

Original Article: Investigation of Chemicals on Breast Cancer

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ABSTRACT

Breast cancer, which is caused by rapid and abnormal growth of cells in the breast, is a complex disease in which many factors can be involved. Some factors such as age, family history, genetics and gender are not under the control of the individual. However, a person can control other factors such as smoking, physical activity, proper weight and diet to prevent breast cancer. Some researchers believe that diet can be responsible for 30-40% of all cancers. This study raises an interesting point in research to identify breast cancer risk by focusing on estrogen- or progesterone-enhancing chemicals. However, without *in vivo* studies, it is premature to attempt to make a definitive connection. A multifaceted approach is necessary to fully understand the role that chemicals play in the development of breast cancer. According to Dr. Truss, this should include all data from cell studies, animal studies, and human observations. The human body is [also] very complex, and studying one piece of the puzzle individually may be very different than what happens when all the pieces are put together, said Dr. Lauren Truss. Dr. Gramley added: "Even if the findings are interesting, we can't take it and apply it to humans." Evaluating the effects of these chemicals on humans is still challenging and most of them have not been studied enough. So we expect more care to be taken in interpreting observations of chemically induced changes in breast tissue, Rudel said. A new cell culture study joins the list of research investigating the link between environmental chemicals and breast cancer. Although this is a bold and premature claim, the paper overlaps with what experts currently believe. A new study suggests that certain synthetic chemicals can increase the risk of breast cancer by stimulating hormones.

Introduction

O

ne To understand breast cancer, it will be helpful to share some basic information about the normal

structure of the breast. A woman's breast includes the following parts:

- Lobes and lobules (milk producing glands),

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- Milk ducts (small ducts that bring milk to the nipple, breast duct);
- Stroma consists of fat and connective tissue around milk ducts, lobules, blood vessels and lymphatic vessels [1].

Most breast cancers start in the cells of the milk ducts. Some occur in the lobules and a very small number of breast cancers occur in other tissues [2-4].

Breast cancer and breast lymphatic system

Since one of the ways breast cancer spreads is through the lymphatic system, it is important to understand its overall structure. This system has different parts. Bean-shaped lymph nodes are small cells of the immune system that are connected to lymphatic vessels. Lymphatic vessels are like small veins, except that they carry a clear fluid (instead of blood) called lymph from the breast and contain fluid from

lymph tissue, waste materials, and immune system cells. Breast cancer cells may enter the lymphatic vessels and begin to grow in the lymph nodes. Most breast lymph vessels connect to axillary lymph nodes, while some lymph vessels connect to the chest (internal mammary lymph nodes) and above or below the collarbone (Figure 1). If cancer cells have spread to the lymph nodes, it is likely that these cells have spread to other parts of the body through the bloodstream [5]. The more breast cancer is in the lymph nodes, the more it has spread to other organs. Therefore, the presence of one or more cancerous lymph nodes affects the treatment plan. However, not all women with cancer cells metastasize to their lymph nodes. In some women, there are no cancer cells in the lymph nodes, but metastases develop later [6-8].

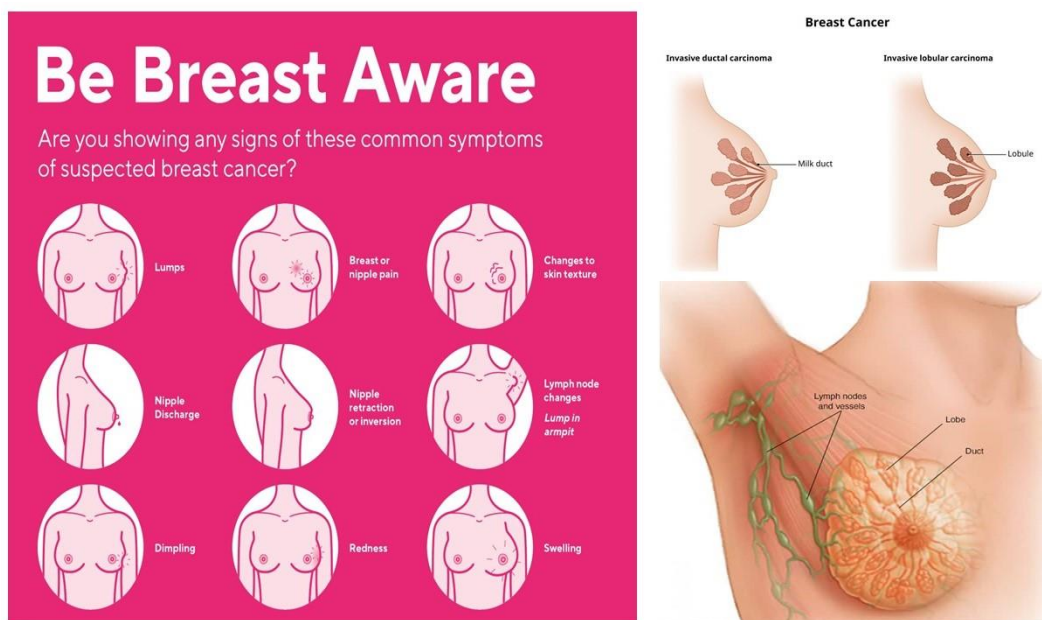


Figure 1. Breast cancer and breast lymphatic system

The importance of early detection of breast cancer

Although breast cancer does not usually cause any symptoms in the early stages, early detection can transform a person with breast cancer from a victim to a survivor. In societies

where women take monthly breast self-exams seriously and don't waste time visiting a doctor when faced with symptoms, cancer is diagnosed in the early stages, which makes treatment easier [9].

Prevention of breast cancer

Exercise (research has shown that physical activities and doing half to an hour of exercise daily can reduce the risk of infection by 20%. Because exercise balances the amount of estrogen and testosterone hormones in the blood). Consumption of dairy products (dairy products are rich in calcium; Research has shown that the use of calcium plays a role in preventing cancer). Fruit consumption (fruits play a significant role in reducing cancer due to their fiber and antioxidants. Antioxidants prevent the creation of cancer cells by preventing oxidation reactions and preventing the release of free radicals. Antioxidants include vitamin E, A, C and selenium, which are found in fruits. In addition to preventing cancer, fiber also plays an effective role in keeping body weight balanced [10]. Having children (according to researchers, women who have children have less cancer). Breastfeeding (breastfeeding has been the focus of oncologist researchers for many years and it seems that breastfeeding prevents the occurrence of cancer by certain mechanisms, and the more times and duration of breastfeeding, the lower the incidence). Low-fat diet (consumption of high-fat foods and high-fat and high-calorie desserts can cause cancer, and it is better for women to use cholesterol-free and low-fat foods such as soybeans in their diet. Soybeans can be a good substitute for high-fat meats) [11].

Breast cancer symptoms

Often, in the early stage, the tumor in the mammary gland does not show itself in any way, but in most cases, cancer can be detected in the early stages. About 70% of all breast tumors are found by women themselves. Therefore, the correct examination of the mammary glands is of great importance. The right time to do the

examination is 5-7 days after the end of menstruation [12].

Symptoms of breast cancer in women in the early stages

- Changes in the shape of the nipple;
- Pain that has not disappeared until after the next menstrual period;
- A new mass that does not disappear until after the next menstrual period;
- Clear, red, brown or yellow discharge from the tip of one breast;
- Redness, swelling, itching of the skin, skin sensitivity or pimples for which there is no reason;
- Swelling or lump around the collarbone or under the arms;
- A firm lump with irregular corners is more likely to be cancerous [13].

Symptoms of breast cancer in later stages

- Indentation or turning of the nipple inside;
- Enlargement of one of the breasts;
- Indentation in the surface of the breasts;
- An old mass that has become larger;
- The texture of the skin is in the shape of an orange peel;
- Unreasonable weight loss;
- Enlargement of the lymph nodes under the armpit;
- Visible vein on the chest.

