

Hinge joint: Elbows/knees (back and forth movement)

Gliding joint: Bones glide over one another (wrists)

Ball and Socket Joint: Allows for movement in many directions (shoulders)

Saddle joint: Allows bone to slide in 2 directions (thumbs)

Pivot joint: Allows one bone to rotate another (lower arm)

Ligaments: connects bones to bones
Tendons: connects muscles to bones

<u>Skeletal</u>	<u>Smooth</u>	<u>Cardiac</u>
Attached to bone Voluntary actions (CNS) Striated Many nuclei to held in protein production Longest muscle hip to knee 130 cm , ear 1mm	Part of wall of hollow structure Involuntary actions Are not striated Not controlled by CNS... gap junctions	Found in the heart Are Striated Usually have 1 or 2 nuclei

Sarcomere: A segment consisting of a highly organized assemblage of filaments surrounded by two Z lines; the contractile unit of a myofibril

Myofibrils: contains actin and myosin

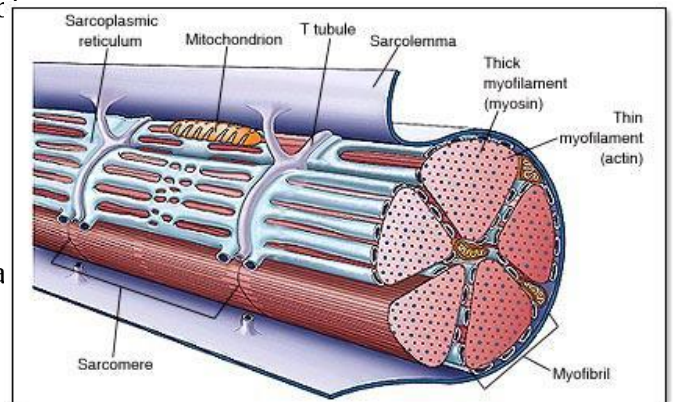
Actin: Thin filaments of protein

- Filamentous proteins involved in muscle contraction in both smooth and striated muscle and also serves as an important structural molecule for the cytoskeleton of many eukaryotic cells.

Myosin: Thin filaments

Commonest protein in muscle cells, responsible for the elastic and contractile properties of muscle.

Z-Line: A dark thin protein band to which actin filaments are attached in a striated muscle fiber, marking the boundaries between adjacent sarcomeres



During a muscle contraction, myosin filaments form cross-bridges with actin filaments. The cross-bridges then change shape, pulling the actin filaments toward the center of the sarcomere

Functions of Bones:

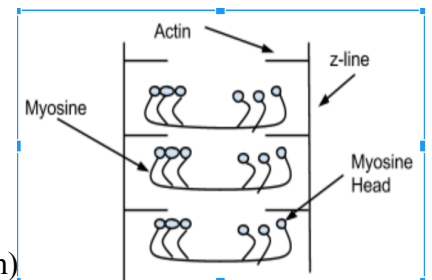
1. Blood cell formation

2. Support your body

Movement: Provides a system of levers which muscles act

3. Protect vital organs

Mineral Storage: contain reserves (calcium)



No Bones:

1. Limited mobility
2. Weight loss
3. Body becomes stretched out
4. Organs are no longer protected

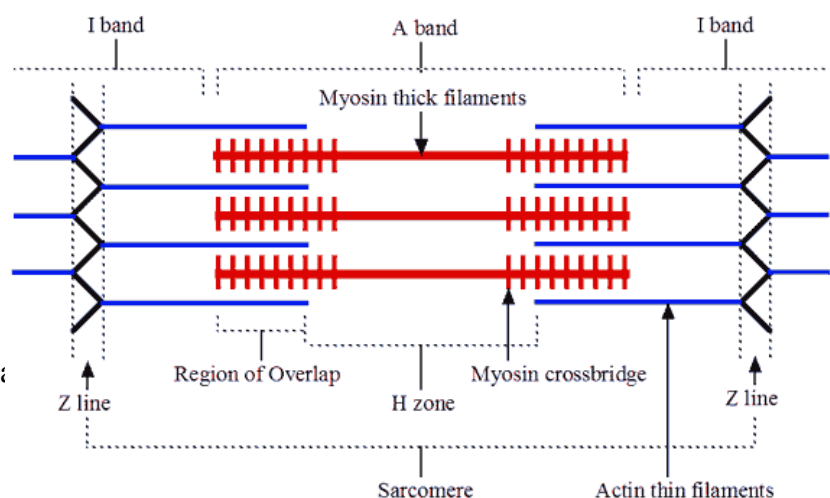
Endoskeleton: The skeleton is within flesh

- protects inner organs

Exoskeleton: the skeleton is outside of the flesh

- Limitations: it soon becomes too small and has to be shed
 - o As it regrows, they are vulnerable to predators

*If you only had bones, nothing is connecting them together.



Cartilage: flexible connective tissue in the body (eg. Nose) (Made of collagen and flexible elastin)

Types of joints:

1. Immovable
 - a. Immovable joints, often called fixed joints, allow no movement
 - b. The bones at an immovable joint are interlocked and grow together until they are fused
 - c. The places where the bones in the skull meet are examples of immovable joints
2. Slightly Movable
 - a. Slightly movable joints permit a small amount of movement
 - b. Unlike the bones of immovable joints, the bones of slightly movable joints are separated from each other
 - c. Joints between 2 bones of lower leg and joints between vertebrae are examples of slightly movable joint
3. Freely Movable
 - a. Freely movable joints permit movement in 2 or more directions.
 - b. Freely movable joints are grouped according to the shapes of the surfaces of the adjacent bones

Sliding-Filament Theory:

- During muscle contraction, interaction between myosin filaments and actin filaments causes a muscle fiber to contract
- The reason why our muscles are able to contract

