rent a kit from the manufacturer, which costs \$450/month. Kits consist of several gel-containing caps, headbands, and portable coolers that are usually filled with dry ice.

A few other companies, such as [Arctic Cold Caps](#) and [Polar Cold Caps](#), make similar products. Because these products (including Penguin) have not been cleared by the FDA, doctors and nurses are not allowed to assist with their use. In order to maintain a sufficiently cold temperature, "caps need to be rotated every 20 to 30 minutes by a family member, friend, or hired 'capper,'" says Dr. Klein.

Anecdotal reports are positive and at least [one clinical trial](#) has shown that Penguin Cold Caps are effective for some chemotherapy patients, but the DIY options haven't been extensively studied in the United States, says Klein.

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## What Else Do I Need to Know Before Trying Cold Cap Therapy?

Some people, for a variety of reasons, have questions and concerns about using cold caps. Among them:

### **Will a cold cap increase the risk of metastases to the**

**scalp?** Research suggests that this is not a concern. In fact, [a literature review of studies on this topic published in the June 2017 issue of the journal \*Breast Cancer Research Treatment\*](#), which included 1,959 patients, found that the risk of cancer metastasizing to the scalp was low whether patients used a cooling cap or not.

**Will a cold cap cost me a fortune?** Possibly. Some insurance will cover cold cap treatment, while others will not. Penguin Cold Caps cost \$450 a month, so depending on how many cycles of chemo you need, it can add up. Paxman costs \$500 for the cap, plus \$150 to \$200 per chemo cycle; [total patient cost](#) is capped at \$2,200.

DigniCap [pricing varies](#) across the country. You can better assess what your cost will be by checking your insurance coverage and talking to your doctor about what kind of chemotherapy you will be receiving and how many rounds you will get.

**Will there be side effects from using a cold cap?** Side effects are common but not usually severe. You will certainly feel cold — wearing layers and using warming blankets can help a little — and you may get a mild headache. Because scalp cooling must be started before your infusion and continued for a while after, it also prolongs your time at the hospital or clinic. "It's a long day, and it can be uncomfortable," says Klein.

**Is a cold cap guaranteed to work for me?** Scalp cooling does not work for everyone. Although DigniCap and Paxman are cleared by the FDA for patients undergoing chemotherapy for solid tumors, most research so far has been on early-stage breast cancer patients, says Klein.

**Does the type of chemotherapy matter?** Yes. The type of chemotherapy regimen matters a lot. Patients who get cyclophosphamide methotrexate fluorouracil (CMF) chemotherapy usually don't lose their hair, so there's no need to consider this preventive measure. Those receiving anthracyclines, however, will almost definitely lose their hair, but cold caps are mostly powerless against these strong drugs, says Klein. The best candidates are those who will be receiving taxane-based chemotherapy.

**How much does hair type make a difference?** Your hair texture matters a lot actually, says Sardesai. If you already have thin hair or hair that's prone to tangles and breakage, this therapy might not work for you. Klein agrees. "If you have tons of thick hair, you could lose some and still look good," she says. "But sometimes you lose a substantial amount despite all efforts and end up buying a wig anyway."

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