Having one or more of these symptoms does not mean that you have breast cancer. For example, nipple discharge can be caused by an infection. If you see any of the above symptoms, see your doctor for an examination.

Types of breast cancer

➤ Ductal cancer

In this type of breast cancer, cancer cells grow only inside the breast duct. By touching your breast, if you feel that there is a lump in the breast or if a liquid other than milk comes out of

the nipple, be sure to see a doctor. 80 to 90 percent of those who get breast cancer are of this type.

➤ **Lobular cancer**

With the accumulation of breast milk in these lobules and where there is a hard mass and swelling, the change in the appearance of the breast is one of the symptoms of this cancer, and the diagnosis of this type of cancer is through sampling of the breast tissue.

➤ **Inflammatory cancer**

In this type of breast cancer, the appearance of the breast becomes inflamed, causing redness and swelling of the breast.

The stages you face in breast cancer

The stage of breast cancer is determined based on the pathology results and the results of blood tests and imaging scans. If the presence of breast cancer is confirmed after tests, mammography and ultrasound, it is very important to determine its progress first. Breast cancer has different stages, which include stages 0 to 4 in total, and its stage is determined by a doctor with sampling and tests such as mastectomy and lumpectomy (removal of a part of the breast) and sampling of armpit lymph nodes [14].

Stage zero breast cancer

This period is also called the pre-cancer period, which is considered the first stage of breast cancer, and the most common one is abnormal cell growth in the milk ducts of the breast. This stage of breast cancer is not aggressive and will not spread to other breast tissues, but it can spread to other parts of the breast if not treated in the future. In this type of cancer, the cancer cells have not yet spread to the lymph nodes and other organs of the body. This type of cancer is usually only treated with surgery or radiation therapy [15].

The first stage of breast cancer

Stage 1 breast cancer is aggressive, meaning that the cancer cells have invaded healthy breast tissue. In type 1, usually the tumor will be less than two centimeters long. In this type, the cancer has not spread outside the breast and no lymph nodes have been involved. In stage 1, there is no tumor or its length is less than 2 cm and thin strands of cancer cells are found in the lymph nodes. In stage 1 breast cancer, lobectomy is usually used to save the breast followed by radiation therapy. Chemotherapy may also be considered for tumors larger than one centimeter. A lumpectomy will usually be prescribed to detect cancer in the lymph nodes near the breast.

The second stage of breast cancer

In stage 2 breast cancer, the cancer has grown but is still in the early stages. This stage itself has two categories. In step 2, there is one of the following.

- There were no tumors and less than 4 cancerous lymph nodes under the arm.
- Small tumor (smaller than 2 cm) and cancer in less than 4 lymph nodes under the arm.
- A tumor between 2 and 5 centimeters without involvement of lymph nodes.
- Stage 2B breast cancer can include one of the following stages:
 - A tumor measuring 2 to 5 cm and small strands of cancer cells in the lymph nodes.
 - A tumor between 2 and 5 cm and cancer in less than 4 lymph nodes under the arm.
 - Tumor larger than 5 cm and without lymph node involvement [16].

Although stage 2 breast cancer is larger than stage 1 and can involve the lymphatic system as well, the possibility of treatment and recovery is still very high. In this case, the methods of mastectomy or lobectomy plus radiation therapy and chemotherapy can be used. If it is

effective, the doctor can also use hormonal treatment and targeted treatment methods. In some cases, the lymph nodes will be removed or completely removed.

Stage 3 breast cancer

Stage 3 breast cancer treatment is very diverse. In some cases, the patient's entire breast is removed, which is called a mastectomy. In other cases, the method of saving the breast or lumpectomy (lumpectomy) or radiation therapy and in some cases chemotherapy and removal of the involved lymph node are used. Some patients will also receive hormone therapy and targeted cancer treatment. In some cases, the patient will first undergo chemotherapy to reduce the size of the tumor, and then mastectomy and radiation therapy will take place. Hormone therapy and targeted cancer therapy may also be used if necessary and deemed beneficial. People whose breast cancer is in stage 3 usually undergo surgery to remove at least some of the involved lymph nodes under the arm and may undergo radiation therapy to treat the lymph nodes near the collarbone and breastbone. Stage 3 breast cancer is actually one

of the advanced cases of cancer. At this stage, the cancer cells have reached the lymph nodes, but they have not yet spread to other organs of the body. This stage itself is divided into three categories based on the size of the tumor and the degree of involvement of the lymph nodes.

- Any of the following can be classified as type 3 breast cancer.
- Absence of tumor or presence of tumor of any size and cancer in 4 to 9 cases of adjacent lymph nodes.
- A tumor larger than 4 cm in length and small strands of breast cancer cells in the lymph nodes.
- A tumor larger than 5 cm and cancer in one to three lymph nodes near the breastbone.

Type 3B breast cancer can be any size. This type of cancer occurs in the chest wall or breast skin, which can be accompanied by swelling. This type will also involve up to 9 adjacent lymphatic vessels. Type 3C breast cancer can be a tumor of any size or there can be no tumor at all. This does not include cases where the cancer has spread to 10 or more lymph nodes near the arm and collarbone [17].

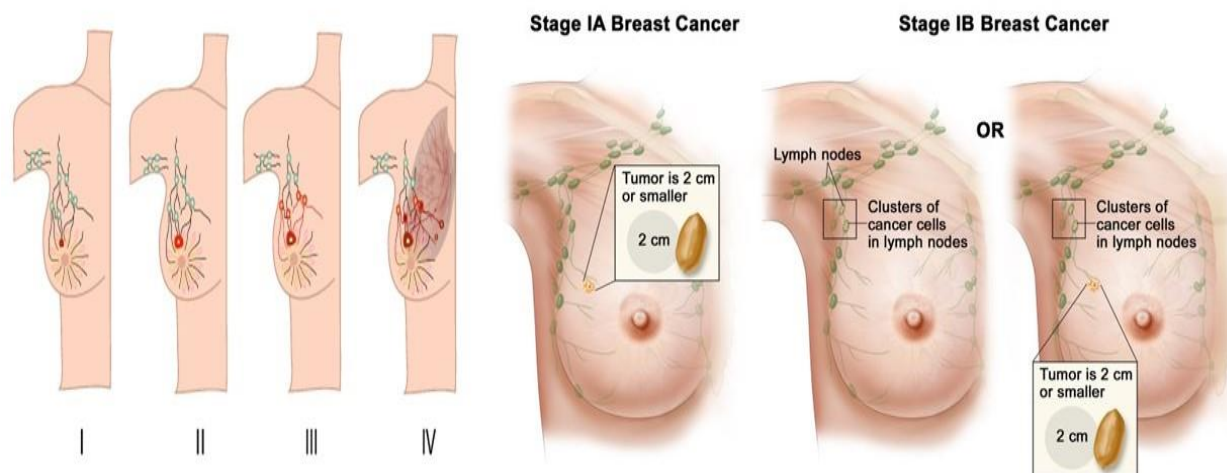


Figure 2. A tumor larger than 5 cm breast cancer

Stage 4 breast cancer

In the 4th stage of breast cancer, breast cancer has found its way to other parts of the body and

metastasized, which can be referred to the bones, liver, brain and lungs. This stage is called metastatic breast cancer, and although it is

usually considered incurable, new treatment methods help patients to survive for a few more years even when their disease has entered advanced stages. The main treatment method, which actually only delays death, is the use of drugs, and in some cases, chemotherapy is also recommended. In women whose breast cancer is fed using female hormones, hormone therapy methods such as tamoxifen or aromatase inhibitors are used to prevent cancer growth. Drugs that target specific characteristics of cancer cells and are used in a method known as targeted therapy can reduce the effects of enzymes and proteins that cause cancer cells to grow. In less cases, surgery and radiation therapy are used to reduce symptoms and complications that reduce the effects of breast cancer such as severe pain.

