

Sarcoma, Soft Tissue - Treatment Options [1]

This section has been reviewed and approved by the [Cancer.Net Editorial Board](#) [2], 07/2014

ON THIS PAGE: You will learn about the different ways doctors use to treat people/children with this type of cancer. To see other pages, use the menu on the side of your screen.

This section outlines treatments that are the standard of care (the best proven treatments available) for this specific type of cancer. When making treatment plan decisions, patients are also encouraged to consider clinical trials as an option. A clinical trial is a research study to test a new approach to treatment to evaluate whether it is safe, effective, and possibly better than the standard treatment. Clinical trials may test such approaches as a new drug, a new combination of standard treatments, or new doses of current therapies. Your doctor can help you review all treatment options. For more information, see the [Clinical Trials](#) [3] and [Current Research](#) [4] sections.

Treatment overview

In cancer care, different types of doctors often work together to create a patient's overall treatment plan that combines different types of treatments. This is called a [multidisciplinary team](#) [5].

Surgery is the most common first treatment for sarcomas that are small and in specific locations. If the tumor cannot be removed by surgery, it may be possible to permanently control its growth with radiation therapy. For a tumor that can be surgically removed, radiation therapy and/or chemotherapy may be given before or after surgery to reduce the risk of cancer coming back after treatment, which is called a recurrence. Chemotherapy and radiation therapy may also be used to reduce the size of the sarcoma or relieve pain and other symptoms.

Descriptions of the most common treatment options for sarcoma are listed below. Treatment options and recommendations depend on several factors, including the type, stage, and grade of sarcoma, possible side effects, and the patient's preferences and overall health. Your care plan may also include treatment for symptoms and side effects, an important part of cancer care. Take time to learn about all of your treatment options and be sure to ask questions about things that are unclear. Also, talk about the goals of each treatment with your doctor and what you can expect while receiving the treatment. Learn more about [making treatment decisions](#) [6].

Surgery

Surgery is the removal of the tumor and surrounding tissue during an operation.

Before surgery, it's important to have a biopsy to confirm the diagnosis (see [Diagnosis \[7\]](#)). After a biopsy, surgery is typically the first and main treatment for an STS that is small and located in only one area. Surgical oncologists and orthopedic oncologists are doctors who specialize in treating cancer using surgery.

The surgeon's goal is to remove the tumor and enough normal tissue around it to leave behind a "clean margin," which means there are no tumor cells left in the area where the tumor was removed. Small sarcomas can usually be effectively eliminated by surgery alone. Those larger than 5 cm are often treated with a combination of surgery and radiation therapy. Radiation therapy or chemotherapy may be used before surgery to shrink the tumor and make removal easier, or they may be used during and after surgery to kill any remaining cancer cells. Learn more about [cancer surgery \[8\]](#).

Radiation therapy

Radiation therapy is the use of high-energy x-rays or other particles to destroy cancer cells. A doctor who specializes in giving radiation therapy to treat cancer is called a radiation oncologist. The most common type of radiation treatment is called external-beam radiation therapy, which is radiation given from a machine outside the body. When radiation treatment is given using implants, it is called internal radiation therapy or brachytherapy. A radiation therapy regimen (schedule) usually consists of a specific number of treatments given over a set period of time.

Radiation therapy may be done before surgery to shrink the tumor so that it may be more easily removed. Or it may be done after surgery to remove any cancer cells left behind. Radiation treatment may make it possible to do less surgery, often preserving the arm or leg if the sarcoma is located in one of those places.

Radiation therapy can also damage normal cells, but because it is focused around the tumor, side effects are usually limited to those areas.

In the short term, radiation can cause injury to the skin that looks like a sunburn and is usually treated with creams that keep the skin soft and helps relieve pain. In the long term, radiation can cause scarring that limits the function of an arm or a leg. In rare cases, radiation can cause a sarcoma or other cancer. Each person is encouraged to talk with his or her doctor about the possible risks and benefits of a specific treatment such as radiation therapy.

Most radiation therapy side effects go away soon after treatment ends. Newer radiation techniques, including proton therapy (see [Current Research](#)), may help control sarcoma and cause fewer short-term and long-term side effects.

