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Antiperspirants and Breast Cancer Risk

For some time, an email rumor suggested that underarm antiperspirants cause [breast cancer](#)¹. Among its claims:

- Cancer-causing substances in antiperspirants are absorbed through razor nicks from underarm shaving. These substances are said to be deposited in the lymph nodes under the arm, which are not able to get rid of them by sweating because the antiperspirant keeps you from perspiring. This causes a high concentration of toxins, which leads to cells mutating into cancer.
- Most breast cancers develop in the upper outer quadrant of the breast because that area is closest to the lymph nodes exposed to antiperspirants. (Think of the breast as a circle divided by vertical and horizontal lines that cross at the nipple. Each of the 4 sectors you divide the breast into is called a quadrant. The upper outer quadrant of each breast is the part closest to the arm pit.)
- Men have a lower risk of breast cancer because they do not shave their underarms, and their underarm hair keeps chemicals in antiperspirants from being absorbed.

All of these claims are largely untrue.

Do antiperspirants increase a person's risk of breast cancer?

There are no strong epidemiologic studies in the medical literature that link breast cancer risk and antiperspirant use, and very little scientific evidence to support this claim.

In fact, a carefully designed epidemiologic study of this issue published in 2002 compared 813 women with breast cancer and 793 women without the disease. The researchers found no link between breast cancer risk and antiperspirant use, deodorant

use, or underarm shaving.

A study published in 2003 looked at responses from questionnaires sent out to women who had breast cancer. The researcher reported that women who were diagnosed with breast cancer at a younger age said they used antiperspirant and started shaving their underarms earlier and shaved more often than women who were diagnosed when they were older. But the study design did not include a control group of women without breast cancer and has been criticized by experts as not relevant to the safety of these underarm hygiene practices.

Probably, in general, younger women are more likely than older women to shave their underarms and use antiperspirants, whether or not they develop breast cancer later. For instance, most women born in the 1950s and 1960s might have started shaving earlier and using antiperspirants more often than women born in the 1930s and 1940s. Many women may also shave and use antiperspirants less often as they get older. These are more likely explanations of the researcher's findings than the suggestion that these practices cause cancer. Of note, the study asked about underarm products that the women were using at the time the questions were answered, not what they used before they developed breast cancer.

Does using antiperspirant after shaving allow chemicals to enter the body from the armpit and increase breast cancer risk?

Razor nicks may increase the risk of skin infection. If the underarm skin is already broken or infected, it is possible that some antiperspirants could cause slight irritation. But it is unlikely that this is a major source of carcinogens (cancer-causing substances) that get into the body and reach the breast cells.

Should I be concerned about parabens?

Parabens are chemicals used as preservatives and as food additives. They can be found in many types of make-up (like lipstick, mascara, concealer, and foundation) and skin care products (like lotion, shaving products, and sunscreen). Parabens can be absorbed through the skin.

Intake of parabens is a possible concern because studies have shown that parabens have weak estrogen-like properties. Estrogen is a female hormone known to cause breast cells (both normal and cancerous) to grow and divide. And some conditions that increase the body's exposure to estrogen (like not having children, late menopause, obesity, etc.) have been linked to an increased risk of breast cancer.

In 2004, a small study found traces of parabens in some samples of breast cancer tumors. But there are some important points about the study findings:

- The researchers looked only for the presence of parabens in breast cancer samples. The study did not show that parabens caused or contributed to breast cancer development in these cases – it only showed that they were there. What this meant is not yet clear.
- Although parabens have weak estrogen-like properties, the estrogens that are made in the body are hundreds to many thousands of times stronger. So, natural estrogens (or those taken as hormone replacement) are much more likely to play a role in breast cancer development.
- Parabens are widely used as preservatives in shampoo, lotions, other cosmetics, and even foods. This study did not contain any information to help find the source of the parabens found in the breast tissue – it's not clear if they might have come from antiperspirants or from some other source.

Most people are exposed to parabens. In fact, studies have found some form of parabens in the urine in up to 99% of people in the US. But so far, studies have not shown any direct link between parabens and any health problems, including breast cancer. There are also many other compounds in the environment that mimic naturally produced estrogen.