Breast cancer diagnosis

The onset of breast cancer is different from other types of cancer. This disease, which does not cause many symptoms in the early stages, makes early diagnosis difficult. Since this disease does not show clear symptoms until the advanced stages, it is necessary for women to perform breast screening regularly to diagnose the disease in its early stages. These scans should be performed with a physical examination (by doctors experienced in breast), ultrasound of the breast in women under 40 years of age and physical examination of ultrasound and mammography in women over 40 years of age. At the age of 40 to 50, mammography is recommended every 2 years, and for people over 50, it is recommended annually. The addition of magnetic resonance imaging (MR) to diagnostic methods in breast structures with dense breast and diffuse stiffness makes diagnosis easier. Breast cancer awareness campaigns also emphasize the development of awareness about the disease and the importance of early detection [18-20].

Breast cancer self-examination

Breast cancer screening is very important because there are no obvious symptoms in the early stages. Early detection of breast cancer is more possible as a result of examinations performed by the patients themselves. Breast cancer control that patients do themselves covers the chest and armpit area. In general, these examinations, which should be done once a month by women over 20 years old, are detected early.

These controls should be done 4-5 days after the end of the menstrual period, when the effect of hormones is less than normal. Breast examination can be done in front of the mirror, under the shower or lying down. In front of the mirror, in an environment with sufficient light, it is necessary to check around and under the breasts, nipples and armpits with the hand and visually and with a naked torso. First of all, any abnormality in the size, symmetry and color of the breasts in front of the mirror. nipple drooping; The skin of the breast should be examined from different angles to determine if there is redness [19].

Then the same observation should be done with raised arms. At this stage, it should be noted whether there is swelling, especially in the armpits. In the manual examination, which can be done lying down or standing up, it is checked whether there is a mass under the breast, nipple and armpit or not. In standing touch, the left hand should be used for the right breast and the right hand should be used for the left breast. The circumference of the chest and armpits should be checked by making circular movements with the index, middle and ring fingers and slightly increasing the pressure. In the palpation performed in the supine position, the right arm should be placed above the head to control the right breast and the left arm to control the left breast. At this stage, it is necessary to place a

towel or pillow under the shoulders for examination. Just like standing, it should be checked with circular movements to see if there is a lump around the chest and armpits. At the same time, the nipple should be squeezed to check for discharge or bleeding. If you see a lump or mass while performing these movements, it is necessary to go to the medical center [20].

Common examinations for breast cancer symptoms

Physical exam (the doctor will examine the breasts and skin and look for nipple problems or discharge. He or she may feel the breasts and armpits to look for lumps). The doctor will also ask about your medical history, such as the medications you are taking and the family history of the disease in your first-degree relatives. Because sometimes breast cancer is related to genes, it is important to inform your doctor about the existence of a history of this cancer in your family. Your doctor will also ask about your symptoms and when you first experienced them.

Imaging tests

These items are used to get more information about the breast.

- **Ultrasound:** This test uses sound waves to provide the doctor with an image of the breast tissue.
- **Mammography:** In this X-ray method, it provides a better view of whether the mass is benign or malignant and other problems.
- **Magnetic resonance imaging (MRI):** In this method, a magnet is used to scan the body from a magnetic field connected to the computer to create accurate images of the inside of the chest. MRI is a non-invasive imaging method that can be used to examine the breast tissue.

Biopsy

For this test, tissue or fluid is taken from the breast. To check if cancer cells are present, they are examined under a microscope and if there are cancer cells, what type are they.

Common procedures include:

Fine needle aspiration: This is for tumors that are easy to access or cysts that may be filled with fluid.

Brain needle biopsy: (Core) Tru-cut (Core) In this type, a larger telescopic needle is used to remove a piece of tissue.

Open surgical biopsy: With surgical intervention, the entire tumor is removed along with the adjacent breast tissue.

Lymph node biopsy: A needle biopsy or removal of some of the lymph nodes in the armpit to see if the cancer has spread.

Image-guided biopsy: Imaging is used to guide the biopsy needle.

Family relationship with breast cancer

The risk of developing breast cancer is high in a person who has previously had breast cancer in a female family member. Having breast cancer in a first degree relative (mother, sister or daughter) doubles this risk. The occurrence of first-degree relatives triples the risk. Although the exact amount of risk is not known, breast cancer that is observed in the father or brother of the family increases the risk of developing breast cancer in women as well. However, when evaluated overall, the rate of women with breast cancer having a family history of the disease is less than 15%. This means that more than 85% of women with breast cancer do not inherit this disease from their families.

The importance of personal history in breast cancer

If cancer is diagnosed in one breast, the rate of finding cancer in the other breast or in another part of the same breast is 3-4 times higher. This is different from a recurrence of the primary cancer.

The relationship between breast cancer and race and ethnicity

White women are slightly more likely to develop breast cancer than African American women. However, African American women with breast cancer have a higher survival risk. However, women under the age of 45 who are affected are predominantly African American. In addition, Asian and Hispanic (Hispanic) women have lower breast cancer risk and survival [21].

Dense breast tissue and breast cancer

The breast is composed of fatty tissue, fibrous tissue and glandular tissue. Dense breast tissue (in mammography) means more glandular and fibrous tissue and less fatty tissue, and it is called dense breast. Women who have dense breasts are more at risk of breast cancer. Unfortunately, dense breast tissue may also be inaccurate on mammograms. For this reason, women with dense breasts should talk to their doctor about follow-up. Factors such as age, menopausal status, use of medications (such as menopausal hormone therapy), pregnancy, and genetics affect breast density.

The relationship between breast cancer and menstruation

Women who have early menarche (before age 12), more frequent menstrual cycles, and/or menopause (after age 55) have a slightly higher risk of breast cancer. Long-term exposure to the hormones estrogen and progesterone may be one of the reasons for the increased risk [22].

Who are high-risk groups in breast cancer?

Those who have a lesion that can be considered as a precursor to cancer, those who have already developed cancer in one of their breasts, those who have a genetic predisposition, those who have breast cancer in their family or relatives, those who have long-term use of oral contraceptives, those taking long-term, high-dose estrogen therapy during menopause, those exposed to radiation, those with early and late menstruation, those who have gone through menopause, have never given birth or previously had a first birth. They are the main high-risk groups after the age of 30 and those who eat fatty foods.

How is breast cancer treated?

Depending on the stage of the disease, patient characteristics, and general health, treatment options may include one or more of the following: Surgery, radiation therapy, hormone therapy, chemotherapy, or targeted therapy.

Breast cancer treatment

Breast cancer treatment can be done by local and general methods. Local treatments include surgery and radiation therapy, and general treatments include hormone therapy, chemotherapy, and biological therapy. In some cases, both methods are used. One of the most common methods of treatment is surgery, in which either the cancerous lump or the entire breast tissue is removed. In radiation therapy (radiotherapy), high-energy waves are used to destroy cancer cells. This procedure can usually be done before or after surgery. Also, radiation therapy is used when the mass is large and cannot be removed by surgery. In the chemotherapy method, anti-cancer drugs are used, which are usually used as a combination of several drugs. These drugs are used in injectable or oral form, in which both chemicals enter the bloodstream and go to the whole body. In

hormone therapy, two hormones, estrogen and progesterone, are usually used, which do not allow cancer cells to receive the hormones they need and are destroyed. Biological therapy helps the body's immune system to fight the cancerous mass. In this way, Herceptin (Herception), which is a type of antibody and is made in the laboratory, is usually used and injected into the vein. This method is done either alone or with chemotherapy [23].

How can you protect yourself against breast cancer?

