

# Chemotherapy and Side Effects

## What is chemotherapy?

Chemotherapy is the use of anti-cancer drugs to treat cancer. It can stop the growth of a tumor in the breast and kill cancer cells that have spread to other parts of the body. Chemotherapy may also be used to reduce the risk of breast cancer returning (recurrence), and to shrink the size of a tumor to reduce cancer-related symptoms.

## How is it given?

Chemotherapy may be given after surgery (called *adjuvant chemotherapy*) or before surgery (known as *neoadjuvant chemotherapy*). A few anti-cancer drugs are taken by mouth or injected into the muscle or fat tissue below the skin, but most are injected into a vein. Treatments can be given at home, at the doctor's office or in the hospital — depending on the type of chemotherapy.

## When is it given?

Chemotherapy usually starts within 4 to 12 weeks after surgery. It is commonly given on a 21 or 28-day cycle. Drugs are generally given weekly or once every third week, with a rest period to allow your body to recover. The length of the cycle will depend on the type of drugs used. The length of the treatment period will vary, but it often lasts from 3 to 6 months.

## Common drugs given

In most cases, chemotherapy is most effective when combinations of drugs are given. Using different drugs together increases their ability to kill cancer cells. The drugs used depends on factors such as your age, the cancer type and stage. Some drugs that are used together most often are listed below:

- Cyclophosphamide (Cytoxan)
- Doxorubicin (Adriamycin) or Epirubicin (Ellence)
- 5-fluorouracil (Adrucil)
- Methotrexate (Rheumatrex)
- Paclitaxel (Taxol) or Docetaxel (Taxotere)

## Combinations

Drug Combinations	Drug Names
CMF:	cyclophosphamide (Cytoxan), methotrexate (Rheumatrex), and 5-fluorouracil (Adrucil)
CAF (FAC):	cyclophosphamide (Cytoxan), doxorubicin (Adriamycin), and 5-fluorouracil (Adrucil)
AC:	doxorubicin (Adriamycin) and cyclophosphamide (Cytoxan)
TAC:	docetaxel (Taxotere), doxorubicin (Adriamycin), and cyclophosphamide (Cytoxan)
AC --> T:	doxorubicin (Adriamycin) and cyclophosphamide (Cytoxan) followed by paclitaxel (Taxol) or docetaxel (Taxotere)
CT:	docetaxel (Taxotere) and cyclophosphamide (Cytoxan)

## Coping with side effects

Chemotherapy can also have side effects. The good news is most of these side effects are temporary. Also, the management of side effects has improved in recent years. Doctors are now using medications that can help relieve or prevent some of the side effects.

## Common side effects

Side effects from chemotherapy depend on the drug or combination of drugs used. Side effects vary from person to person. Some of the most common side effects are described below.

### Nausea and vomiting

Drugs called *antiemetics* can help reduce or prevent nausea and vomiting that can occur during chemotherapy. Eating several small meals throughout the day may also help.

### Hair loss (alopecia)

During treatment, your hair may get thinner or may fall out entirely, depending on which chemotherapy drugs you are given. You may also have hair loss from your eyebrows, eyelashes and body. Your hair will grow back after treatment ends, but it may be a different color or texture. Using mild shampoos, soft hair brushes and low heat when drying your hair may help reduce hair loss. Some women may choose to cut their hair short beforehand to gain some control. If you would like to wear a wig, it is a good idea to get it before treatment begins so you can match your hair color and style.

### Early menopause (when your menstrual period stops)

Some women may have menopausal symptoms such as their menstrual periods stopping, hot flashes and vaginal dryness during treatment. For women who are closer to the age of menopause (45 years or older), these symptoms may be permanent. For younger women, these symptoms may be temporary. Your doctor can help you manage these symptoms.

### Fatigue

This is a common side effect. Try to get plenty of rest and ask family and friends to help. Exercise and a well-balanced diet may also help. Your doctor may also use a medication that may reduce fatigue.

### Infections

Because chemotherapy reduces the white blood cell count, infections are more likely to occur. You can help prevent infections by washing your hands often and staying away from others who are ill. If you get a cut or nick, clean it right away. Your doctor should check your

blood cell count before each treatment to make sure it is high enough to safely give you chemotherapy. If you have any sign of infection such as fever while on chemotherapy, you should contact your doctor right away.

### Mouth and throat sores

Because the cells in the mouth and throat are fast-growing, some chemotherapy drugs affect these areas causing sores or dryness. Get a dental check-up before starting chemotherapy. During treatment, brush your teeth and gums after each meal and at bedtime using a soft toothbrush. Using a toothpaste with baking soda and peroxide can also help. Avoid mouthwashes that contain large amounts of alcohol.

### Weight gain

Although the reasons are unclear, some women gain weight during chemotherapy. Eating nutritious food and exercising can help maintain your normal weight.

### Nail weakness

Some treatments can cause damage to the fingernails and toenails. The nails become brittle and sore, and may fall off. Like hair loss, nail problems are temporary.

### Memory problems (chemo-brain)

Chemotherapy may lead to a general sense of mental fuzziness and short term memory problems. Most women say that these symptoms improve with time.

## Resources

Susan G. Komen for the Cure®

1-877 GO KOMEN (1-877-465-6636), [www.komen.org](http://www.komen.org)

*Questions to Ask the Doctor*

[www.komen.org/questions](http://www.komen.org/questions)

American Cancer Society

1-800-ACS-2345, [www.cancer.org](http://www.cancer.org)

### Related fact sheets in this series:

- Clinical Trials
- Getting the Support You Need
- Making Treatment Decisions

---

The above list of resources is only a suggested resource and is not a complete listing of breast health and breast cancer materials or information. The information contained herein is not meant to be used for self-diagnosis or to replace the services of a medical professional. Komen for the Cure does not endorse, recommend or make any warranties or representations regarding the accuracy, completeness, timeliness, quality or non-infringement of any of the materials, products or information provided by the organizations referenced herein.

Developed in collaboration with the Health Communication Research Laboratory at Saint Louis University. ©2009 Susan G. Komen for the Cure. Item No. KOMED082000 10/09