

Short Communication on Bone Marrow

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INTRODUCTION

Bone marrow is soft, gelatinous tissue that fills the medullary cavities, the centers of bones. The two types of bone marrow are red bone marrow, known as myeloid tissue, and yellow bone marrow, or fatty tissue. There are actually two types of bone marrow:

- Red bone marrow helps produce blood cells
- Yellow bone marrow helps store fat.

Red bone marrow functions

Red bone marrow is involved in hematopoiesis. Hematopoietic stem cells that are found in red bone marrow can develop into a variety of different blood cells, including:

Red blood cells: These are the cells that work to carry oxygen-rich blood to the cells of the body. Old red blood cells can also be broken down in red bone marrow, but this task is mostly performed in the liver and spleen.

Platelets: Platelets help your blood clot. This prevents uncontrolled bleeding.

White blood cells: There are several types of white blood cells. They all work to help your body fight off infections.

Newly produced blood cells enter your bloodstream through vessels called sinusoids. As you age, your red bone marrow is gradually replaced with yellow bone marrow. And by adulthood, red bone marrow can be found only in a handful of bones, including the:

- skull
- vertebrae
- sternum
- ribs
- the ends of the humerus (upper arm bone)
- pelvis
- the ends of the femur (thigh bone)
- the ends of the tibia (shin bone)

Yellow bone marrow functions

Yellow bone marrow mainly acts as a store for fats. It helps to provide sustenance and maintain the correct environment for the bone to function. However, under particular conditions, such as severe blood loss or fever, the yellow marrow may revert to red marrow.

Yellow marrow tends to be located in the central cavities of long bones, and is generally surrounded by a layer of red marrow with long trabeculae within a sponge-like reticular framework.

Conditions effecting the production of blood cells in bone marrow:

- **Fever:** This can be a result of not having enough healthy white blood cells.
- **Fatigue or weakness:** This is caused by a lack of hemoglobin, the protein on red blood cells that carries oxygen.
- **Increased infections:** This is due to having fewer healthy white blood cells, which help fight infections.
- **Shortness of breath:** A lower red blood cell count can result in less oxygen being delivered to tissues in your body.
- **Easy bleeding and bruising:** This is due to having fewer healthy platelets, which are important for helping your blood to clot.

Some other specific conditions involving bone marrow issues are as follows:

Leukemia: Leukemia is a type of cancer that can affect both your bone marrow and lymphatic system.

Aplastic anemia: Aplastic anemia occurs when bone marrow doesn't produce enough new blood cells. It occurs from damage to the stem cells of bone marrow. This makes it harder from them to grow and develop into new blood cells.

Myeloproliferative disorders: Myeloproliferative disorders happen when the stem cells in bone marrow grow abnormally. This can lead to increased numbers of a specific type of blood cell.

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