The Skeletal System

The skeletal system provides a living structure for the body

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Source: Glencoe Health, 2009

How the skeletal system works

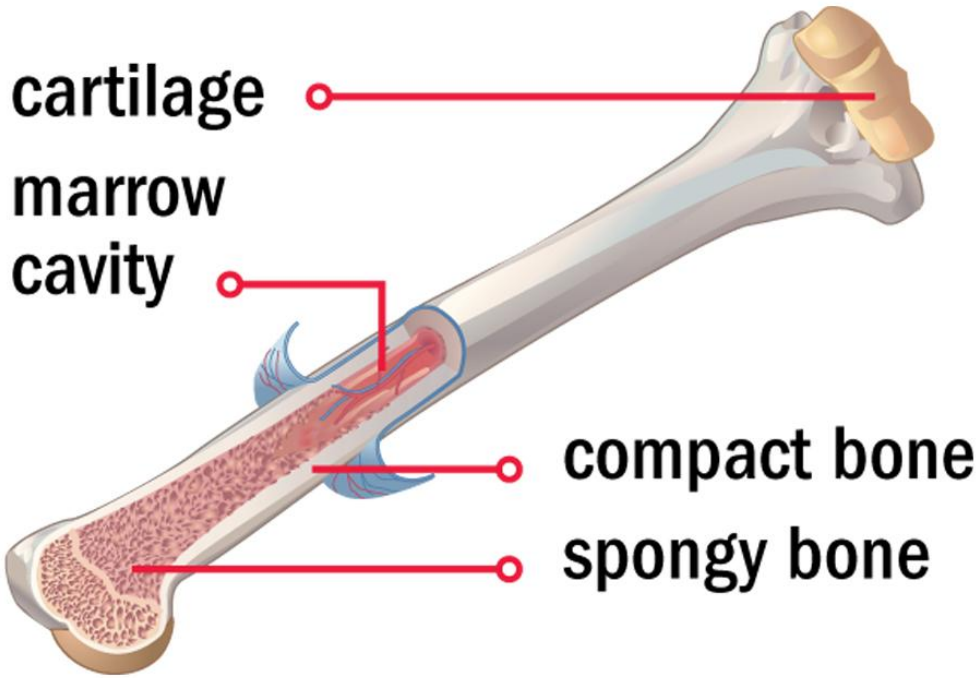
- The skeletal system consists of bones and connective tissues
  - Your body consists of 206 bones

How the skeletal system works

- Providing support for the body
- Protecting internal tissues and organs from damage
- Acting as a framework for attached muscles
- Allowing movement of limbs and digits
- Producing new red and white blood cells
- Storing fat and minerals, such as calcium and phosphorus

BONES

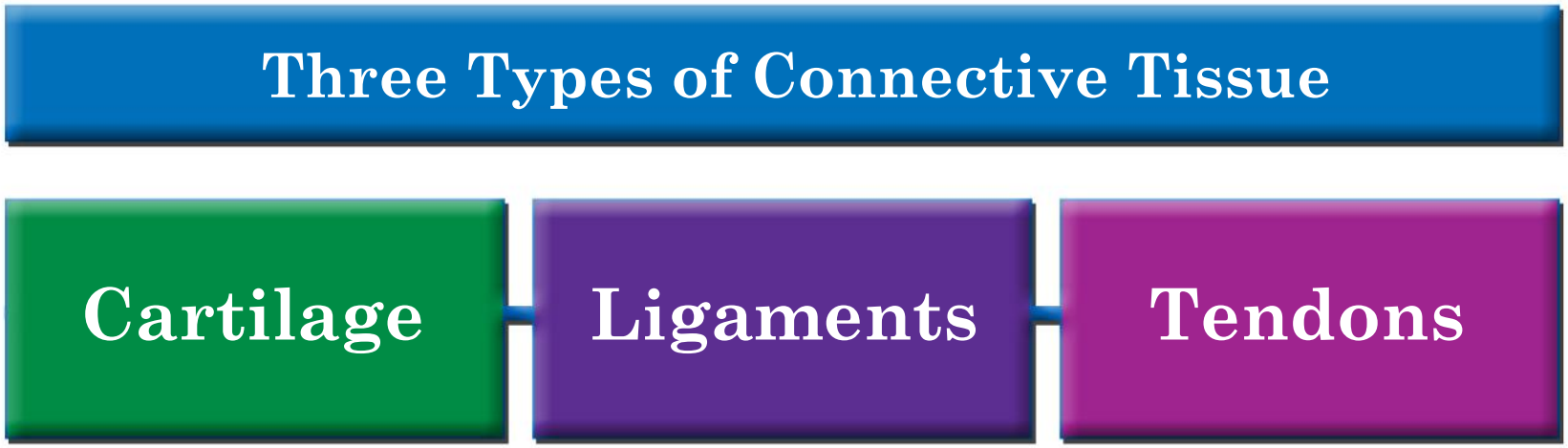
- Bone tissue is surrounded by calcium phosphate and other minerals.



