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## Organ and tissue transplantation

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### Summary

- A transplant is an organ, tissue or a group of cells removed from one person (the donor) and transplanted into another person (the recipient) or moved from one site to another in the same person.
  - A skin graft is a common example of a transplant from one part of a person's body to another part.
  - A transplant between two people can cause a rejection process where the immune system of the recipient or host attacks the foreign donor organ or tissue and destroys it.
  - To reduce the risk of rejection of the donated organ, the recipient will probably need to take immunosuppressive medication for the rest of their life.
  - Many different types of organs, tissue, cells and limbs can be transplanted – even faces.
  - The approach to different types of transplantation varies greatly, so you should speak with your medical team about surgical procedures, recovery and medications.
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A transplant is an organ, tissue or a group of cells removed from one person (the donor) and surgically transplanted into another person (the recipient or host) or moved from one site to another site in the same person.

Transplants – such as a liver transplant – can save lives. They can also restore function to improve quality of life. For example, transplanting the clear tissue that covers the eye (cornea) is not necessary for life, but can restore sight.

### Types of transplantation

Transplantation is a complex area of medicine because when organs or tissues are transplanted from one person to another, the recipient's immune system can reject and destroy the donor organ or tissue, and medication is needed to suppress this immune response. The treatments used vary depending on the tissue or organ being transplanted, the level of compatibility between the donor and the recipient, and other factors.

#### Transplants of tissues in the same person

A transplant from one part of your body to another part is called an autograft and the process is called autotransplantation.

Some examples of autografts include:

- **skin graft** – uses healthy skin to help heal a wound or burn on another part of the body
- **blood vessel graft** – provides an alternative route for blood flow to bypass a blocked artery, for example, in heart bypass surgery
- **bone graft** – reconstructs a damaged area of the body, for example, in spinal fusion
- **bone marrow graft** – for example, in a person with cancer, bone marrow collected before chemotherapy can replace their blood stem cells after high-dose chemotherapy.

The advantage of an autograft is that the person's body is unlikely to reject their own cells, so long-term medication to suppress the immune system (immunosuppressants) is not needed. However, the retrieval (collecting) of the tissue creates a new wound in addition to the transplant site, from which the person will need to recover.

#### Transplants from other people

A transplant between two people who are not genetically identical is called an allotransplant and the process is called allotransplantation. Donor organs and tissues can be from people who are living, or people who have died because of a significant brain injury or lack of circulation.

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Allotransplantation can create a rejection process where the immune system of the recipient attacks the foreign donor organ or tissue and destroys it. The recipient may need to take immunosuppressive medication for the rest of their life to reduce the risk of rejection of the donated organ. Speak to your doctor if you are concerned about the long-term health risks of taking immunosuppressants.

For some transplants (especially bone marrow), there is also the possibility that immune cells in the donated bone marrow will recognise the host's body as foreign and attack the cells of the host. This is known as graft-versus-host disease (GvHD). Doctors can take steps to try to reduce the risk of GvHD.

A transplant between identical twins is called an isograft. The recipient will almost never reject an isograft and so immunosuppressants are not needed.

In Australia, many people are on waiting lists for organ and tissue donations. One organ and tissue donor can save the life or improve the quality of life for more than 10 people. If you would like to **become an organ or tissue donor**, join the **Australian Organ Donor Register online**. Visit **DonateLife** to find out more information and to register. Be sure to talk to family and friends about your donation decision to make sure they know your wishes.

### **Transplants from other species**

A transplant between species is called a xenotransplant and the process is called xenotransplantation. Heart valves from cows and pigs have been used for many years to replace faulty heart valves in people. The animal valves are treated before use to reduce the risk of the immune system rejecting the valve. Heart valves may also be replaced with human valves (allotransplant) or mechanical heart valves.

### **Organs and tissues transplanted**

Transplants can be for:

- **organs** – heart, kidney, liver, lung, pancreas, stomach and intestine
- **tissue** – cornea, bone, tendon, skin, pancreas islets, heart valves, nerves and veins
- **cells** – bone marrow and stem cells
- **limbs** – hands, arms and feet.

Ongoing medical advances and research means new opportunities for innovation in transplant are expanding to include face transplants.

Multi-organ transplants, while less common than single-organ transplants, occur each year. Common multi-organ transplants include heart and lungs or pancreas and kidney.

The approach to transplantation varies greatly depending on the type of transplant. Talk to your medical team about surgical procedures, recovery and medication.

### **Where to get help**

- Your **GP (doctor)**
- **Medicare**
- **NURSE-ON-CALL** Tel. **1300 60 60 24** – for expert health information and advice (24 hours, 7 days)
- **DonateLife Victoria** Tel. **(03) 8317 7400**

**This page has been produced in consultation with and approved by:**

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