Brachytherapy as outpatient treatment. Doctors are now often able to give brachytherapy as an outpatient procedure. Traditionally, patients stayed in the hospital while the radioactive seeds were in place. This newer method uses specialized equipment that can painlessly insert the

radiation seeds and remove them after about 15 minutes one or two times a day. This may allow some patients to go home during treatment. For patients who need to stay in the hospital while they are still recovering from surgery, this method allows them to avoid being placed in an isolated, shielded room because they will be free of radioactivity for most of the day, meaning they can enjoy visits from family and friends without concern about radiation exposure.

Learn more about [radiation therapy](#) [9].

Chemotherapy

Chemotherapy is the use of drugs to destroy cancer cells, usually by stopping the cancer cells' ability to grow and divide. Chemotherapy is given by a medical oncologist, a doctor who specializes in treating cancer with medication.

Systemic chemotherapy is delivered through the bloodstream to reach cancer cells throughout the body. Common ways to give chemotherapy include an intravenous (IV) tube placed into a vein using a needle or in a pill or capsule that is swallowed (orally). A chemotherapy regimen usually consists of a specific number of cycles given over a set period of time. A patient may receive one drug at a time or combinations of different drugs at the same time.

Different drugs are used to treat different types and subtypes of sarcoma. Chemotherapy for sarcoma can usually be given as an outpatient treatment. Some types of chemotherapy that might be used alone or in combination for STS include:

- Dacarbazine (DTIC-Dome)
- Docetaxel (Taxotere)
- Doxorubicin (Adriamycin)
- Epirubicin (Ellence)
- Gemcitabine (Gemzar)
- Ifosfamide (Cyfos, Ifex, Ifosfamidum)
- Liposomal doxorubicin (Doxil, Dox-SL, Evacet, LipoDox, Caelyx)
- Pazopanib (Votrient)
- Temozolomide (Methazolastone, Temodar)
- Trabectedin (Yondelis), used in Europe

The following drugs are used for certain subtypes of sarcoma.

For [GIST](#) [10]:

- Imatinib (Gleevec)
- Regorafenib (Stivarga)
- Sunitinib (Sutent)

For angiosarcoma:

- Bevacizumab (Avastin)
- Docetaxel (Docefrez, Taxotere)
- Paclitaxel (Taxol)

- Sorafenib (Nexavar)

For rhabdomyosarcoma [11] and Ewing sarcoma [12] of soft tissue or bone:

- Actinomycin (Cosmegen, Lyovac Cosmegen)
- Cyclophosphamide (Cytosan, Clafen, Neosar)
- Etoposide (VePesid, Toposar)
- Irinotecan (Camptosar)
- Topotecan (Hycamtin)
- Vincristine (Oncovin, Vincasar)

Chemotherapy is often used when a sarcoma has already spread. It may be given alone or in combination with surgery and/or radiation therapy. For example, certain types of sarcoma may be treated with chemotherapy before surgery to make the tumor easier to remove. Chemotherapy given before surgery may be called by different names, including preoperative chemotherapy, neoadjuvant chemotherapy, or induction chemotherapy.

If a patient has not received chemotherapy before surgery, chemotherapy may be given to destroy any microscopic tumor cells that remain after a patient has recovered from surgery. Chemotherapy given after surgery is called adjuvant chemotherapy or postoperative chemotherapy.

The side effects of chemotherapy depend on the individual and the dose used, but they can include fatigue, risk of infection, nausea and vomiting, hair loss, loss of appetite, and diarrhea. These side effects usually go away once treatment is finished.

Learn more about chemotherapy [13] and preparing for treatment [14]. The medications used to treat cancer are continually being evaluated. Talking with your doctor is often the best way to learn about the medications prescribed for you, their purpose, and their potential side effects or interactions with other medications. Learn more about your prescriptions by using searchable drug databases [15].

Targeted therapy

Targeted therapy is a treatment that targets the cancer's specific proteins or the tissue environment that contributes to cancer growth and survival, usually by blocking the action of proteins in cells called kinases. This type of treatment blocks the growth and spread of cancer cells while limiting damage to normal healthy cells.