There are ways to prevent breast cancer as much as possible.

- Avoiding carcinogenic substances such as cigarettes and alcohol;
- Healthy eating and regular exercise;
- Care to maintain an ideal weight;
- Breastfeeding in the first 6 months for people who have children;
- Not having children too late;
- Attention to the use of hormonal drugs.

Factors unrelated to breast cancer

These items do not affect the risk of breast cancer:

- Use of antiperspirant;
- Wearing an underwire bra;
- Miscarriage or miscarriage;
- Having fibrocystic breast changes (dense breast tissue with benign cysts);
- Multiple pregnancy;
- Coffee and caffeine;
- Use of hair dye.

Breast reconstruction after breast cancer

In some cases, when the breast cannot be kept due to the size of the lump or its characteristics and growth, it is necessary to remove the breast, and this procedure will cause discomfort to women. With the advancement of medical science and cosmetic surgery, it can be said that after surgery to remove cancerous lumps from

the breast, the breast tissue can be restored, and of course, this action will be possible through breast prostheses.

Check chemicals for safety level

Organizations such as the Food and Drug Administration (FDA) and the Environmental Protection Agency (EPA) rigorously test these chemicals under laws such as the Toxic Substances Control Act to ensure they are safe before they reach the consumer. However, could some of these chemicals have unexplored health effects? Ruthann Rudel, director of research at the Silent Spring Institute in Newton, and fellow Silent Spring scientist Bethsaida Cardona, conducted their research with this in mind. They started asking questions. They sought to identify preventable causes of breast cancer and investigated which chemicals might contribute to an increased risk of developing the disease. As part of their study, Rudel and Cardona reviewed data on 2,000 chemicals listed in the EPA's Toxicity Forecast (a program that screens chemicals for potential health hazards). Their article was published in the journal Environment Health Perspectives [24].

Main findings

In their study, the researchers found 296 chemicals that increase the level of estradiol (a type of estrogen and the main female sex hormone), progesterone, or both estradiol and progesterone in cultured adrenal cells. Of these chemicals, 71 increase Both are hormones. These materials included chemical flame retardants, paints, fungicides and pesticides.

Some of the chemicals in the mentioned items

1.2- Diphenylhydrazine: It is a chemical substance that is used in the production of dyes, medicines and hydrogen peroxide.

Malathion: Is an insecticide in the chemical family known as organophosphates. People usually use it in mosquito control.

Phosmet: Is an organophosphate insecticide that people use to protect apple trees.

Oxyfluorfen is an herbicide that is widely used in agriculture, especially for weed control. In this study, we used new data generated by the EPA to identify commonly used chemicals that have been shown to increase the synthesis of estrogen and progesterone in vessel cells, as this has been directly linked to cancer, Rudel told Medical News Today. Hormone receptor [HR]-positive breasts are related. He also added: There has been a lot of attention in identifying chemicals that bind to the estrogen receptor and activate it - quite similar to estrogen - but no one has identified chemicals that increase the synthesis of estrogen or progesterone. So we used new data for this. Findings show that some of these synthetic chemicals can increase the risk of breast cancer by stimulating two hormones associated with breast cancer (estrogen and progesterone) [25].

The weakness of previous researches in examining the relationship between environmental chemicals and breast cancer

Previous sources have focused solely on endocrine disrupting chemicals and the chemicals' ability to directly bind to and activate the estrogen receptor. In this sense, this study introduces a new dimension in breast cancer research. Because many environmental chemicals are not as activator as endogenous estradiol, this weak activity limits concerns in some assays, Rudel said. However, because the identified chemicals increase the synthesis of estradiol, which is very potent, their effects on breast cancer may be much more severe than imagined. Authoritative sources have suggested that inhibiting or reducing estradiol is effective in preventing or treating breast cancer.

Similarly, in a randomized trial, the use of a combination of estrogen plus progestin—the synthetic form of progesterone that the body produces naturally—in hormone replacement therapy increased the risk of breast cancer. However, scientists are still trying to figure out how these chemicals increase estradiol. One way, they hypothesize, is that these chemicals could act as an aromatase activator—unlike drugs like tamoxifen—and cause cells to produce more of these hormones. The study also suggests that regular exposure from multiple sources is more likely to be effective than one-time or infrequent exposures [26].

How do estrogen and progesterone cause cancer?

According to the American Cancer Society, two out of three breast cancers are HR positive. Being HR positive means that cancer cells may be receiving chemical signals from sex hormones that can promote their growth. Most HR positive breast cancer cases are estrogen receptor positive. Estrogen can cause cancer in two ways: It can stimulate the breast tissue to encourage cells to divide and multiply, during which mutations may occur. Estrogen metabolites can have carcinogenic potential by causing DNA damage and contributing to the development of breast cancer. Similarly, progesterone receptor-positive breast cancer is sensitive to the hormone progesterone. Cells in these cases have receptors that allow them to use this hormone for growth. Hormone therapy can prevent tumors from using estrogen or progesterone, thereby slowing or stopping tumor growth, or it can reduce the levels of these hormones in the body.

Limitations in examining the relationship between environmental chemicals and breast cancer

This study investigates additional risk factors for breast cancer that scientists have not yet

identified; it will be added. "The role of environmental pollutants in breast cancer is particularly poorly understood, but there are valid public concerns about the role of widespread, low-level exposure in exposure to environmental pollutants. However, studying possible connections between cancer and chemicals is difficult.

Essential factors in examining the effect of chemicals on the body

The short half-life of some chemicals, the length of time that cancer spreads in the body, exposure to the accumulation of chemicals and different compounds, and having different physiological characteristics can determine whether these chemicals affect the body, says Dr. Truss. put or not Although it is interesting to see the effect of these chemicals, people should interpret the data with caution. Dr. Johnny Gramley, breast surgical oncologist and director of the Comprehensive Breast Program at the Margie Petersen Breast Center in Santa Monica, California, agrees. "This [research] was in a very

controlled laboratory setting, which is the biggest area of caution because it doesn't necessarily apply to humans, and we definitely don't want to jump to conclusions when we read something like this," Dr Gramley told MNT. He likened this research to charting a route for a journey (Figure 3). You mark points A and B and draw a straight line thinking you want to get there. But in reality, there are many unexpected things when you go on that trip. There are mountains and hills and oceans and things that you can't really predict and it might not be anything. According to Dr. Truss, the results of this study are not surprising. "We continue to learn about the complex ways the environment plays a role in human health," he told MNT. However, no study stands alone. Although this study provides a good summary of chemicals that deserve further investigation, I do not consider this a list of chemicals that are ready for clinical practice. The next step is to determine whether these chemicals have similar effects in animals and humans [27].

