

# **Cosmetics and Fragranced Products Pose High Risks for Breast Cancer and Other Illnesses**

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## **INTRODUCTION**

Some breast cancer patients experience changes in their physical appearance from the side effects of chemotherapy and radiation treatments. In the USA and several other countries, breast health advocates have formed partnerships with traditional hospitals, university hospitals, cancer treatment facilities and the cosmetic industry where free cosmetics are given to breast cancer survivors. These free cosmetics are provided by member organizations of the cosmetic industry.

In a hospital setting, free classes also are conducted by licensed cosmetologists on how to use makeup to improve the appearance and self esteem of the participating breast cancer survivors. Some breast cancer survivors are given free haircuts and free makeovers. During class, each participant is given a kit containing an assortment of various types of cosmetics. Because my interest in the subject is of a public health nature, all participating cosmetic industry partners steadfastly refused my repeated requests for cosmetic samples from their kits or a listing of the names of the items in any kit (letters of refusal on file from the respective principals).

Makeup kits in department stores typically contain, in varying combinations, the following products: foaming cleanser, body mist, body lotion, eau de toilette or parfum spray, lipstick, body cream, facial cream, body and shower gel, powder blusher, perfume spray, skin cream, hand lotion, eyebrow pencil, moisturizers, lip gloss and brushes. The cosmetic give-away initiative is very popular among breast cancer survivors. I have read reports of some women driving over 100 miles one-way to attend the classes. Glorifying articles with testimony from the breast cancer survivors have appeared in the newspapers. On the surface, giving free cosmetics to breast cancer survivors may appear to the unsuspecting to be a grand and benevolent gesture.

For reasons of a compelling public health interest, I think it is prudent to review the literature published in the mainstream medical journals, including The Journal of the National Cancer Institute, on the carcinogenicity and potential health risks associated with the use of cosmetics and fragranced products in general.

## **RESULTS AND DISCUSSION**

To better understand and appreciate the information presented herein, I think a brief tutorial on how some breast cancers develop may be useful.

Estrogen and breast cancer. Estrogen is produced in various organs of a woman's body. The role of estrogen in the development of some breast cancers is well documented in the medical literature. A graphic representation and text on the connection between estrogen and breast cancer are detailed on the Web site of the National Cancer Institute (NCI) ( Web site ).

Briefly, the breast cells of some women have what are known as estrogen receptors (ER). Estrogen binds to these receptors, and in the presence of coactivator substances, enters a breast cell. This estrogen-coactivator complex attaches to DNA. The DNA becomes modified and causes the breast cell to grow out of control and produce a malignant tumor. After chemotherapy and/or radiation treatment, breast cancer survivors who are ER+ are treated with the drug Tamoxifen.

Like estrogen, Tamoxifen has the ability to bind competitively to ER, thereby blocking body estrogen from entering the breast cells. Hence, a recurrence of breast cancer is prevented or minimized. However, over time some breast cells may become resistant to Tamoxifen and this drug then becomes ineffective. Also, breast cells that were previously ER- may become ER+ with time. Or, test results may be a false

negative. The ER status of a woman is determined by pathological laboratory tests used in connection with the definitive diagnosis of breast cancer.

For obvious reasons, it is desirable for ER+ women to maintain a low concentration of body estrogen. This is most especially true for breast cancer survivors who are strongly ER+. To give the Tamoxifen a competitive edge during treatment, some breast cancer survivors have opted for surgical removal of their ovaries, the major estrogen-producing organs.

Some carcinogens are dependent upon estrogen for entry into a breast cell where they can then cause a malignant tumor to develop. Other carcinogens are not dependent upon estrogen for malignancy to occur.

### **Cosmetics and breast cancer**

To retard microbial spoilage, cosmetics in makeup kits contain synthetic chemical preservatives known as parabens (methyl-, ethyl-, benzyl-, propyl-, butyl- isopropyl- or isobutyl-). Studies have shown that parabens have estrogenic activity on ER+ breast cells. It is well known that cosmetic ingredients can enter the bloodstream through skin absorption. 1, 2

Antiperspirants - deodorants. Several years ago, information was circulated on the Internet about a causal link existing between antiperspirants - deodorants and breast cancer. Immediately thereafter, spokespersons for the major breast cancer organizations with financial ties to the cosmetic industry made statements aimed at debunking that information. However, they did not, and could not cite a single published report to support their conclusion.