Recent studies show that not all tumors have the same targets. To find the most effective treatment, your doctor may run tests to identify the genes, proteins, and other factors in your tumor. As a result, doctors can better match each patient with the most effective treatment whenever possible. In addition, many research studies are taking place now to find out more about specific molecular targets and new treatments directed at them (see Current Research [4]).

In 2002, the U.S. Food and Drug Administration (FDA) approved imatinib for the treatment of GIST [10] in advanced stages. This drug is now the standard first-line treatment for GIST worldwide. In 2006, a second targeted therapy, sunitinib, was approved for the treatment of GIST

when imatinib doesn't work. More recently, imatinib has been approved for use for patients with GIST after initial surgery to try to prevent recurrence in patients who might have a high risk of recurrence. In addition, imatinib is approved for the treatment of patients with advanced stage DFSP. Meanwhile, trabectedin was approved in 2007 outside of the United States for patients with sarcoma when conventional chemotherapy fails to control the disease. And pazopanib was approved in 2012 for patients with advanced soft tissue sarcoma who have tried chemotherapy. Learn more about [targeted treatments](#) [16].

Getting care for symptoms and side effects

Cancer and its treatment often cause side effects. In addition to treatment to slow, stop, or eliminate the cancer, an important part of cancer care is relieving a person's symptoms and side effects. This approach is called palliative or supportive care, and it includes supporting the patient with his or her physical, emotional, and social needs.

Palliative care can help a person at any stage of illness. People often receive treatment for the cancer and treatment to ease side effects at the same time. In fact, patients who receive both often have less severe symptoms, better quality of life, and report they are more satisfied with treatment.

Palliative treatments vary widely and often include medication, nutritional changes, relaxation techniques, and other therapies. You may also receive palliative treatments similar to those meant to eliminate the cancer, such as chemotherapy, surgery, and radiation therapy. Talk with your doctor about the goals of each treatment in the treatment plan.

Before treatment begins, talk with your health care team about the possible side effects of your specific treatment plan and supportive care options. And during and after treatment, be sure to tell your doctor or another health care team member if you are experiencing a problem, so it is addressed as quickly as possible. Learn more about [palliative care](#) [17].

Metastatic sarcoma

If cancer has spread to another location in the body, it is called metastatic cancer. Patients with this diagnosis are encouraged to talk with doctors who are experienced in treating this stage of cancer, because there can be different opinions about the best treatment plan. Learn more about seeking a [second opinion](#) [18] before starting treatment, so you are comfortable with the treatment plan chosen. This discussion may include [clinical trials](#) [3].

Your health care team may recommend a treatment plan that includes surgery alone, surgery plus radiation therapy, surgery plus chemotherapy, or chemotherapy alone. Rarely, when the tumor is not growing, a "watch and wait" approach, also called active surveillance, may be used. This means that the patient is closely monitored and active treatment begins only if the tumor begins to grow. Supportive care will also be important to help relieve symptoms and side effects.

Rarely, for patients with a very large tumor involving the major nerves and blood vessels of the arm or leg, surgical removal of the limb, called amputation, is necessary to control the tumor. This can also be necessary if the tumor grows back in the arm or leg after prior surgery, radiation therapy, and/or chemotherapy. It's important to remember that the operation that results in the

most useful and strongest limb may be different from the one that gives the most normal appearance. If amputation is needed, [rehabilitation](#) [19], including physical therapy, can help maximize the patient's physical functioning. Rehabilitation can also help a person cope with the social and emotional effects of losing a limb.

For most patients, a diagnosis of metastatic cancer is very stressful and, at times, difficult to bear. Patients and their families are encouraged to talk about how they are feeling with doctors, nurses, social workers, or other members of the health care team. It may also be helpful to talk with other patients, possibly through a [support group](#) [20].

Remission and the chance of recurrence

A remission is when cancer cannot be detected in the body and there are no symptoms. This may also be called "no evidence of disease" or NED.

A remission may be temporary or permanent. This uncertainty leads to many survivors feeling worried or anxious that the cancer will come back. While many remissions are permanent, it's important to talk with your doctor about the possibility of the cancer returning. Understanding the risk of recurrence and the treatment options may help you feel more prepared if the cancer does return. Learn more about [coping with the fear of recurrence](#) [21].