Bones

- Bone shapes include long bones, short bones, flat bones, and irregular bones.

Connective Tissue



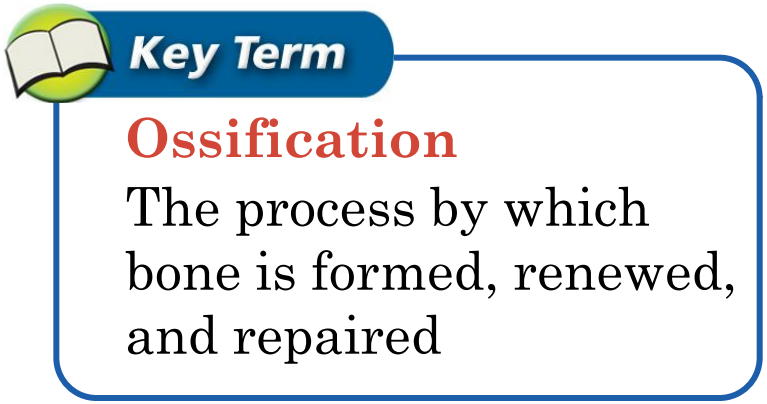
Connective Tissue

- Cartilage can act as a cushion between two bones or as a flexible structure for soft parts of the body, such as the tip of the nose.

Cartilage
A strong, flexible connective tissue

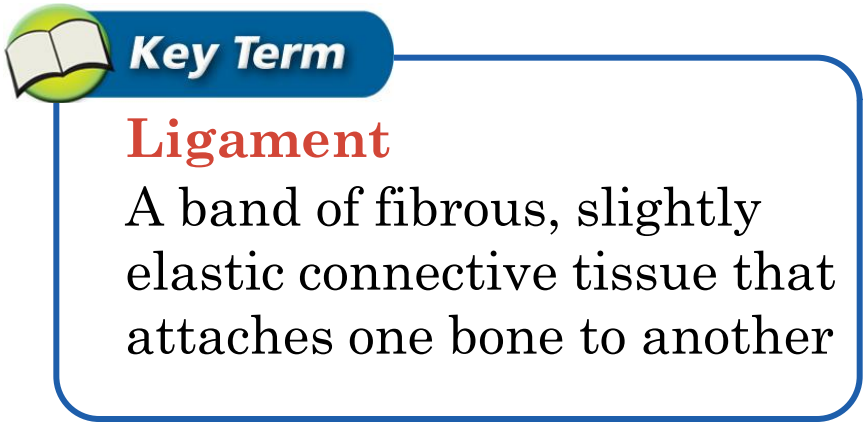
Connective Tissue

- All bones begin in the embryo as cartilage. Early in development, the cartilage hardens in a process called ossification.



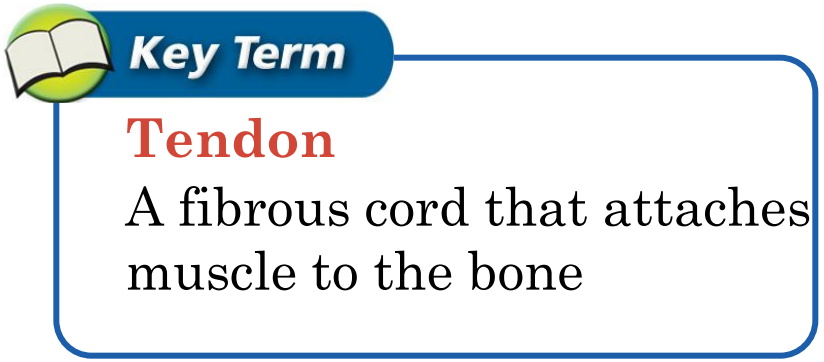
Connective Tissue

- Ligaments attach to bones to create joints.



Connective Tissue

- Muscles and tendons work together to move parts of the body.

