Arthritis Research UK | rheumatoid arthritis pathogenesis centre of excellence

BONE

L.A. Bennett, H. Jaffery & P. Smith. University of Glasgow.

Function

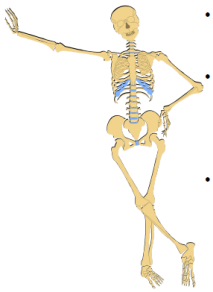
Bone makes up our skeleton and are very hard and strong but also very light. This helps our bones to carry out several functions:

They produce our red and white blood cells.

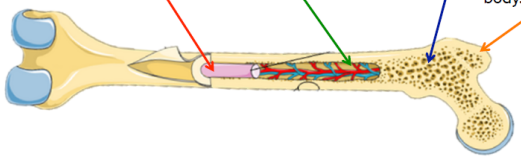
They give us support and help us to move by forming joints

They protect our organs

Structure



- Humans have 206 bones.
- Separate bones connect together to form our entire skeleton.
- Bones connect at joints, where soft cartilage (in blue) helps them to connect and move smoothly.



Cells

Osteoclast

- Cells which destroy bone.
- Formed by cells joining together.
- Have many nuclei - the area that contains the cell's DNA, as each cell that joins has a nucleus.
- Derived from white blood cells called monocytes.

Osteoblast

- Cells which make bone.
- Stem cells can become osteoblasts.
- Healthy bone is constantly being rebuilt, therefore the balance between osteoblast and osteoclasts is very important. As osteoclasts remove bone, osteoblasts are making new bone.

Osteocyte

- Cells which initiate bone remodeling when they get certain messages from their environment.
- They use their long spindle like arms to form a network and receive messages.
- Osteoblasts can become osteocytes when they become trapped in the bone matrix.

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