Although at this time there are no clear health risks from parabens in food, drugs, cosmetics, and skin care products, people concerned about exposure to parabens can avoid products containing them. Consumer products containing parabens are required to list them as ingredients. Most parabens have names containing the word “paraben,” making them easy to find. According to the US Food and Drug Administration, most major brands of antiperspirants and deodorants do not currently contain parabens.

Should I be concerned about aluminum in antiperspirants?

Aluminum-based compounds are the active ingredients in antiperspirants. They block the sweat glands to keep sweat from getting to the skin's surface. Some research has suggested that these aluminum compounds may be absorbed by the skin and cause changes in estrogen receptors of breast cells. Because estrogen can promote the growth of both cancer and non-cancer breast cells, some scientists have suggested that using the aluminum-based compounds in antiperspirants may be a risk factor for the development of breast cancer.

But it isn't clear that much aluminum is absorbed through the skin. One study that

looked at the absorption of aluminum from antiperspirants containing aluminum chlorohydrate applied to the underarms found that only a tiny fraction (0.012%) was absorbed. The actual amount of aluminum absorbed would be much less than what would be expected to be absorbed from the foods a person eats during the same time.

It also doesn't seem that breast cancer tissue contains more aluminum than normal breast tissue. A study that looked at women with breast cancer found no real difference in the concentration of aluminum between the cancer and the surrounding normal tissue.

At this point, no clear link has been made between antiperspirants containing aluminum and breast cancer.

Do antiperspirants keep a person from sweating cancer-causing toxins out through their underarm lymph nodes?

Lymph nodes help clear out bacteria, viruses, and other possible threats to the body, but the lymph nodes do not release waste or toxins through sweating. In fact, lymph nodes are not connected to sweat glands. Sweat glands are located in the skin, not in the lymph nodes. Most cancer-causing substances that enter the body are removed from the blood by the kidneys and by the liver. Substances removed by the kidneys are released into urine, while those taken by the liver are released into bile. The bile then mixes with and is eliminated with feces.

Are there lymph nodes in the upper outer quadrant where most breast tumors occur?

Lymph nodes can be found throughout the breasts and have an important role. The underarm (axillary) nodes filter most of the liquid lymph flowing out of the breast before it goes back into the body's bloodstream. These nodes are under the arm, in the upper outer quadrant of the breast, and near the collarbone.

The breast quadrants are not actually all the same size. About half of all breast cancers develop in the upper outer part of the breast, probably because there is more breast tissue in this area. The number of breast cancers in the upper outer part of the breast is in proportion to the amount of breast tissue in that area.

There is no evidence to suggest that the location of cancers within the breast is related to using antiperspirants or underarm shaving.

Are men less likely to get breast cancer because antiperspirant gets caught in their underarm hair and is not absorbed by their skin?

Men are much less likely than women to develop breast cancer, mostly because men have much less breast tissue than women. Women have about 100 times more breast tissue than men and are about 100 times more likely to develop breast cancer.

Hormones also play a role. Men with metabolic or genetic conditions that lead to increased estrogen levels have an increased risk of developing breast cancer.

Underarm hair and antiperspirant absorption have not been linked to male breast cancer risk.

Why does my doctor tell me not to use antiperspirant or deodorant on the day of my mammogram?

You are asked to not use antiperspirant or deodorant on the day you get a mammogram because many of these products contain aluminum. This metal can show up on a mammogram as tiny specks. These specks can look like microcalcifications, which are one of the things doctors look for as a possible sign of cancer. Not using these products helps prevent any confusion when the mammogram films are reviewed.

How did the rumor about antiperspirants get started and spread?

We don't know who started this rumor. Most people who forwarded the email did so with good intentions. We do know that this rumor has been posted on some websites that sell deodorants that are not antiperspirants, so some people might benefit financially from spread of this misinformation.

How can I learn more about breast cancer risk factors and ways to find breast cancer early, when treatment works best?

Women concerned about breast cancer can learn about risk factors for breast cancer and possible strategies to reduce breast cancer risk in [Breast Cancer Risk and Prevention²](#).

You can also talk to your doctor, nurse, or other health care providers. The American Cancer Society has information about all aspects of breast cancer, from causes and prevention, to diagnosis and treatment. Contact us at 1-800-227-2345 or visit our

website, www.cancer.org.

Hyperlinks

1. www.cancer.org/cancer/breast-cancer.html
2. www.cancer.org/cancer/breast-cancer/risk-and-prevention.html

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