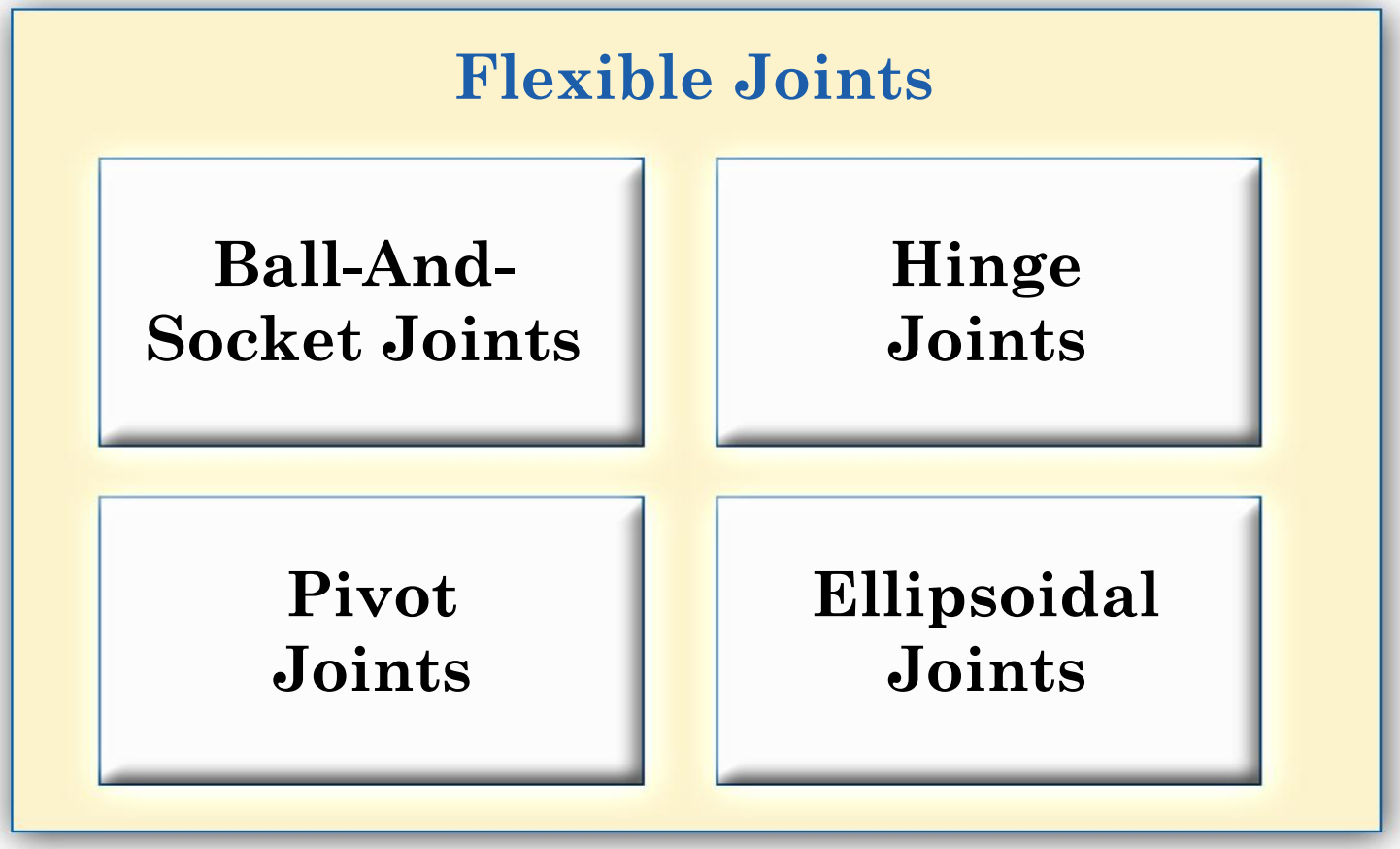


Connective Tissue

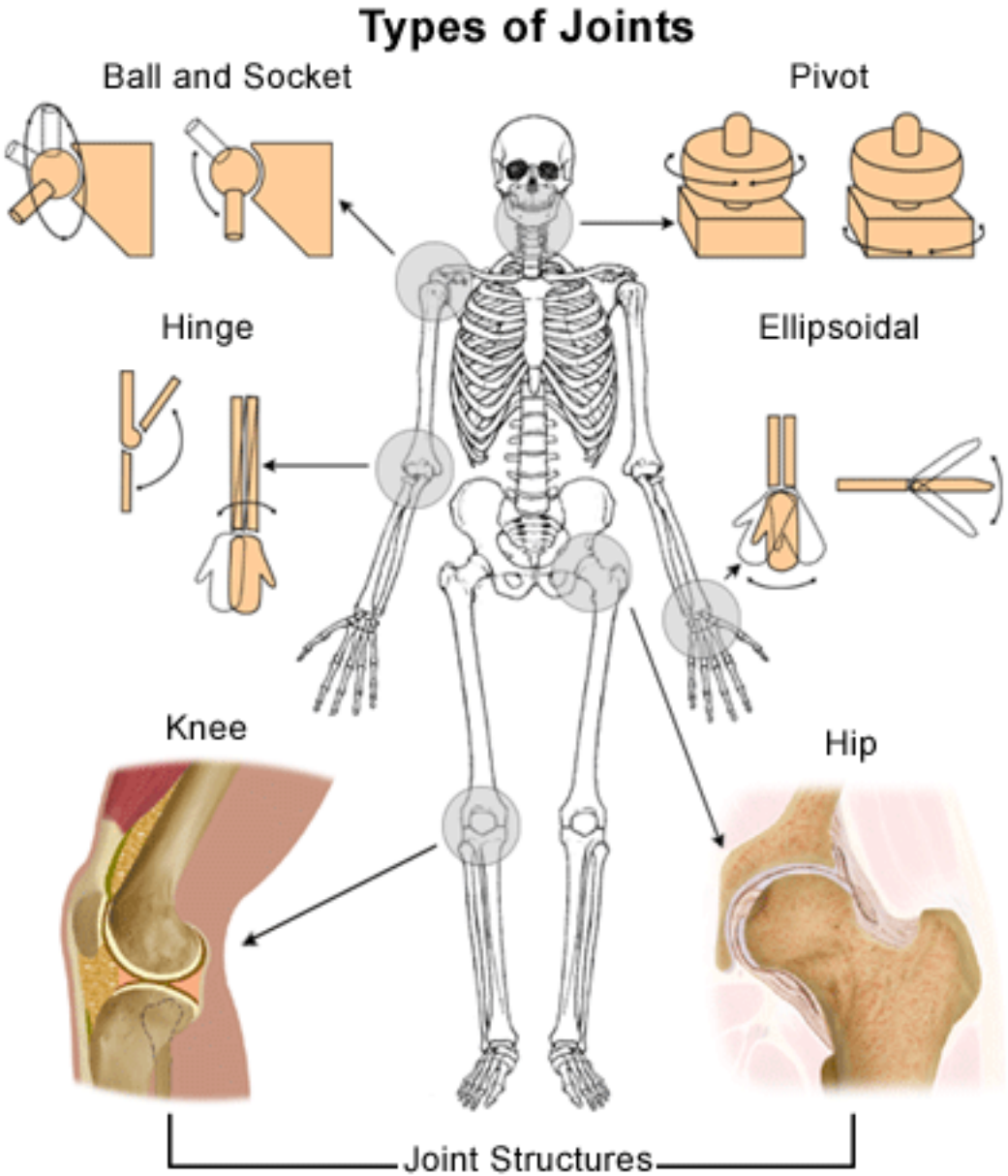
- Joints are points at which bones meet. Some joints are flexible and some do not move.

- The structure of a joint relates to the type of motion it can produce.

Types of Joints



Joints


Types of Joints
Ball and Socket
Pivot
Hinge
Ellipsoidal
Knee
Hip
Joint Structures

Joints

- A ball-and-socket joint is a movable joint, with one bone that is rounded and fits within another bone

- Ex.
  - Shoulder
  - Hip

Hip
(ball-and-socket joint)

Joints

- The knee joint is one example of a hinge joint

- Ex.
  - Knee
  - Elbow

Knee
(hinge joint)

Joints

- Pivot Joints
  - Ex.
    - Neck
- Ellipsoidal Joints
  - Ex.
    - Wrist
    - Metacarpals
    - Metatarsals

