

Class 2 Notes Chapter 1 Sections 2&3

What the Skeletal System Does

- Shape and support
- Enables body to move
- Guards organs
- Produces red blood cells
- Stores minerals and other products until your body needs them

Shape and Support

- Decides the shape of your body
- Human backbone has 26 individual bones (vertebra singular), each allows small amount of movement

Movement & Protection

- Bones protect organs such as the heart
- Most associates with muscle that allow movement

Production and Storage of Substances

- Long bones have bone marrow that make red blood cells
- Store mineral like calcium and phosphorus until needed by the body

Joints of the skeleton

- joint: a place in the body where two bones connect
- allows bones to move in different ways
- two kinds
 - movable
 - Immovable

Immovable joints

- Some joints allow little to no movement
Ex: bones in skull

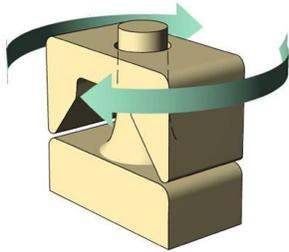
Movable joints

- Most joints are movable
- Allow body to make large range of movement
- Held together by strong ligaments
- Most have second connective tissue called cartilage
- Cartilage covers end of bones and keeps them from rubbing against each other

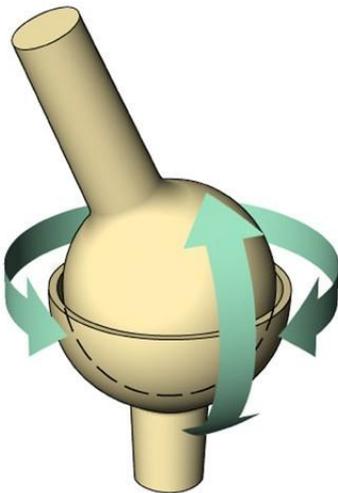
- Fluid lubricates the ends of bones allowing them to move smoothly over each other



Hinge Joint: allows forward/backwards motion



Pivot joint: allows bone to rotate around each other



god range of motion

Ball and socket joint: allows



Gliding Joint: allows one bone to glide over another

Bones-Strong and Living

Skeleton-

- Comes from Greek word for “a dried body”

Bones-

- Complex living structures under go growth+ development

Femur-

- Body’s longest bone
- Connects pelvic bones to lower leg bones

Compact bones-

- Beneath bones outer membrane
- Small canals run through
- Canals carry blood vessels and nerves from the bones surface to the living cells in bone

Spongy Bone

- Has very small spaces within it
- The structure makes spongy bone tissue lightweight but strong.
- This bone is found at end of bone.

Marrow

- Found in spaces inside and outside of bone
- Two types

Red- produces some of body’s red blood cells

When a child, most of your bones contain red blood marrow. When a teenager the ends of the femur, skull, hip bones and sternum (breast bone) contain red bone marrow.

Yellow- stores fat that can serve as an energy reserve.

Bones

- Bones are so strong that they can absorb more force without cracking/breaking than concrete or granite rock. The cool part is that they weigh less than these both rocks.
- Bones contain primarily phosphorus and calcium.
- Bones are a living thing. They have cells, tissues, and marrow (a type of tissue)
- New bone tissue sometimes forms after an accident. If you break a bone, new bone tissue fills in the crack/break.
- If you play a sport, your bones absorb the force of your weight shifting.
- As an infant, most of the skeleton is cartilage. As they grow, the bones grow with them.

As an adult, many joints contain cartilage that protects ends of bones.

Taking Care of your Bones

- combination of a balanced diet, regular exercise are important for a life time of healthy bones

Diet

- eating a well balanced diet ensures healthy bones
- well balanced diet includes a lot of calcium and phosphorus
- meats, whole grain, and leafy green vegetables are good sources of calcium and phosphorus
- dairy products including yogurt are good sources of calcium

Exercise

- getting plenty of exercise is good for your bones
- during running, skating, or dancing your bones support the weight of the entire body
- these activities help your bones get stronger and denser
- to prevent injuries wear safety equipment such as a helmet and pads

Osteoporosis

- when people get older their bones lose minerals they contain
- mineral loss can lead to osteoporosis in which the bones become weak and break
- osteoporosis is more common in woman than in men
- regular exercise through out life helps prevent it
- also a diet with calcium also helps prevent it
- you eat enough calcium in your life you can prevent it later in life

Common Skeletal System Injuries

Fracture: A fracture is a break in the bone. There are two ways you can get a fracture.

- Simple Fracture: when the bone is either cracked or broken in two or more pieces
- Compound Fracture: when the broken ends of the bone stick out of the skin\

Dislocation: when the end of your bone comes out of its joint.

Sprain: a sprain is when ligaments in your body are stretched too far and tear.

Identifying Injuries

- Two ways to identify injuries- x-rays and magnetic resonance imaging.

X-rays

- X-rays show if bones are broken or not. They are a form of energy that travels in waves.
- A lead open apron is placed on your body before you get your x-ray taken to protect you from exposure.
- X-rays pass through the soft tissues but not through the bones.

- The x-rays cannot be used directly to view injuries to tissues, such as muscle and Internal organs.

Magnetic Resonance Imaging

- Magnetic Resonance Imaging is a way to take images of broken bones and tissues.
- To do this the MRI uses electromagnets to expose the person to short bursts to magnetic energy.
- This causes atoms to vibrate which makes the picture on the screen.
- MRI images are clearer to see than x-rays and don't damage but they cost a lot.



Treating Injuries

- Fractures are put in casts
- Two other treatment methods – surgical

Joint Replacement

- Joint injuries or disease which damage joint, cause pain, restrict movement
- Arthritis – disease makes movement painful
- Replacing the joint with an artificial one restores function, eliminates pain
- Knees, hips, shoulders, fingers, and wrists can be replaced

Arthroscopy

- Surgery done through small incisions
- Doctors insert tube-shaped instrument called arthroscope
- Has a camera, see inside the joint
- Tiny instruments are inserted through tube to fix problem
- Arthroscope diagnoses and repairs many joint problems