If the cancer does return after the original treatment, it is called recurrent cancer. A recurrence may start in the tissue where the sarcoma first appeared (called local recurrence), nearby (regional recurrence), or in another place (distant recurrence).

If the sarcoma was originally in the arm or leg, the recurrence most commonly occurs in the lungs. Patients treated for sarcoma of the abdomen or torso are at risk for local, regional, or distant recurrence.

When this occurs, a cycle of testing will begin again to learn as much as possible about the recurrence, including whether the sarcoma's stage has changed. After testing is done, you and your doctor will talk about your treatment options. Often the treatment plan will include the therapies described above, but they may be used in a different combination or given at a different pace. Such therapies include surgery, chemotherapy, and radiation therapy. Your doctor may also suggest clinical trials that are studying new ways to treat this type of recurrent cancer.

Local recurrences often can be successfully treated with additional surgery plus radiation therapy. Treatment for a distant recurrence is most successful for patients who have a small number of tumors that have spread to the lung that can be completely removed surgically or destroyed with radiofrequency ablation, which is the use of a needle inserted into the tumor to destroy the cancer with an electrical current, or with focused, high-dose radiation therapy.

People who have been treated for sarcoma should have regular follow-up examinations to look for a possible recurrence, based on a schedule set up by their oncologist. Learn more in the [After Treatment](#) [22] section.

People with recurrent cancer often experience emotions such as disbelief or fear. Patients are encouraged to talk with their health care team about these feelings and ask about support

services to help them cope. Learn more about [dealing with cancer recurrence](#) [23].

If treatment fails

Recovery from cancer is not always possible. If treatment is not successful, the disease may be called advanced or terminal cancer.

This diagnosis is stressful, and this is difficult to discuss for many people. However, it is important to have open and honest conversations with your doctor and health care team to express your feelings, preferences, and concerns. The health care team is there to help, and many team members have special skills, experience, and knowledge to support patients and their families. Making sure a person is physically comfortable and free from pain is extremely important.

Patients who have advanced cancer and who are expected to live less than six months may want to consider a type of palliative care called hospice care. Hospice care is designed to provide the best possible quality of life for people who are near the end of life. You and your family are encouraged to think about where you would be most comfortable: at home, in the hospital, or in a hospice environment. Nursing care and special equipment can make staying at home a workable alternative for many families. Learn more about [advanced cancer care planning](#) [24].

After the death of a loved one, many people need support to help cope with the loss. Learn more about [grief and loss](#) [25].

The next section helps explain clinical trials, which are research studies. Use the menu on the side of your screen to select About Clinical Trials, or you can select another section, to continue reading this guide.

Links:

- [1] <http://www.cancer.net/cancer-types/sarcoma-soft-tissue/treatment-options>
- [2] <http://www.cancer.net/about-us>
- [3] <http://www.cancer.net/node/19612>
- [4] <http://www.cancer.net/node/19615>
- [5] <http://www.cancer.net/node/25356>
- [6] <http://www.cancer.net/node/24582>
- [7] <http://www.cancer.net/node/19609>
- [8] <http://www.cancer.net/node/30689>
- [9] <http://www.cancer.net/node/24728>
- [10] <http://www.cancer.net/node/31299>
- [11] <http://www.cancer.net/node/31380>
- [12] <http://www.cancer.net/node/31309>
- [13] <http://www.cancer.net/node/24723>
- [14] <http://www.cancer.net/node/24473>
- [15] <http://www.cancer.net/node/25369>
- [16] <http://www.cancer.net/node/24729>
- [17] <http://www.cancer.net/node/25282>
- [18] <http://www.cancer.net/node/25355>
- [19] <http://www.cancer.net/node/25397>
- [20] <http://www.cancer.net/node/25383>
- [21] <http://www.cancer.net/node/25241>
- [22] <http://www.cancer.net/node/19614>
- [23] <http://www.cancer.net/node/25042>

[24] <http://www.cancer.net/node/25113>

[25] <http://www.cancer.net/node/25111>