


Side Effects of Chemotherapy [1]

 Watch the [Cancer.Net Video: Managing Side Effects of Chemotherapy, with Lynn Schuchter, MD\[2\]](#), adapted from this content.

This is the third article in a three-part series, and it describes side effects of chemotherapy. The other articles in this series provide an overview of chemotherapy[3], including the various types, and address what to expect[4] before, during, and after treatment.

Although it is an effective treatment for many types of cancer, chemotherapy?like other cancer treatments?often causes side effects. The types and intensity of these side effects vary from person to person and depend on the type and location of cancer, the treatment dose, and the person's overall health.

Chemotherapy targets cells that are actively growing and dividing. Although this is a defining characteristic of cancerous cells, it is also a feature of some actively growing normal cells, such as cells in the blood, mouth, intestines, and hair. Side effects occur when the chemotherapy damages these healthy cells that maintain the body's function and appearance.

Doctors and scientists are continually working to identify new drugs, methods of administering (giving) chemotherapy, and combinations of existing treatments that have fewer side effects. As a result, many types of chemotherapy are easier to tolerate than medications used even a few years ago. In addition, doctors have made major strides in recent years in reducing pain, nausea and vomiting, and other physical side effects. Your health care team will work with you to prevent or manage many of these side effects. This approach is called [palliative or supportive care \[5\]](#) and is an important part of cancer treatment.

Common side effects of chemotherapy

Different drugs cause different side effects. Although specific side effects may be predictable for certain classes of drugs, each person's experience with chemotherapy is unique. Talk with your doctor about specific side effects you may experience or are experiencing. With most types of chemotherapy, the presence and intensity of side effects are not measures of how well the treatment is working. However, some side effects of targeted therapy do, in fact, indicate the medication?s effectiveness. Learn more about [targeted therapy \[6\]](#).

Common side effects caused by traditional chemotherapy drugs include:

Fatigue. Fatigue (a persistent sense of tiredness or exhaustion) is the most common symptom reported by patients receiving chemotherapy. Learn more about [fatigue](#) [7] and [how to cope](#) [8] with it.

Pain. Chemotherapy can cause pain for some people, including headaches, muscle pain, stomach pain, and pain from nerve damage, such as burning, numbness, or shooting pains (most often in the fingers and toes). Pain usually diminishes over time, but some people may have symptoms for months or years after chemotherapy has finished due to permanent damage to the nerves. Doctors can manage pain by treating the source of the pain; changing the perception of pain, usually with pain-relieving medications; or interfering with pain signals sent to the brain through spinal treatments or nerve blocks. Learn more about [cancer pain](#) [9] and [how to manage it](#) [10].

Sores in the mouth and throat. Chemotherapy can damage the cells that line the mouth and throat. The sores (also called mucositis) usually develop five to 14 days after receiving chemotherapy. Although the sores may become infected, they usually heal completely when treatment is finished. Patients receiving chemotherapy who have unhealthy diets and/or poor dental hygiene increase their risk of mouth and throat sores. Learn more about [managing mucositis](#) [11] and [oral health during cancer treatment](#) [12].

Diarrhea. Certain chemotherapy causes loose or watery bowel movements. Preventing diarrhea or treating it early helps a person avoid becoming dehydrated (the condition when the body does not get the amount of fluids it needs) or developing other problems. Learn more about [managing diarrhea](#) [13].

Nausea and vomiting. Chemotherapy can cause nausea (an urge to vomit or throw up) and vomiting—a risk that depends on the type and dose of chemotherapy. With appropriate medications, nausea and vomiting can be prevented in nearly all patients. Learn more about [nausea and vomiting](#) [14] and about [ASCO's guideline for preventing these side effects](#) [15].

Constipation. Chemotherapy—as well as some drugs to treat nausea and vomiting, pain, depression, diarrhea, and high blood pressure—may cause constipation (the infrequent or difficult passage of stool). Patients may also increase their risk of constipation by not drinking enough fluids, not eating balanced meals, or not getting enough exercise. Learn more about [managing constipation](#) [16].

Blood disorders. Chemotherapy affects the production of new blood cells in the bone marrow, the spongy, inner mass of the bone. Symptoms and complications arising from low blood counts are among the most common side effects of chemotherapy.

A test called a [complete blood count \(CBC\)](#) [17] will indicate the levels of red blood cells (RBCs) and white blood cells (WBCs) in the blood. An abnormally low level of RBCs results in anemia. This condition decreases the body's ability to carry oxygen throughout the body, resulting in fatigue, dizziness, or shortness of breath. A lower than normal number of WBCs (called leukopenia) increases the body's risk of infection. Infections that occur when WBCs are low can

quickly become serious and require prompt treatment with antibiotics.

A second type of test, called a platelet count, measures the number of platelets (blood cells that stop bleeding by plugging damaged blood vessels and helping the blood to clot) in your blood. People with thrombocytopenia (a shortage of platelets) bleed and bruise more easily.

These conditions can be treated with medications that stimulate the bone marrow to make more blood-forming cells that develop into RBCs, WBCs, and platelets. Learn more about managing [anemia](#) [18], [infection](#) [19], and [thrombocytopenia](#) [20].

