

The Skeletal system

Bones are live and active

Made up of the bones, cartilage,
and the connective tissue

Bones

- The adult human skeleton has 206 bones
- Bones store minerals (calcium) and making blood cells (in the center of the bone)
- Cells-tissue-organs-organ systems-organism
- (heart cell-heart tissue-heart-cardiovascular system, respiratory system + etc=====organism (a living thing)
- Minerals are deposited by living cells called osteoblasts
- Compact bone does not have open spaces
- They are rigid and dense.
- The small spaces are tiny channels where blood vessels (veins, arteries, and capillaries)
- See figure 2 p. 585

bones

- Spongy bone provides most of the strength and support for the bone
- Bones contain soft tissue called marrow.
- Red marrow, white marrow, and yellow marrow (found in long bones).
- Most bones start off as flexible tissue called cartilage.
- Explain growing pains?
- Where are two places that cartilage was never replaced.

Muscles

- Muscles help you move, breathe, and hold your body

joints

- Where two bones meet
- Fixed joints allow little or no movements
- Many joints in the skull are fixed
- Ball and socket joints allow much movement----
shoulder joint
- Hinge joint---allows a door to open and close---
flex joints---elbow and knee.
- Joints are held together by ligaments
- Ligaments hold bones together-elastic band
- Cartilage that cushions the bones.

Injuries and diseases

- Osteoporosis – causes bone to be brittle
- Dislocated joint—joint out of place or socket
- Sprain---ligaments stretched too far or torn
- Arthritis---joints swell or stiffen---cartilage become worn out over time.

questions

- 1. How do bones help maintain minerals in the body?
- 2. Name the parts of the bone and describe their functions?
- 3. Describe the two types of bone.
- 4. What are the two types of marrow? Explain the function of each.
- 5. What is cartilage? What happens if the cartilage becomes worn out?
- 6. Name and describe the three types of joints.
- 7. How do joints relate to ligaments?
- 8. What kind of joint do you use when you bend your knee?
- 9. What kind of joint do you use when you swing your arm back and forth?
- 10. Name another location in the body where this joint is located.
- Homework: Write an essay about what bones do.

Muscles

- Help you move, breathe, and hold body upright
- Three types of muscles
 - » Smooth-digestive and walls of blood vessels
 - » Cardiac---found in the heart
 - » Skeletal—attached to bones for movement and helps to protect the inner organs

- Muscle action can be voluntary and involuntary
- Controlled muscle is voluntary---
- Involuntary are not in your control--heart beating and breathing

- Movement comes from signals sent from the brain to the muscle. The muscle contracts or shortens.

Tendons, flexors, extensors

- Tendons connect muscles to bone.
- Skeletal muscles work in pairs. One muscle may bend and the other will straighten out. The bending muscle is called a flexor.
- The muscle that straightens part of the body is the extensor.
- The triceps is the extensor and the biceps is the flexor

exercise

- There are two types of exercise that strengthens muscle:

resistance---working against
curl ups, push-ups.....

aerobic exercise- steady
moderate, intense activity---jogging, swimming,
running

When a broken bone occurs and the muscles are not exercised they become weak and shrink.

Muscle injury

- Muscle strain occurs when it is pulled, stretched, or torn
- Strains happen when the muscles are not warmed up or worked out too hard.
- Tendonitis--- inflamed tendons that were not given time to repair before the next session.
- Steroids—used to enhance muscle endurance for athletes. May cause serious organ damage. May stunt growth in people still growing.

The Integumentary system

- Skin, hair, nails-----covers the body and helps to maintain homeostasis
- Helps to keep water inside of the body and keeps germs out of the body
- Feel things around you
- Helps maintain temperature—sweat—helps to cool body
- Rids waste through sweat.
- Melanin---determines color of skin---

Layers of skin

- Skin is the largest organ on the body
- TWO LAYERS
- Epidermis---outer most layer
- Dermis ---thick layer underneath the epidermis

Epidermis

- Some parts are thick—palms of hands and soles of feet
- Most cells are dead
- Contains a protein called keratin-makes skin tough

Hair and Nails

- Hair follicle makes hair
- Hair gets color from melanin
- Hair protects the body from damaging particles.
- Nails protect the end of toes and fingers.
- Some injuries to skin are acne—caused by the production of too much oil mixed with bacteria or dust.
- Skin cancer can occur from skin being exposed to harmful radiation.

Dermis

- Contains collagen----tough protein that supports the skin.