

Musculoskeletal System

- Together bones, muscles, and joints along with tendons, ligaments, and cartilage form our _____.
- This system enables us to do every day physical activities that without these things would be impossible.

Bones

1. The human skeleton has _____ bones.
2. Our bones begin to develop before birth, but take around 20 years to complete this process.
3. Bones of kids are smaller than adults and contain “growing zones” called _____.
4. Bone building continues throughout your life, as your body constantly renews and reshapes the bones’ living tissue.

What makes up a bone?

1. Calcium, phosphorus, sodium, and other minerals
 - a. Calcium is needed to make bones hard, which allows them to support your weight.
 - b. Bones also store _____ and release some into the bloodstream when it’s needed by other parts of the body.
2. Bone _____
 - a. The soft bone marrow inside many of our bones is where most of the _____ flowing through our bodies are made.
 - b. The bone marrow contains special cells called stem cells, which produce the body’s red blood cells and platelets.

Bones are made up of two types of materials

1. _____ is the solid, hard outside part of the bone.
2. _____ looks like a sponge and is inside the compact bone.

Bones are fastened to other bones by long, fibrous straps called _____.

_____ is a flexible, rubbery substance in our joints that support the bones and protects them where they rub against each other.

Muscles

Bones don’t work alone – they need help from the _____.

Muscles pull on the joints, allowing us to move

1. The human body has more than _____ muscles, which make up half of a person’s body weight
2. They are connected to bones by tough, cord-like tissues called _____, which allow the muscles to pull on bones

There are three different kinds of muscle

1. _____
 - These are attached to bones
 - They are voluntary muscles because you control their movement
2. _____
 - Examples are the walls of the stomach and intestines
 - These are involuntary muscles because you can’t control them
3. _____
 - This muscle is found in the heart
 - This is an involuntary muscle because you can’t control it

Muscles move body parts by contracting and then relaxing

1. Your muscles can pull bones but they can't push them back to their original position, so they work in pairs of flexors and extensors.
 - a. _____ contract to bend a limb at a joint.
 - b. _____ contract to extend or straighten the limb at the same joint.
 - For example, the bicep muscle, in the front of the upper arm and the tricep, at the back of the upper arm work together; when you bend your elbow, the biceps contracts, then the biceps relaxes and the triceps contracts to straighten the elbow

So in this example the bicep is the _____ and the tricep is the _____.

Joints

- Joints allow our bodies to move in many ways
- Joints are classified by their range of movement
 - _____ - don't move, such as the dome of the skull.
 - _____ - move a little, such as the vertebrae in the spine.
 - _____ - move in many directions; there are three kinds of freely movable joints
 - _____ - allow movement in one direction, as seen in the knees and elbows
 - _____ - allow a rotating or twisting motion, like that of the head moving from side to side
 - _____ - allow the greatest freedom of movement, like the hips and shoulders

Things that can go wrong with the bones, muscles, and joints

- _____ - Is the inflammation of the joint
- _____ - Occurs when a bone breaks; it may crack, snap or shatter
- _____ - Bone tissue becomes brittle, thin, and spongy
- Repetitive stress injuries
 - A group of injuries that happen when too much stress is placed on a part of the body, resulting in inflammation (pain and swelling), muscle strain, or tissue damage; this stress usually occurs from repeating the same movements over and over again
- Strains and Sprains
 - Strains occur when a muscle or tendon is overstretched; sprains are an overstretching or partial tear of the ligaments
- _____ - a common sports injury that usually happens after over exercising a muscle

Kids and Growing Pains

- Growing pains aren't a disease.
- Usually happen when kids are between 3 and 5 or 8 and 12.
- Kids get growing pains in their legs and most of the time they hurt in the front of the thighs, in the calves, or behind the knees
- Growing pains often start to ache right before bedtime
- You will outgrow this and not everyone will get growing pains
- Here are 3 things that might help you feel better
 1. Placing a heating pad on the spot where your legs hurt
 2. Stretching your legs
 3. Having your parent massage your leg