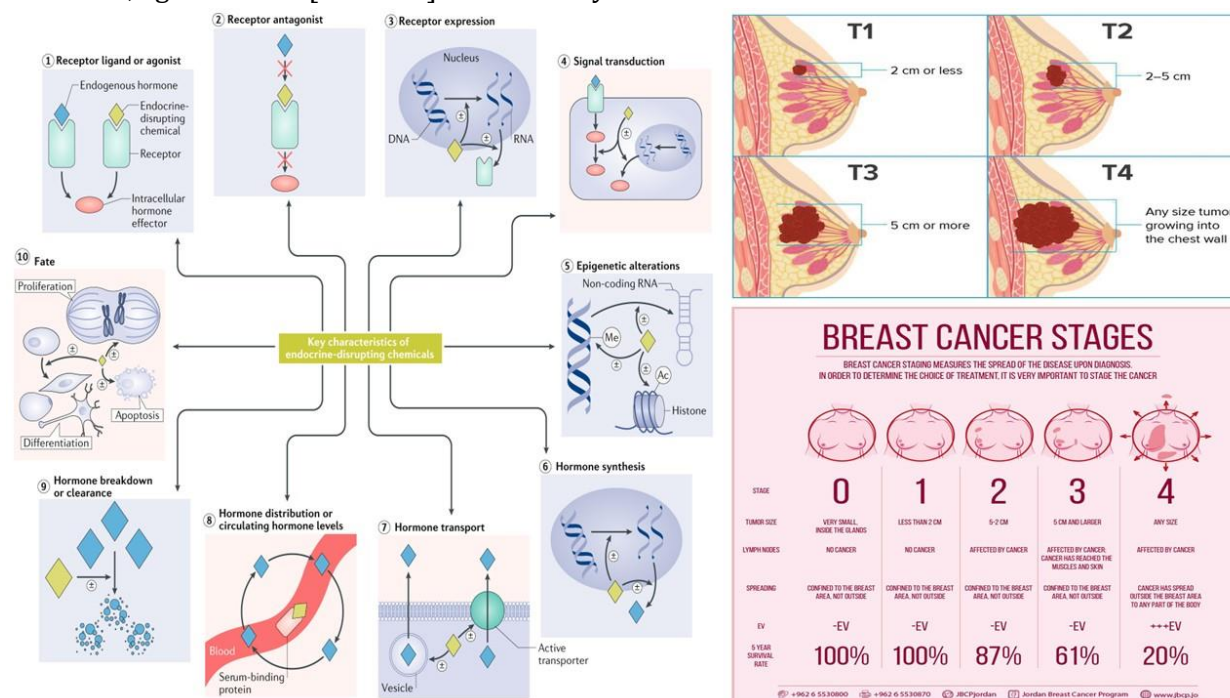


Figure 3. Essential factors in examining the effect of chemicals on the body

Rudel said their research also examines the types of effects scientists have reported when testing these chemicals on laboratory animals. He said: These chemicals have most likely been identified as carcinogens or reproduction or growth toxins. However, many of them have not been tested in this respect. Chemicals have also been found to affect the mammary glands in experimental animals, affecting the risk of breast cancer by increasing the synthesis of estradiol, progesterone, or both.

New regulations are needed

Current methods for testing chemical safety do not appear to include breast-related effects, including effects on breast development, puberty, lactation and cancer, Rudel said. "Doing this study really opened my eyes to the fact that our chemical testing approaches are missing the potential risks of breast cancer because we're not really looking for them," He said. "In the breast cancer community, there is an obvious awareness that estrogen and progesterone are risk factors, and the first-line treatments for HR-positive breast cancer are to reduce these levels or block the estrogen receptor," He told MNT". Therefore, estrogen cannot multiply cells. The researchers recommend that methods of testing possible effects on the breast be strengthened when testing chemicals and identifying possible carcinogens before they are included in consumer products. They also suggest that people are less exposed to such chemicals during critical developmental stages such as puberty and pregnancy [28].

Cosmetic chemicals can damage the DNA of breast cells

A study showed that low doses of two chemicals in cosmetics damage the DNA of breast cells. A new method to examine the effects of two common chemicals used in cosmetics and sunscreens has shown that these substances can cause damage to the DNA of breast cells even at

low concentrations. While the same dose does not damage cells that do not have estrogen receptors. "This research, recently published in the journal *Environmental Health Perspectives*, identifies a new mechanism by which estrogens and xenoestrogens -- substances Environmental chemicals that act like estrogen—can cause breast cancer. Dr. Jerry also serves as scientific director of the Pioneer Valley Life Sciences Institute and as director of the Rays of Hope Research Center with UMass Amherst and Baystate Medical Center. Dr. Jerry explains, "This new research provides more sensitive tools for screening the potentially harmful effects of environmental chemicals than are currently being investigated." He notes that federal agencies such as the Food and Drug Administration (FDA) typically test the toxicity of these chemicals in cell lines that lack estrogen receptors. The two compounds, which were examined in lab-grown cells and the mammary glands of mice, are benzophenone-3, also known as oxybenzone (a UV protectant) and propylparaben, an antimicrobial preservative found in cosmetics and cosmetics. Others were personal care products. Dr. Jerry emphasizes that more research is needed to determine what this discovery means for consumers. He says: "Benzophenone-3 is a sunscreen. If you use it, you can protect yourself from skin cancer.

Do I mean you shouldn't use sunscreen? No. But it may have a significant risk for a subset of people, such as women at high risk of breast cancer or those with a history of estrogen receptor-positive breast cancer." Previous research on the effects of benzophenone-3 (BP-3) and propyl Parabens (PP) were focused on activating certain genes in cancer cells or accelerating their growth. Dr. Jerry says, "These effects require high concentrations that are higher than what most women are exposed to." New research shows that DNA damage occurs in breast cells with estrogen receptors at concentrations that range from 1.10 to 1.30 of

what is needed to stimulate proliferation or gene expression. to exist in lower concentrations than we previously thought. "Dr. Jerry and his colleagues at UMass Amherst, UMass-Baystate Medical Center, and Pioneer Valley Life Sciences Institute decided to investigate the estrogenic effects of PP and BP-3 at concentrations that affect people in the community because "We know that estrogen It can cause breast cancer." He says: "These substances are not toxic unless the cells have estrogen receptors." "So this damage is caused through the estrogen receptor. If you try it in other cells, it won't work."

The relationship between breast cancer and household chemicals

Scientists believe that household chemicals may cause an aggressive form of breast cancer. These include detergents, disinfectants, prescription drugs, and industrial pollutants, according to researchers who presented their results at the annual conference of the Metabolism and Endocrine Society. Of course, other researchers have not reviewed their studies yet. Experts have explained that this research may lead to the discovery of new treatment methods for the treatment of a type of breast cancer known as triple-negative cancer, and people do not need to worry about the chemicals they have in their homes. Triple negative breast cancer includes 10 to 20% of breast cancers. In America, women under 50 and African Americans and Latinos usually get it. The cancer of nearly 70% of people who are diagnosed with breast cancer due to BRCA1 gene mutation is triple-negative breast cancer. This type of cancer is more aggressive than other types and is more difficult to treat. Since in this type of cancer, the tumor does not feed on estrogen and progesterone hormones or HER2 protein, scientists have chosen this name for it.

Therefore, this type of cancer does not respond to hormone therapy or other methods that target HER2 receptors, and instead,

chemotherapy, radiation therapy, and surgery are used. Currently, the only treatment for triple negative breast cancer is chemotherapy, which is not very effective. Therefore, it is very necessary to discover new treatment methods. British researchers studied nuclear receptors to discover possible factors involved in the occurrence of this disease and new treatment methods. These peripheral receptors help control the tissue of breast cells and hormones such as estrogen and progesterone activate them. According to scientists, the chemicals around us may activate these receptors and breast cancer changes their function. Scientists compared the nuclear receptors of 168 samples of cancerous and healthy breast tissues with each other and with the results of previous studies. They sought to find a single pattern in triple-negative cancer receptors. The findings of this research group show that many nuclear receptors present in breast cancer samples have different actions. Using a computer model, they identified specific detergents, disinfectants, industrial pollutants and prescription drugs that can activate these receptors or change the way they function.

Laura Matthews, a member of the research team and an expert in breast cancer and nuclear receptors from the University of Leeds, says: "We are currently investigating how these environmental chemicals change the behavior of normal breast cells to understand how they might towards becoming cancerous. Meanwhile, we are testing to see if the simultaneous use of drug combinations that target nuclear receptors prevents or is an effective treatment for triple-negative breast cancer. Our aim is to reduce the number of breast cancer cases and to provide new treatments. "Let's learn more about the risks of breast cancer and new treatment methods." Although researchers have implicated some chemicals in the occurrence of breast cancer, Hurst emphasizes that products marketed in countries such as Britain are

carefully controlled in terms of safety and health. He further added: "In this research, the direct effect of chemicals on people has not been investigated and it is only based on computer predictions. "So instead of worrying about what you use every day at home, the best thing you can do to reduce your risk of breast cancer is to keep your weight in check and reduce your alcohol intake." Mangesh Thorat, a cancer prevention specialist at King's College London, says in this regard: "Although this preliminary research does not currently have clinical results or impact on public health, it opens new avenues of research into the causes of the type of cancer. "It opens a certain type of breast cancer and the pathogens that have been identified, if they are confirmed and proven in further research, they can help in the treatment of this type of cancer."

