# ATI TEAS Science Review

## Skeletal System

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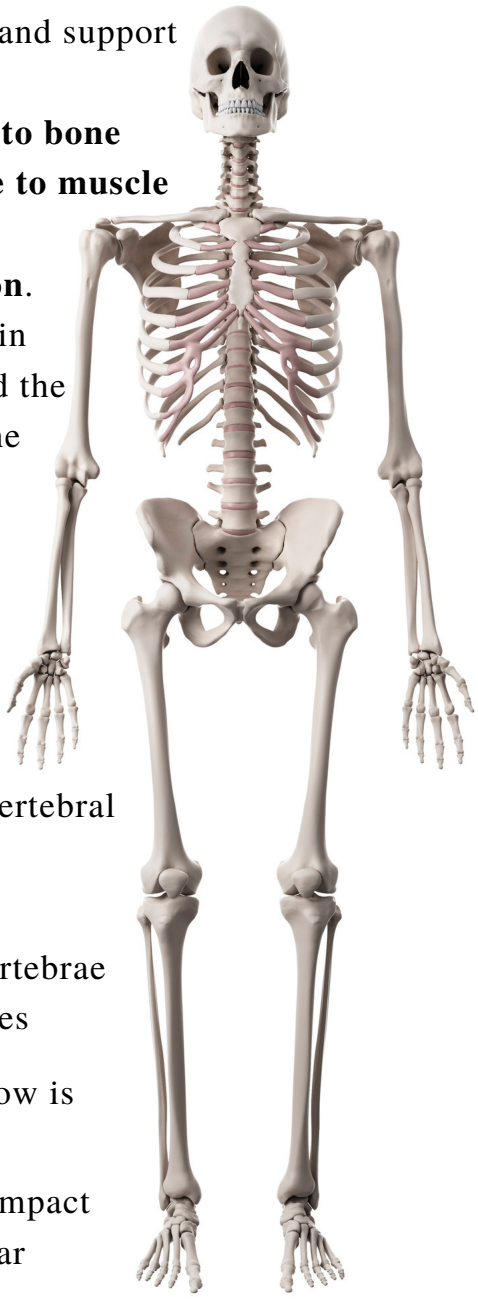
# SKELETAL SYSTEM

**Function:** Its main functions are:

- Movement - muscles use bones as levers
- Protection - encloses the organs
- Storage - it stores calcium
- Hematopoiesis - creates blood cells in the marrow

**Components:**

- Bone - connective tissue that gives body shape and support
- Cartilage - connective tissue that has flexibility
- Ligament- connective tissue that attaches **bone to bone**
- Tendon - connective tissue that attaches **muscle to muscle**



** Note: there is a debate about the **patellar tendon**. The patellar tendon connects the quadricep muscle in the thigh with the patella (kneecap). It is also called the **patellar ligament** since it connects the patella to the tibia.

**Cartilage types:**

- Hyaline - firm but flexible, found at bone ends, ribcage
- Elastic - elastic fibers gives flexibility, found in epiglottis and outer ear
- Fibrocartilage - shock absorber, found in intervertebral discs and menisci

**Bone classification by location:**

- Axial - in body's axis such as skull, ribcage, vertebrae
- Appendicular - the appendages: limbs and girdles

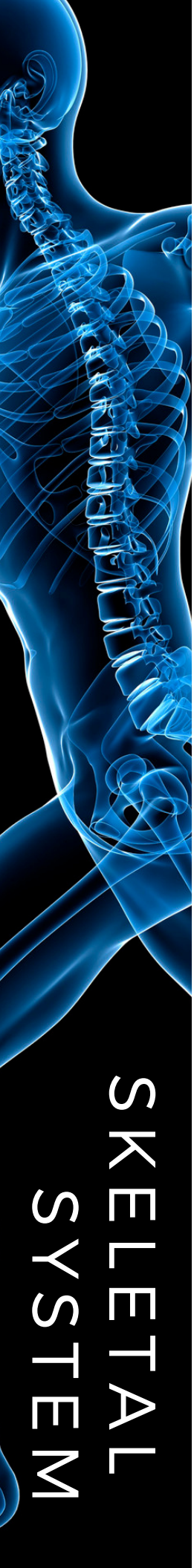
**Red** marrow is found in spongy bone. **Yellow** marrow is found in medullary cavities.

**Osteon (Haversian system)** – functional unit of compact bone. Long cylinder acting as a weight-bearing pillar

**Bone Cell Types**

• Osteogenic cells – bone stem cells, source for other bone cells
• Osteoblasts – bone forming cells, produce fibers and fluids of bone matrix
• Osteocytes – mature bone cell, maintains tissue

- Osteoclasts – bone resorbing cells, breaks down bone tissue to allow remodeling



# SKELETAL SYSTEM

**Four types of bone:**

- Long Bone - supports body weight and facilitates movement. They are long, compact, and hollow shafts containing bone marrow. ex: femur, tibia, fibula, ulna, humerus, radius
- Short Bone - provides stability and some movement. They're wider than they are long. ex: carpals, tarsals, clavicle
- Flat Bone - protects internal organs. They are not hollow and contain marrow. ex: sternum, scapula, ribs, pelvis
- Irregular Bone - Nonsymmetrical shape. Ex: vertebral column, skull (not flat!) , knee, elbow

***Note**: The epiphyseal plate is the area of growth in a long bone. It occurs during childhood.

Sesamoid bones are embedded in tendons!

Haversian Canal: Provide nutrients to bone cells

Volkmann Canal: Connect Harversian canals

Periosteum: fibrous sheath that covers bone and contains nerve and blood vessels

Collagen: Primary structural protein of connective tissue

**Common skeletal disorders:**

- Osteoporosis- A disease that causes brittle bones fragile bones.
- Rheumatoid Arthritis- a progressive joint disease that causes joint inflammation and pain.
- Brittle Bone Disease: group of diseases that affect the collagen (defect in the matrix) and results in fragile bones

# About Me

Hi there! My name is Ivy and I am the founder of Petite and Soignée. I am currently a licensed physical therapist assistant, dermatology and cosmetic medical assistant, and a nursing student in an accelerated BSN program. Over the years, I have researched and learned about different skincare products, ingredients, skin conditions, diseases, and new technologies and procedures within the field. I decided to join a dermatology practice so that I could learn more about skincare within a clinical setting. This position taught me so much about the science of skin that it led me to pursue nursing. My goal is to specialize in dermatology in the future.

You may be wondering what does *soignée* even mean? ***Soignée*** (pronounced "swan-yay") is a feminine French word meaning *"to dress elegantly", "well-groomed", "sleek" "well maintained" or "elegantly designed"*. The word perfectly describes the way that I like to present myself on a daily basis. On my website, I share all of my skincare and beauty tips for everyone to feel soignée.

Don't forget to follow my other social media accounts!

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