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## Graft versus host disease

Graft versus host disease (GVHD) is a condition where following transplantation the donor's immune cells in the transplant (graft) make antibodies against the patient's tissues (host) and attack vital organs. Organs most often affected include the skin, gastrointestinal (GI) tract and the liver.

Ninety percent of bone marrow transplants lead to GVHD. Solid organ transplantation, blood transfusions, and maternal–fetal transfusions have also been reported to cause GVHD less frequently.

### Types of GVHD

There are two forms of GVHD.

- Acute GVHD
  - Early form of GVHD that occurs within the first 3 months of transplantation
  - First sign is usually a skin rash appearing on the hands, feet and face
  - Gastrointestinal and liver dysfunction symptoms may follow
- Chronic GVHD
  - Late form of GVHD that develops 3 months post transplantation
  - Usually evolves from acute GVHD but occurs de novo in 20–30% of patients
  - Cutaneous (skin) reactions resemble those of autoimmune disorders such as [lupus](#), [lichen planus](#) and especially [systemic sclerosis](#)

### What are the signs and symptoms?

Acute GVHD and chronic GVHD are distinct diseases. One common factor is that they both increase the patient's susceptibility to infection.

Acute GVHD	Chronic GVHD
<ul style="list-style-type: none"> <li>• Tender, red spots usually appear 10–30 days post transplantation</li> <li>• Face, hands and feet affected first then spreading to whole body (erythroderma)</li> <li>• Spots may coalesce to form widespread red rash</li> <li>• Rash may develop into raised spots or blisters that resemble toxic epidermal necrolysis</li> <li>• Fever may be present</li> <li>• Watery or bloody diarrhoea with stomach cramps indicates GI involvement</li> <li>• Jaundice (yellowing of the skin and eyes) indicates liver involvement</li> <li>• Abnormal liver function tests</li> </ul>	<ul style="list-style-type: none"> <li>• Dry, itchy raised rash develops over whole body</li> <li>• Dry mouth and sensitivity to spicy or acid foods leading to mouth lesions</li> <li>• Dry eyes causing irritation and redness</li> <li>• Skin thickening, scaling, hyper- or hypopigmentation (resembling lichen planus)</li> <li>• Hardening of skin (scleroderma) may interfere with joint mobility</li> <li>• Hair loss or premature greying</li> <li>• Decreased sweating</li> <li>• Liver involvement causing jaundice</li> <li>• Lung and GI disorders may occur</li> </ul>

## What is the treatment of GVHD?

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Patients recovering from bone marrow transplantation are usually hospitalised for several weeks following transplant and are monitored closely for signs of developing GVHD or infection. The best treatment for GVHD is prevention. This consists of a cocktail of immunosuppressive drugs such as [ciclosporin](#), [methotrexate](#), cyclophosphamide, mycophenolate, [tacrolimus](#) and sirolimus, with or without [prednisone](#). The combination of cyclosporine and methotrexate has been found to significantly decrease the severity of GVHD. These drugs weaken the ability of the donor's immune cells to launch an attack on the patient's organs.

Treatment for patients who do develop GVHD depends on the severity of the disease. Mild cases with only skin involvement of acute GVHD may settle without treatment. More severe acute or chronic GVHD predisposes the patient to infection and overwhelming sepsis (blood poisoning) is the main cause of death in patients with GVHD. The aim is to treat GVHD before life-threatening sepsis occurs. High dose corticosteroids are usually added to the immunosuppressive regime. New monoclonal antibodies appear very effective but are very costly. [Photochemotherapy](#) (PUVA) and high dose long wave ultraviolet radiation (UVA1) may reduce the severity of the skin problems.

Because GVHD affects so many different organs, treatment is usually delivered by a multi-disciplinary team of transplant doctors, dermatologists, respiratory doctors, gastroenterologists, ophthalmologists, and/or other specialists.

### Related information

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#### References:

Book: Textbook of Dermatology. Ed Rook A, Wilkinson DS, Ebling FJB, Champion RH, Burton JL. Fourth edition. Blackwell Scientific Publications.

#### On DermNet NZ:

- [Systemic diseases](#)

#### Other websites:

- [Graft versus host disease](#) - emedicine dermatology, the online textbook

#### Books:

See the [DermNet NZ bookstore](#)

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DermNet does not provide an on-line consultation service.

If you have any concerns with your skin or its treatment, see a [dermatologist](#) for advice.

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