Chemicals in dyes accelerate the growth of breast cancer tumors

According to Mehr reporter, quoted by Science Daily, the increasing use of chemicals, especially in medical environments, has raised concerns about their adverse effects on human health. Currently, researchers from Okayama University in Japan have found that three chemicals known as 1-HCHPK, MBB and MTMP produce estrogen-like activity in mice and increase the growth of breast cancer tumors in these animals. These chemicals release reactive molecules in response to UV rays. Due to these properties, these materials are used in a wide range of products including plastics, paints, inks and adhesives. Due to the presence of these compounds in injectable solutions available in the market and the known relationship between estrogen activity and breast cancer, it is necessary to fully investigate their effect on breast tumor growth. The results on the use of such chemicals in medical devices raise alarm and call for the rapid development of safer alternatives. In particular, the presence of these compounds in clinical tools that are routinely

used to treat high-risk individuals such as cancer patients has become a major concern. Dr. Yuichi Kawasaki and Professor Toshiaki Sando sought to better understand these effects. In their recent study, they investigated how exposure to 1-HCHPK, MBB, and MTMP affected the growth of breast cancer tumors in mice.

Diet suitable for breast cancer

Breast cancer can start in different parts of the breast, grow in different ways and require different types of treatment. Just as certain types of cancer respond better to certain treatments, some cancers respond well to certain foods. The following foods can contribute to a generally healthy diet and may also prevent the development of cancer:

- A variety of fruits and vegetables, including salads;
- Foods rich in fiber such as whole grains, beans and legumes;
- Milk and low-fat dairy products;
- Soy-based products;
- Foods rich in vitamin D and other vitamins;
- Spices with anti-inflammatory properties;
- Plant-based foods containing antioxidants.

Food patterns that prioritize these foods include

- The southern diet, which is rich in vegetables, legumes and sweet potatoes.
- A Mediterranean diet that emphasizes fresh fruits and vegetables and healthy oils.
- Any conservative diet that contains large amounts of fruits, vegetables, whole grains, and fish.

Foods suitable for breast cancer

Fruits and vegetables

A study of 91,779 women found that following a plant-based diet could reduce the risk of breast cancer by 15%. In addition to their benefits, fruits and vegetables are rich in flavonoids and carotenoids that appear to have various medical benefits.

Studies have shown that the following foods can prevent breast cancer:

- Dark, green, leafy vegetables such as kale and broccoli;
- Fruits, especially berries and peaches;
- Beans, legumes, fish, eggs and some meat.

Researchers have linked beta-carotene, which is naturally present in vegetables like carrots, to a reduced risk of breast cancer. Scientists speculate that the reason for this may be interference in the growth process of cancer cells.

Dietary fiber and antioxidants

Research on dietary fiber and its effect on breast cancer is currently inconclusive, but many

studies have shown that it can help protect against the disease. Excess estrogen can be a factor in the development and spread of some types of breast cancer. The goal of some treatment methods is to prevent the communication between estrogen and breast cancer cells. Eating a high-fiber diet can support this process and speed up the elimination of estrogen. Fiber supports the digestive system and regular elimination of waste. This substance helps the body to eliminate toxins and limits the damage they can cause. The way fiber binds to estrogen in the gut may help the body prevent more estrogen from being absorbed. These factors help reduce the risk of breast cancer. Fruits, vegetables, whole grains, and legumes provide fiber, but they also contain antioxidants, including beta-carotene and vitamins C and E. Antioxidants can prevent many diseases by reducing the number of free radicals that are waste products and the body produces them naturally. A 2013 meta-analysis found that people who eat more whole grains may have a lower risk of breast cancer.

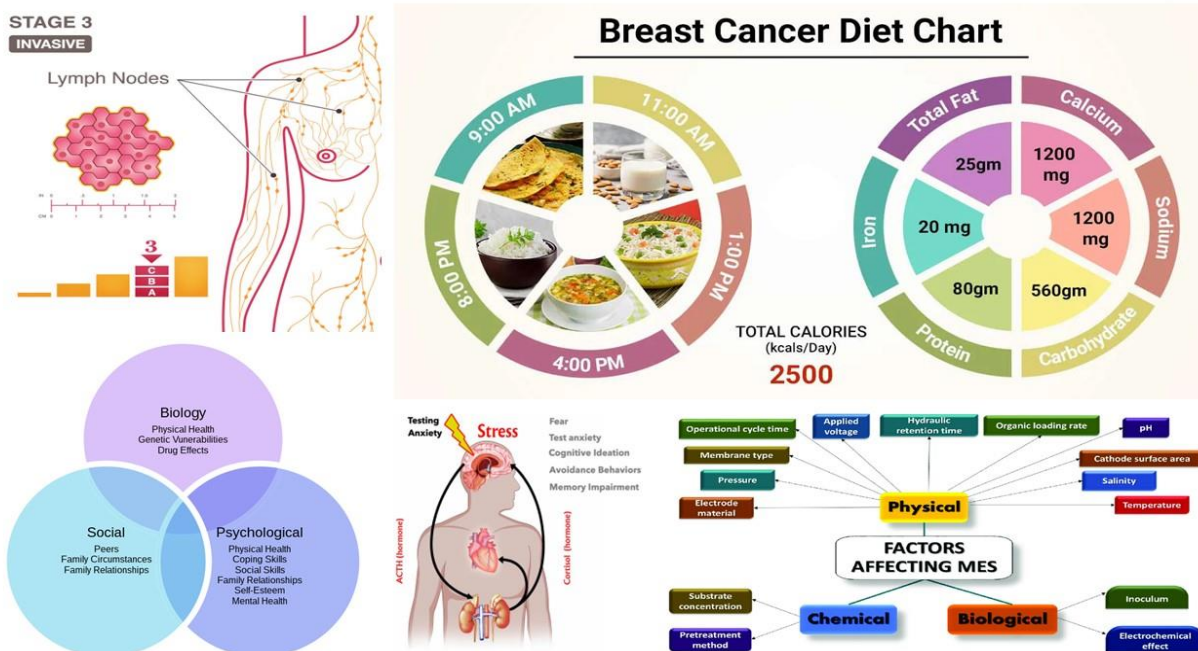


Figure 4. Foods suitable for breast cancer

Useful fats

Fatty foods can lead to obesity, and it seems that people with obesity are more prone to various types of cancer, including breast cancer. Some fat in the diet is necessary for the body to function properly, but it is important to consume the right kind. Monounsaturated and polyunsaturated fats can be beneficial in moderation. They are present in the following cases:

- Olive oil;
- Avocado;
- Grains;
- Nuts.

Cold water fish, such as salmon and herring, contain omega-3 unsaturated fats. This fat may help reduce the risk of breast cancer. A study involving 3,000 women has shown that those who consume high amounts of omega-3 have a 25% lower risk of developing breast cancer. The health benefits of omega-3 fatty acids may be due to their ability to reduce inflammation, and inflammation is a contributing factor in breast cancer.