Nervous system effects. Some drugs cause nerve damage, resulting in one or more of the following nerve- or muscle-related symptoms:

- Tingling
- Burning
- Weakness or numbness in the hands and/or feet
- Weak, sore, tired, or achy muscles
- Loss of balance
- Shaking or trembling
- Stiff neck
- Headache
- Visual problems
- Walking problems
- Difficulty hearing
- Clumsiness

These symptoms usually improve when the chemotherapy dose is lowered or treatment is stopped; however, in some cases, the damage is permanent. Learn more about [managing nervous system side effects](#) [21].

Changes in thinking and memory. Some patients experience difficulty thinking clearly and concentrating after chemotherapy. Cancer survivors often refer to this side effect as "chemo brain," while doctors may refer to it as cognitive changes or [cognitive dysfunction](#) [22]. Learn more about [managing Attention, Thinking or Memory Problems \(ATMP\)](#) [22].

Sexual and reproductive issues. Chemotherapy can affect sexual function and fertility (a woman's ability to conceive a child or maintain a pregnancy and a man's ability to father a child). Talk with your doctor about the possible sexual and reproductive side effects before treatment begins. Learn more about [managing sexual and reproductive side effects](#) [23].

In addition, chemotherapy is capable of harming a fetus (unborn baby) during pregnancy, particularly if given during the first trimester of pregnancy when the fetus' organs are still developing. Women should take precautions to avoid pregnancy during treatment and tell their doctor if they become pregnant. Learn more about [pregnancy and cancer](#) [24].

Appetite loss. People receiving chemotherapy may eat less than usual, not feel hungry at all, or feel full after eating only a small amount. Ongoing appetite loss can lead to weight loss, malnutrition, and loss of muscle mass and strength, which can hinder the body's ability to

recover from chemotherapy. Learn more about [managing appetite loss](#) [25].

Hair loss. Patients receiving chemotherapy may lose hair from all over the body, gradually or in clumps. This side effect most often starts after the first several weeks or rounds of chemotherapy and tends to increase one to two months into treatment. Learn more about [managing hair loss](#) [26].

Long-term side effects. Most side effects of chemotherapy disappear at the end of treatment. However, some side effects may continue, come back, or develop later. For instance, certain types of chemotherapy are associated with permanent organ damage to the heart, lung, liver, kidneys, or reproductive system. In addition, some people find that cognitive functions (such as thinking, concentrating, and memory) remain a challenge for months or years after treatment. Nervous system changes can also develop after treatment, and children who have received chemotherapy may experience [late effects](#) [27] (side effects that occur months or years after cancer treatment). Cancer survivors also have a higher risk of developing second cancers later in life.

Follow-up care is essential for all cancer survivors and may include regular physical examinations and/or medical tests to monitor recovery in the months and years after cancer treatment. ASCO offers [cancer treatment summary forms](#) [28] to help keep track of the cancer treatment you received and develop a survivorship care plan once treatment is completed.

More Information

[29]

[Managing Side Effects](#) [30]

[Managing Side Effects of Chemotherapy, with Lynn Schuchter, MD \(Video\)](#) [2]

[Coping With the Fear of Treatment-Related Side Effects](#) [31]

Additional Resources

[32]

[National Cancer Institute: Chemotherapy Side Effects](#) [32]

[CancerCare: Understanding and Managing Chemotherapy Side Effects](#) [33]

[34]

[Chemocare.com: Managing Chemotherapy Side Effects](#) [34]

Links:

[1] <http://www.cancer.net/navigating-cancer-care/how-cancer-treated/chemotherapy/side-effects-chemotherapy>

[2] <http://www.cancer.net/node/27141>

[3] <http://www.cancer.net/node/24723>

[4] <http://www.cancer.net/node/24473>

[5] <http://www.cancer.net/node/25282>

[6] <http://www.cancer.net/node/24729>

[7] <http://www.cancer.net/node/25048>

- [8] <http://www.cancer.net/node/24490>
- [9] <http://www.cancer.net/node/25259>
- [10] <http://www.cancer.net/node/24585>
- [11] <http://www.cancer.net/node/25051>
- [12] <http://www.cancer.net/node/24499>
- [13] <http://www.cancer.net/node/25247>
- [14] <http://www.cancer.net/node/25052>
- [15] <http://www.cancer.net/node/25711>
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- [23] <http://www.cancer.net/node/25240>
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- [25] <http://www.cancer.net/node/25043>
- [26] <http://www.cancer.net/node/25251>
- [27] <http://www.cancer.net/node/24571>
- [28] <http://www.cancer.net/node/25394>
- [29] <http://www.cancer.net/all-about-cancer/treating-cancer/managing-side-effects>
- [30] <http://www.cancer.net/node/25238>
- [31] <http://www.cancer.net/node/24492>
- [32] <http://www.cancer.gov/cancertopics/coping/chemotherapy-and-you/page5>
- [33] http://www.cancercare.org/reading_room/booklets/ccc_chemo.html
- [34] <http://chemocare.com/chemotherapy/side-effects/default.aspx>