In 2002, the results of a study were published in an effort to answer the antiperspirants - deodorants question. The researchers found no link between antiperspirants - deodorants and breast cancer. 3 However, my review and in-depth analysis of that study revealed it was fatally flawed and wholly inadequate by any credible epidemiological standard. Only 1606 women were involved in that retrospective study. Hence, the confounding factors could not be adequately reconciled.

The results from that study are published in the Journal of the National Cancer Institute. 3 It should be noted that the NCI reportedly received a multimillion dollar grant from Avon, even though Congress had appropriated millions of dollars more than the agency had requested. With all things considered, rational people would not rely on the results of that study. 3

Recent studies have shown that antiperspirants - deodorants contain paraben preservatives with estrogenic activity. Paraben preservatives promoted the growth of ER+ breast cells to the same extent as human estrogen. 4, 5 No increase in growth was observed with ER- breast cells. 4, 5 A 2003 scientific publication showed that benzylparaben caused an increase in the growth of two types of ER+ human breast cells but not in those that were ER-. 6 Most breast cancers develop in the upper outer quadrant of the left breast. The question arises, why the left breast? A plausible explanation is that most women are right-handed and would, therefore, have a tendency to apply antiperspirants - deodorants more heavily on the left underarm.

Surely, the use of paraben-containing preservatives should be contraindicated, most especially for those breast cancer survivors who are strongly ER+. Note that the manufacturers may not always list a paraben preservative as one of the ingredient on an antiperspirants - deodorants product label. This ingredient could be unilaterally declared by the manufacturer as a proprietary trade secret and then hidden in the catch-all category of "fragrances." In such instance, the manufacturer would not be required by law to list the paraben on the product label.

It makes absolutely no sense at all to: (i) have your ovaries surgically removed for prophylactic purposes; (ii) take an estrogen suppressor drug (e.g., Femara); and/or (iii) conscientiously avoid products high in soy content and then use an antiperspirant - deodorant containing parabens. This is the functional equivalent of wearing an underarm estrogen patch.

Having access to this information should enable clear thinking women to conclude that the use of paraben-containing antiperspirants - deodorants is a high risk factor for breast cancer. All too often, I

have read sad stories by lumpectomy victims who said: "The breast cancer has come back in the same spot in my left breast." Such stories support the age-old adage: If you keep doing the same thing, you keep getting the same results."

In addition to paraben preservatives, antiperspirants - deodorants contain proprietary ingredients known collectively as fragrances. Fragrances can consist of any of over 2,000 different chemicals, including carcinogens and other toxins, according to published reports.

Other cosmetics. Parabens also are found in many other cosmetics that are in widespread use by girls and women. These include: foaming cleanser, body mist, body lotion, lipstick, body cream, facial cream, body and shower gel, skin cream, hand lotion, moisturizers, and lip gloss. These products also contain proprietary ingredients that are known estrogen producers.

Synthetic musk fragrances. One of the ingredients in many fragrances in widespread use by girls and women is synthetic musk. Synthetic musk and its metabolite caused the proliferation of one type of ER+ human breast cells but not of those that were ER-. 7 A naturally occurring fragrance also showed some estrogenic activity. 7 This is important to note because some cosmetic manufacturers advertise that their products contain all-natural ingredients. This advertisement assertion could lead to the assumption that these products are, therefore, harmless.

Perfumes. It is has been shown with medical certainty that there is a direct correlation between the amount and frequency of beverage alcohol consumed and breast cancer. 8, 9, 10 Most perfumes consist of about 80 per cent alcohol. We have learned from our studies that many women spray perfumes directly on their breast above the nipple, the site of a large percentage of breast cancers. Certain carcinogens combine synergistically with alcohol and enhance the risk factors for breast cancer.

When perfume is sprayed or dabbed directly on the breast, some cells receive a dose of alcohol that is equivalent to ingesting over 30 glasses of table wine per day. This equivalency is increased when the woman goes to the powder room to "freshen up" where more perfume is applied to her body. Clearly, this could compound the assault on the breast tissue in conjunction with antiperspirants - deodorants mentioned above.