Soy

Soy is a healthy food source that may help reduce the risk of breast cancer. This vegetable product is rich in protein, useful fat, vitamins and minerals, but it is low in carbohydrates. Also, it contains antioxidants known as iso-flavones. Researchers from a 2016 study looked at data from 6,235 women and concluded that overall consumption of a diet rich in iso-flavones was associated with lower mortality. Researchers were investigating whether soy consumption is a good idea for people with breast cancer. Soy may help lower low-density lipoprotein (LDL) levels and lower the risk of heart disease. Along with obesity, these factors may lead to metabolic syndrome, which includes inflammation. Inflammation may play a role in breast cancer, although the role it plays is

unclear. However, more research is needed in this field to determine the role of soy in breast cancer.

Improper breast cancer diet

Foods that may increase the risk of developing various types of cancer, including breast cancer, include the following:

- Alcohol;
- Sugar;
- Fat;
- Red Meat;
- Processed foods;

Alcohol

Studies have shown a link between regular alcohol consumption and an increased risk of breast cancer. Alcohol may increase estrogen levels and damage DNA. Researchers also note that women who drink three alcoholic drinks per week increase their risk of developing breast cancer by 15%. According to research, with each additional drink per day, the risk increases by 10 percent.

Sugar

In a 2016 study, mice fed a high-sugar diet were more likely to develop mammary gland tumors similar to human breast cancer. In addition, these tumors are more likely to spread or metastasize.

Fat

Studies show that not all fats are bad. Although fat from processed foods appears to increase the risk of breast cancer, some plant-based fats may help reduce it. Trans fat is a type of fat that is common in processed foods. Scientists have associated this issue with a higher risk of breast cancer. Trans fats are commonly found in processed foods such as fried foods, some crackers, donuts, and cookies or packaged sweets. People should reduce their intake of trans fats if possible.

Red Meat

Some studies have shown a link between red meat and an increased risk of breast cancer, especially if a person cooks the meat at high temperatures, which can cause the release of toxins. In addition, processed and frozen meats are high in fat, salt and preservatives. These may increase the risk of breast cancer. In general, minimizing the processing of a food has an effect on its health.

Proper diet during breast cancer treatment

If you are not experiencing breast cancer treatment side effects that are related to nutrition, you can follow a healthy diet during treatment that includes the following:

Fruits and vegetables: 5 servings a day. Fruits and vegetables contain antioxidant and estrogen properties. Cruciferous vegetables such as broccoli, cauliflower, kale, cabbage and Brussels sprouts are packed with nutrients.

Whole grains: 20-30 grams of fiber daily. Whole grains are unprocessed foods that are rich in complex carbohydrates, fiber, chemicals, as well as vitamins and minerals. A study conducted by Chinese researchers has shown that high fiber consumption may have a positive effect by changing the hormonal functions of breast cancer and other hormone-dependent cancers.

Lean protein and soy: To have adequate protein sources, increase the consumption of chicken, fish and legumes such as beans and lentils. Reduce consumption of smoked foods, pickles, etc. Soy should be consumed in moderate amounts, one or two servings per day.

Moderate or zero alcohol consumption
Drinking alcohol is a known risk factor for breast cancer. A large study of 105,986 women found that drinking three or more glasses of wine per week slightly increased women's risk of breast

cancer. This study found that drinking 3 to 6 glasses of the beverage per week increased the risk of breast cancer by 15%. Try to avoid alcoholic beverages if possible.

Carcinogenic chemicals and list of carcinogenic substances

You have probably heard a lot about the existence of some carcinogenic chemicals in the news or from people around you, and you have thought about what this word means for your daily life. Carcinogens can cause cancer. It could be a substance in the air, a product you use, or a chemical in foods and drinks. Just because you were exposed to a carcinogenic chemical does not mean you will get cancer. Your chances of getting sick depend on many things. How long you have been exposed to it is part of it. Your genes also play a role. Researchers use different methods to call substances carcinogenic. Large doses of a substance can be given to laboratory animals to see if they develop cancer. Scientists also review the results of many studies.

Radon carcinogenic chemicals

This gas exists in a small amount in nature, its presence in the open space is completely harmless, but if it accumulates inside the house and you breathe it, radon breaks the lining of your lungs and causes cancer.

Asbestos as a carcinogenic chemical

The hard and fine fibers in asbestos as carcinogenic chemicals help to strengthen products such as roof shingles, roof tiles and car parts. However, if these fibers are released and you breathe them in, they can end up in your lungs. According to studies conducted on people and animals, asbestos has been shown to be a carcinogenic substance. If you come into contact with it at your workplace, use protective clothing.

Crispy and brown foods

When some vegetables, such as potatoes, are heated at high temperatures, they can produce a chemical called acrylamide. Studies show that rats that have consumed acrylamide in their drinking water have developed cancer. Therefore, researchers think that humans may also get cancer if they consume it excessively. Be sure to avoid browning and burning when cooking fried potatoes, onions, or other foods. Acrylamide is also found in many products you buy, as well as in tobacco smoke.

Carcinogenic chemicals called formaldehyde

From plywood to some fabrics, this chemical is used in many household products. Studies on laboratory mice and people who are around formaldehyde in their workplace show that it can cause various types of cancer. Before buying any wood products or furniture for your home, check if they contain formaldehyde. Air your home every day and keep the humidity level low with an air conditioner or dehumidifier [18].

Ultraviolet rays

Studies show that ultraviolet (UV) rays, both from the sun and tanning beds, are absorbed by your skin and damage the cells there. Most cases of skin cancer are caused by UV rays. Pollution and climate change make these rays stronger. To stay safe, protect your skin with sunscreen. Use a hat and sunglasses and avoid tanning salons.

Alcohol and carcinogenesis

The more alcohol you drink, the more likely you are to develop certain types of cancer, such as:

- Head and neck;
- Mary;
- Breast;
- Liver;
- Colorectal.

One of the reasons for this may be carcinogenic chemicals that are produced during the production of beer, wine and hard liquor.

Pollution and its effect on carcinogenesis

Apart from the exhaust, the polluted air in the open space contains dust and traces of metals and solvents that can lead to cancer. You can't prevent pollution, but you can do your part by walking or biking instead of driving. Follow local public health warnings and try to stay indoors as much as possible on days when the air quality is bad.

The effect of hygiene products on breast cancer

The use of cosmetics in Iran is an integral part and many people use any type of cosmetics without any information. The desire to be beautiful has made many cosmetics with different brands and types to enter the market. Although the chemicals in cosmetics cause a better feeling and a more pleasant aroma. Some research shows that in case of excessive exposure to these substances, it can cause various types of cancer, including breast cancer, in people. However, because many chemicals are used in the manufacture of cosmetics and personal care products, it is not possible to say with certainty how each of these substances can cause cancer. But what will the use of these products really do to human health? What materials are used in these products and are these materials dangerous? In this article, we will talk specifically about the impact of the use of cosmetics on human health [19-21].

Aluminum

Aluminum is another material used in many cosmetic products. Underarm creams usually contain aluminum. In lipsticks, the main component of their color is aluminum. It is necessary to pay attention to the ingredients of cosmetic products so that these materials do not contain aluminum or contain very low amounts of aluminum. Research has shown that the use of products containing aluminum may not be

excreted by the kidneys, especially in people who suffer from kidney problems, and this is the reason for their accumulation in the body. As a result of this accumulation, a person may suffer from diseases such as breast cancer, kidney and brain problems and even slow down the treatment process of some diseases (Figure 5).

Phthalates

Phthalates are one of the dangerous substances that are used in some cosmetic products to make them shiny and shiny. In fact, it can be said that this substance is one of the main solvents for making cosmetics, including hair sprays, underarm creams, and perfumes and colognes. According to studies conducted in research in America (CDC), this dangerous substance has an important role in the shelf life of cosmetics and is used in many products that require high shelf life such as varnishes and perfumes. It is easily absorbed by the skin and in the long run it may cause problems such as infertility and breast cancer. It should be noted that in some European countries and the United States, the use of this chemical in cosmetic products has been banned, but still there are people who use illegal methods to produce health and cosmetic products with this material (Figure 5) [23-25].

