Stem cell transplant is also known as bone marrow transplant. This treatment may be recommended for people with blood cancers such as leukaemia, myeloma or lymphoma.

A stem cell transplant replaces blood-forming cells in your bone marrow (including cancer cells) that have been destroyed by chemotherapy or radiation therapy with healthy stem cells. These cells then develop into new bone marrow and produce healthy blood cells.

**Types of stem cell transplant**

A stem cell transplant can use your own stem cells (autologous transplantation) or stem cells from a donor (allogeneic transplantation). Your doctor will discuss the advantages and disadvantages of both types with you. This can be a complex decision that will depend on several factors, such as your age, the type of cancer you have, the health of your existing bone marrow and your overall health, and any previous chemotherapy treatments.

**Your own stem cells**

For autologous transplants, stem cells are collected from your blood or bone marrow and then frozen. You are then given high-dose chemotherapy or radiation therapy to destroy existing blood-forming cells. The frozen stem cells are then returned to your blood to make healthy new stem cells.

Doctors try to remove all cancer cells from your stem cells before they are transplanted. However, some stem cells may still contain cancer cells. This means that the cancer could come back after the transplant.

**Stem cells from a donor**

Allogeneic transplants use stem cells from another person with matching bone marrow. This is usually a sibling, and sometimes another family member or volunteer donor. You will be given high-dose chemotherapy or radiation therapy to destroy existing blood-forming cells. The donor’s stem cells are then transplanted into your blood to make healthy stem cells.

The advantage of a donor transplant is that the new stem cells will be cancer-free. A donor transplant also creates a ‘new’ immune system because the new white blood cells made by the transplanted stem cells are different from your original white blood cells. This ‘new’ immune system can continue fighting cancer cells after radiation therapy or chemotherapy finish. This is called a ‘graft-versus-tumour effect’ and works very well for some types of cancer.

A disadvantage of donor transplant is the risk that your body might ‘reject’ the new stem cells. This is known as ‘graft-versus-host disease’ (GVHD) and can be very serious. You might be given antirejection medication for the first few months after the transplant to reduce the risk of this happening.

The recovery period for a transplant from a donor is usually longer than a transplant using your own stem cells.

Stem cell transplants have 4 main phases:
1. Stem cell collection from you or a donor, which can take 1–2 weeks.
2. Transplant treatment (i.e. chemotherapy or radiation therapy) to destroy all the cells in your bone marrow), which can take about 1 week.
3. IV (through a vein) transfusion of healthy stem cells into your bloodstream, which happens in 1 day.
4. Recovery, which can take 2–12 weeks, depending on the type of treatment.

The total time frame for a stem cell transplant is about 4–14 weeks.

**Side effects of stem cell transplants**

Side effects of stem cell transplants can include:

- increased risk of infection – you will be prone to getting other illnesses because the treatment initially destroys blood-forming cells, and therefore weakens your immune system.
- GVHD – if new stem cells are donated by another person, they may see your body as ‘foreign’ and attack your existing cells. In severe cases, this can be life-threatening. However, in a mild or moderate form, it actually helps to fight the cancer. Doctors can manage GVHD with antirejection medicines.
- those related to the side effects [chemotherapy](https://canceraustralia.gov.au) or [radiation therapy](https://canceraustralia.gov.au).

For more information about stem cell transplants and its side affects you should talk to your doctor or visit [Treatment side effects](https://canceraustralia.gov.au/affected-cancer/treatment/stem-cell-transplant).