Perfumes also contain proprietary fragrances and other alcohols that are reported to cause breast cells to produce estrogen in excessive amounts (personal communication). Also, perfumes are known to cause other health problems. It is of interest to note the FDA in its March - April 2003 Consumer magazine listed perfume and hair spray as two of several triggers for asthma. ( Web site ) In addition to asthma, perfumes contain known neurotoxins and have a causal link to other ailments such as central nervous system disorders, allergic respiratory reactions, skin and eye irritations, "double vision, sneezing, nasal congestion, sinusitis, tinnitus, ear pain, dizziness, vertigo, coughing, bronchitis, difficulty breathing, difficulty swallowing, anaphylaxis, headaches, seizures, fatigue, confusion, disorientation, incoherence, short-term memory loss, inability to concentrate, nausea, lethargy, anxiety, irritability, depression, mood swings, restlessness, rashes, hives, eczema, facial flushing, muscle and joint pain, muscle weakness, irregular heart beat, hypertension, swollen lymph glands and more." ( Web site )"

Many women experience some of these maladies during chemotherapy and preventative drug treatments, and may mistakenly attribute it to the anti-cancer drug. When women take anti-cancer drugs, there are often changes in their body biochemistry. Hence, the symptoms they experience may be due to the cosmetics alone or a combination of cosmetics and the anti-cancer drug.

Some fragrances are derived from the distillation of whiskeys (personal observations). These whiskey fragrances are used in the manufacturing of perfumes to give them their characteristic floral aroma. Ibid. These whiskey fragrances are present in perfumes at concentration thousands of times greater than that in the parent whiskey. 11 Whiskey fragrances enter the brain through inhalation or skin adsorption. Ibid. The receptors in the brain are then activated and cause mood changing addictions of euphoria in humans and experimental animals. 11, 12, 13

On a seasonal basis, the raw plant materials used in the manufacturing of whiskeys are contaminated with aflatoxin from mold growth (personal observations). The aflatoxin is present in the whiskey fragrance as a contaminant. Aflatoxin is a well known human carcinogen. 14 or Web site

Addictive ingredients and narcotizing properties of perfumes. A familiar scene at a cosmetic counter in a department store is a woman going through the ritual of spraying and sniffing perfume sprayed on her wrist or forearm. The process is repeated using another brand or type until she discovers the aroma that is most pleasant to her. Perfume aroma causes instant changes in the biochemistry of the brain at the pleasure center. Most perfumes contain a narcotic, and studies suggested that those cosmetics have other addictive ingredients. 11, 12, 13 Published reports revealed that perfume ingredients cause an addictive euphoric high similar to that experienced with nicotine or drinking alcohol. 12 This might explain why women go to the powder room to "freshen up" more than once daily, i.e., to seek another "high" just as the traditional addicts.

Wearing of perfumes and fragranced products banned in public facilities. Like secondhand cigarette smoke, perfumes and fragranced products are causing major health problems in high schools, workplaces and public buildings. Some schools, workplaces, public buildings and public facilities have adopted policies that ban the wearing of perfumes and fragranced products, according to published reports. Also, some restaurants are turning away customers wearing perfumes, and public meeting places for conferences are banning the wearing of fragranced products in their facilities. Web site or 15

Legal action. An individual won a monetary judgments in trial court under the Americans with Disabilities Act because of illnesses sustained from secondhand exposure to fragranced products in the workplace. The case was upheld on appeal. ( Web site ) or Wilbert Bazert v. State of Louisiana, et al State of Louisiana Court of Appeals, 1st Cir. No. 99 CA 2115

Hair dyes. A study conducted by researchers for the American Cancer Society has shown a positive association between the use of black hair dyes and fatal non-Hodgkin's lymphoma and multiple myeloma. 16 Although some inconsistencies were seen, a meta-analysis by researchers at Johns Hopkins University showed a positive link between the use of permanent hair dyes and Hodgkin's disease, non-Hodgkin's lymphoma, unclassified lymphomas and multiple myeloma. 17

Free retreats for breast cancer survivors. In addition to the camaraderie and give-away of the free cosmetics mentioned above, breast cancer survivors were served table wines, funded with tax payers dollars, on their weekend retreats (information obtained through an Open Records Act). Table wine contains chemical components that are both estrogenic and that stimulate the body to produce human estrogen (personal communication). Moreover, beverage alcohol also contains a constituent that has a chemical structure very similar to diethylstilbestrol (DES) (proprietary report published in-house).

The concentration of the DES-like constituent is very high in certain types of beverage alcohol. DES is a synthetic estrogen prescribed for pregnant women mainly from 1938 to 1971 to prevent miscarriage. The daughters of the women who took DES have a disproportionately high incidence of cancer of the vagina or cervix known as clear cell adenocarcinoma. The sons of women who took DES are at risk for developing testicular cancer and other health problems of the sex organs. Researchers for the American Cancer Society conducted a study showing a positive association between DES and fatal breast cancer. 18 Heavy and frequent users of cosmetics and beverage alcohol during pregnancy and breast feeding might explain why "non genetic" breast cancer tends to run in certain families.