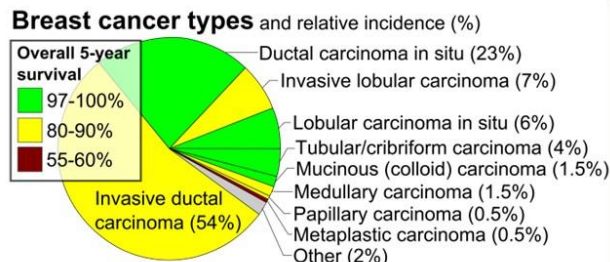
Paraben

Parabens are substances that are used in more than 86% of these products due to their cheap price and properties that increase the lifespan of cosmetic products. Parabens are not only one substance, but many chemicals contain this

substance and parabens themselves also have different types, the presence of each of them in cosmetics will increase the secretion of estrogen hormone in the body. Changes in the balance of estrogen secretion in the body will increase the risk of developing malignant breast tumors and consequently breast cancer. Also, risks such as infertility and skin problems are also among other risks of using this dangerous substance. You may be wondering that the amount of paraben in cosmetics and health products is very low and this amount cannot cause disease. But the point is that human skin is absorbent and the accumulation of products that contain dangerous substances such as parabens will cause those substances to enter the bloodstream and in the long run will cause problems such as breast cancer. As a result, we recommend using lotions, shampoos and products that do not contain parabens. By reading the ingredients on the product box, you will easily understand its ingredients. Therefore, check this issue carefully (Figure 5) [26].

Coal tar

Coal tar is another harmful and dangerous substance that increases the risk of cancer in people. This material is used in many cosmetic products such as eyeliner, mascara and eyeliner. Other harmful chemicals such as formaldehydes, surfactants, siloxanes, petroleum substances, etc. are used in cosmetics and health products, which cause various diseases, including breast cancer [27-29].



Bisphenol A (BPA)

WHAT:

BPA is a synthetic estrogen that can disrupt the hormone system. It is an unstable, lipophilic (fat-seeking) compound that can leach into food products, especially when heated.

FOUND:

BPA is in common products, including polycarbonate plastic, dental sealants, thermal receipts, consumer products such as CDs and sports equipment, and epoxy resins used to line food cans.

SCIENCE:

BPA is a reproductive toxicant on California's Proposition 65 Chemicals of Concern list. There are considerable studies linking BPA exposure to breast cancer.

TOP TIP:

Avoid canned foods when possible, using fresh or frozen instead. Choose glass and stainless steel water bottles and food containers instead of plastic.



Hormones in Personal Care Products

WHAT:

Hormones are added to some hair care products to promote growth and hair thickness. They are also added to some anti-aging creams.

FOUND:

Hair care products, such as hair relaxers and hair dyes typically marketed to women of color, as well as anti-aging creams.

SCIENCE:

Scientists believe that use of these hormone-altered products might be contributing to the increased incidence of breast cancer, especially among young Black women.

TOP TIP:

Avoid products with placenta or placental extract. Avoid skin products with estrogen.

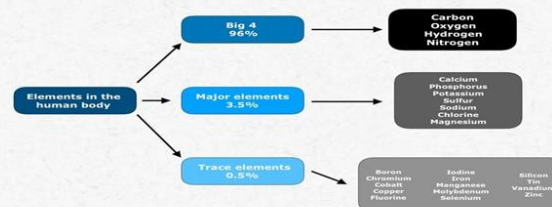


Figure 5. The effect of hygiene products on breast cancer

The effect of ingredients in sanitary ware on breast cancer

Researching the ingredients in the products you buy is the least you can do to improve your health. As mentioned, there are many cosmetic and health products that are available in the market due to the acceptance of women and men. Be sure to pay attention to the label of the Ministry of Health and try to use known products. Many companies producing cosmetics and health products try to use cheap and very harmful ingredients and compounds to lower their costs. As a result, we recommend that you research before buying and do not trust any brand [29-31]. The harmful effect of each of these chemicals will multiply with the expiration of the products, so in addition to buying from reputable brands and paying attention to the ingredients of cosmetic products, the expiration date of the products should also be considered. In general, products such as lipsticks last for two years, creams for about 18 months, mascara and eyeliner for 4 months, and perfumes and colognes for about 8 years. In general, it is better

to check the expiration date according to the type and brand of the products. In general, pay attention to this issue, due to the higher use of cosmetics in young people, breast cancer in young people is more due to the use of cosmetics than in adults [32-34].

Risks of breast chemotherapy

Side effects usually start within 24-48 hours and usually subside within 7-10 days. Some side effects may be prolonged. Doctors recommend different treatment methods to prevent or treat side effects to their patients. Talk to your oncologist about any side effects you may have.

Important recommendations during chemotherapy

During chemotherapy, it is very important for the patient to maintain his weight for the course of the disease, prognosis and quality of life. If this is not possible through regular food intake, there are protein-rich supplements to drink or protein powder to maintain or increase the patient's lean body mass [35-37].

The result of chemotherapy in the treatment of breast cancer

This type of treatment is usually prescribed to control, inhibit the growth of malignant tumor and relieve the symptoms of the disease. This treatment does not always give 100% results, because cancer cells have the ability to get used to and resist the substances used in this treatment method [36-38].

Chemotherapy drugs for breast cancer Chemotherapy drugs

Based on characteristics such as: Tumor size, tumor location, its aggressiveness, disease spread, etc., doctors consider the most suitable drug combination. Some of these drugs include:

- Adriamycin [39];
- Epirubicin [40];
- Cyclophosphamide [41];
- Docetaxel [42].

Conclusion

Breast cancer is one of the most common cancers, and if it is diagnosed quickly, the chance of successful treatment of the patient increases. Breast cancer starts from a single cell. Cells, which are the smallest building blocks of living organisms in the body, grow within specific rules, but cancer cells grow much faster than other healthy cells and grow to the point where they destroy healthy cells as well, and these cancer cells cannot stop their growth. This condition can be hereditary or other factors can affect the disorder of cells. If breast cancer symptoms are ignored, it can be dangerous and cause metastasis (transition to other parts of the body). For this reason, if you see symptoms, you should take them seriously. One out of seven women will be diagnosed with breast cancer during their lifetime. Factors that cause breast cancer include family history, age (over 35 years old), onset of menstruation before the age of 12, early or late onset of menopause, excessive obesity, lack of pregnancy, etc. The chemicals

and compounds mentioned in this article are just a few examples of the compounds used in cosmetics and health products that can endanger human health. According to the studies conducted, more than 800 types of chemicals have been used in cosmetics and health products, and each of these substances alone can cause skin problems, damage to the nervous system and cause many disturbances in his hormones. Disturbances in hormones can also be the background of various types of cancers, including breast cancer. With breast self-examination at home, you can be aware of your clinical changes sooner and start your breast cancer treatment sooner if needed. For cancer patients, good and proper nutrition is very effective in all stages of treatment. Cancer treatment methods affect the metabolism of the patient's body and the absorption of needed substances; Of course, this is different in each patient's body. Your diet should contain a lot of vegetables, vitamins and proteins to cover all the needs of your body. Mortality of people with breast cancer depends on the stage of their cancer. Early diagnosis and treatment usually results in a positive outlook. According to the ACS, a person with stage 0 or stage 1 breast cancer will be cured. People have a 99% chance of surviving for at least 5 years after diagnosis, compared to women who do not have cancer. If breast cancer reaches stage 4, the probability of survival in the next 5 years decreases by about 27%. Regular checkups and screenings can help detect symptoms early. Women should discuss their options with a doctor.

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