Understanding skeletal problems

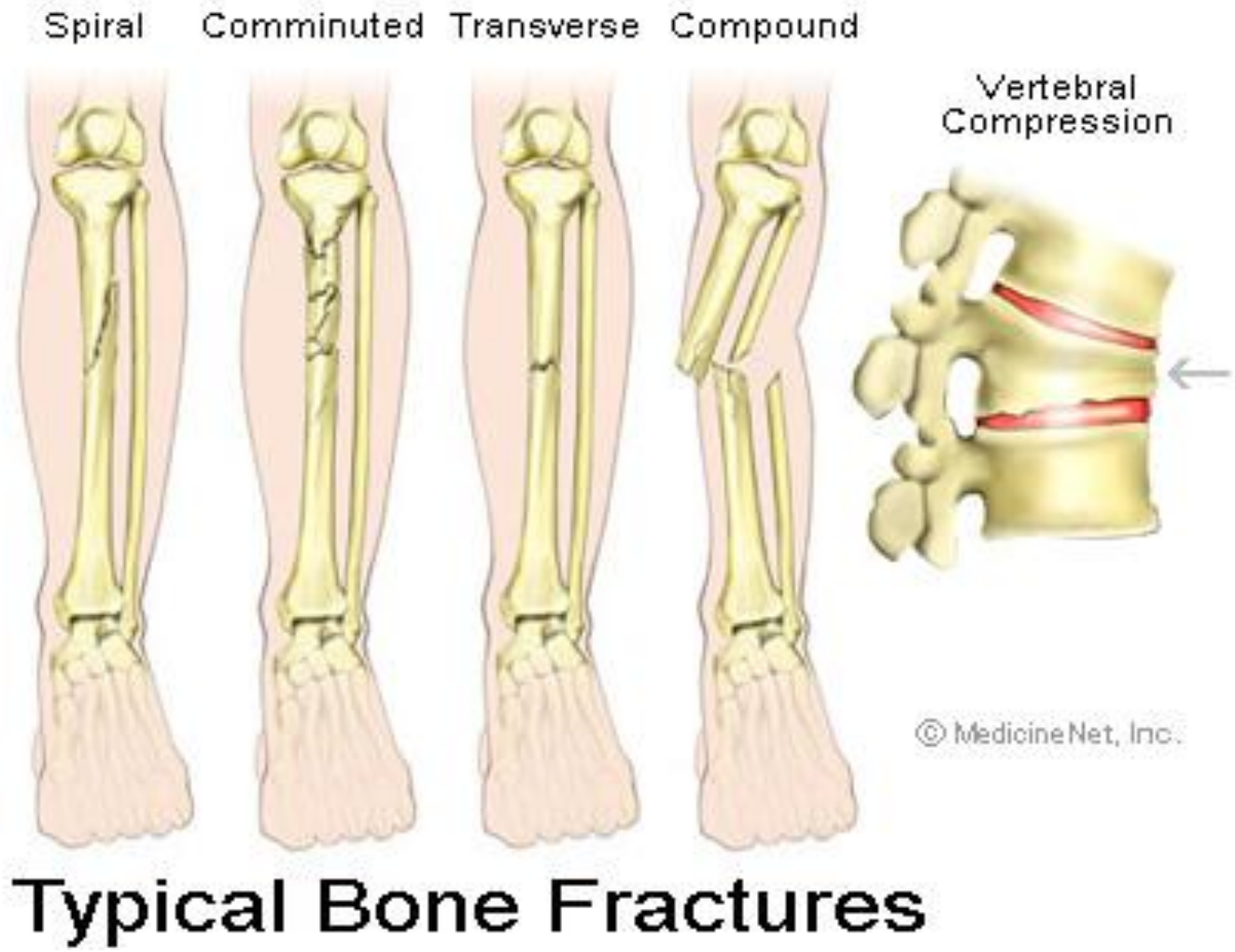
- Injuries and disorders harm the skeletal system.
  - Degenerative disorders, poor nutrition, infections, sports injuries, and poor posture can lead to problems of the skeletal system.

FRACTURES

- **A fracture is any type of break in a bone.**

Compound Fractures	The broken end of the bone breaks through the skin.
Simple Fractures	The broken bone does not break through the skin.
Hairline Fractures	Parts of the bone do not separate.
Transverse Fractures	The fracture is completely across the bone.
Comminuted Fractures	The bone shatters into more than two pieces.

Fractures



Typical Bone Fractures

Injuries to Joints

Dislocation	Occurs when a bone slips out of place, tearing the ligaments that attach the bone at the joint.
Torn Cartilage	Can result from a sharp blow to a joint or a severe twisting of a joint.
Bursitis	Painful inflammation of bursa, a fluid-filled sac that helps reduce friction in joints.
Bunions	Painful swellings of the bursae in the first joints of big toes.
Arthritis	Inflammation of a joint, resulting from an injury, natural wear and tear, or autoimmune disease.