Carcinogen-free and all-natural cosmetics. Several new cosmetic companies have sprung up during the past decade claiming their products are carcinogen-free and contain all-natural ingredients. First, some of the most toxic and potent carcinogens are derived from natural sources. Second, some cosmetic ingredients are harmless singly but form carcinogens when combined with other chemicals in the body. Third, some cosmetic ingredients are harmless but their metabolic by-products are carcinogenic. Fourth, like the traditional cosmetic companies, these new companies do not make a full disclosure of the ingredients on their product labels. Fifth, the so-called carcinogen-free and all-natural cosmetics may contain preservatives with estrogenic activity. Therefore, women should be aware of advertisement hype.

## **CONCLUSIONS**

In view of all the foregoing medical and scientific evidence, clear-thinking people should conclude that the potential for harm is great if breast cancer survivors use cosmetics and personal care items that contain known human carcinogens or ingredients with proven estrogenic activity. The latter is especially true for those women who are ER+. Many breast cancer survivors are already debilitated and emaciated from the disease and treatments. Any marketing strategy to promote the sale and use of cosmetics and fragranced products to this group of survivors is at least unduly exploitative.

Furthermore, such a marketing strategy sends a grossly mistaken message to the general public that cosmetics and fragrances are unconditionally safe. Giving these free products in a hospital setting contravenes the Hippocratic Oath: "first do no harm." Cosmetics and fragrances are potentially harmful because they contain the following elements:

- (i) known carcinogens that disable the growth regulator mechanism of breast cells;
- (ii) estrogenic activity to facilitate the entry of the carcinogens into breast cells that have receptors that are estrogen positive; and (iii) a narcotizing drug and ingredients with addictive properties to change the biochemistry of the brain and thus could urge the consumers to keep using the products.

Even if women cannot fully comprehend all the evidence presented herein or the significance of the medical literature cited, they still should be able to draw an adverse inference regarding the safety of cosmetics and fragranced products from the facts enumerated below.

1. That all the principal parties refused my repeated requests for a listing of the items in any one cosmetic kit, even though tax payer dollars are being used to administer the program.
2. That the wearing of perfumes and fragranced products is being banned in some high schools, public places, workplaces and public buildings.
3. That an individual won monetary damages in a court judgment under the Americans with Disabilities Act because of secondhand exposure to fragranced products.

## **Closing commentary**

The incidence of breast cancer is expected to continue to increase with time. Regrettably, it seems the desire for glamour and aromatic fragrances takes precedence over the potential for developing a life-threatening illness. Clearly for their financial gain, the principals are exploiting these facts to the potential detriment and demise of women. When all the scientific evidence is in and when women get sick and then get sick and tired of being sick and tired, perhaps they will come together and seek some relief through court action.

The medical and scientific evidence presented herein is clear, solid, persuasive and compelling. Therefore, breast cancer survivors should reject outright the gift-bearing marketing strategy of the principals.

Unfortunately, in spite of this evidence, many women are likely to continue to believe that cosmetics pose no breast cancer risk. With that kind of mindset, it is not likely that the principals will change their behavior.

Women will undoubtedly continue to clamor from every hill top and every mountain side for a cure. Unfortunately, they have no control over how research funding is spent, what type of research is done or when the research will be done. Further, women who participate in double blind clinical trials have no control over whether they receive the drug or the placebo. However, the individual woman does have a great measure of control over her behavior and lifestyle. Moreover, it is far more humane and doable to try to prevent breast cancer in the first place than to try to cure it once it is fully developed.

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#### About the author

I earned a Ph.D. degree in microbiology from the University of Louisville School of Medicine (USA). I was an adjunct assistant professor in the same medical school for several years. I have extensive laboratory experience working with ingredients used in the manufacturing of cosmetics and personal care products. I have worked as an epidemiologist for the United States Air Force. I am presently doing research on the epidemiology and surveillance of breast cancer as related to the causes and origins of this disease. My approach to reducing the high incidence of breast cancers has the support of elected officials, community leaders, faith-based organizations and University of Louisville professors, including a professor emeritus, University of Louisville School of Medicine.