

# Bone marrow transplantation

Bone marrow [transplantation](#), also known as hematopoietic stem cell transplantation (HSCT), is a medical procedure used to treat various diseases and conditions, particularly those affecting the blood cells or immune system. It involves the replacement of damaged or diseased bone marrow with healthy stem cells.

During a bone marrow transplantation, the patient receives high-dose chemotherapy, radiation therapy, or a combination of both to eliminate the existing diseased or malfunctioning cells in the bone marrow. Following this conditioning treatment, the patient receives stem cells (either their own, known as autologous transplant, or from a matched donor, known as allogeneic transplant) through an intravenous infusion.

The infused stem cells then travel to the bone marrow, where they start producing new blood cells, including red blood cells, white blood cells, and platelets. The transplanted stem cells help reestablish the patient's blood cell production and immune function, replacing the damaged or destroyed cells.

Bone marrow transplantation is commonly used in the treatment of various conditions, including certain types of leukemia, lymphoma, multiple myeloma, severe aplastic anemia, certain immune deficiency disorders, and some inherited metabolic disorders.

The procedure is complex and carries potential risks and complications, including graft-versus-host disease (in allogeneic transplants), infections, organ damage, and other side effects. Therefore, the decision to undergo a bone marrow transplantation is carefully considered, taking into account factors such as the patient's specific condition, overall health, availability of suitable donors, and potential risks and benefits.

The process of bone marrow transplantation requires specialized medical teams, including hematologists, oncologists, and transplant specialists, to ensure appropriate patient selection, preparation, and ongoing care. Each case is unique, and the specific details and outcomes of the procedure can vary depending on individual circumstances.

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Last update: **2024/06/07 02:51**

