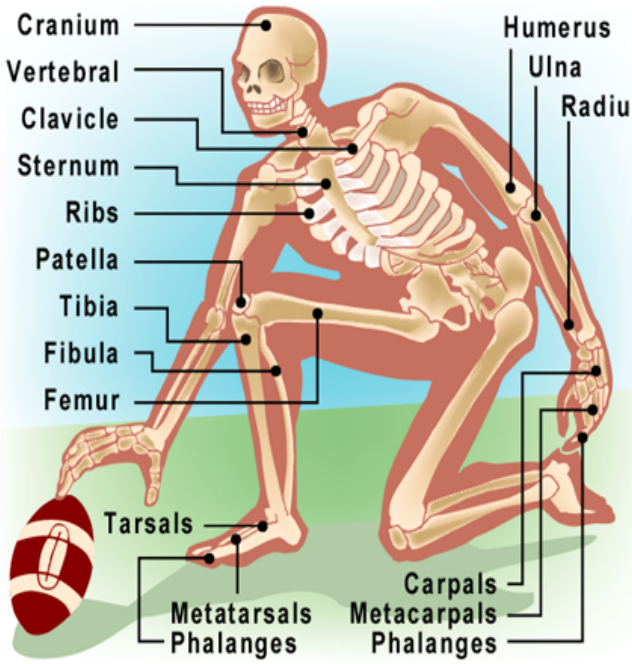
What would we look like if we didn't have muscles or bones?

Imagine it, nothing to hold us upright, nothing to help us move.

Dec 3-3:27 PM

The Musculoskeletal System



We have recently learned that the nervous system controls and coordinates the movements of our body.

The system that makes movement possible is called the musculoskeletal system and includes the bones, muscles and joints. Without this system we would not be able to stand, walk, write or even smile.

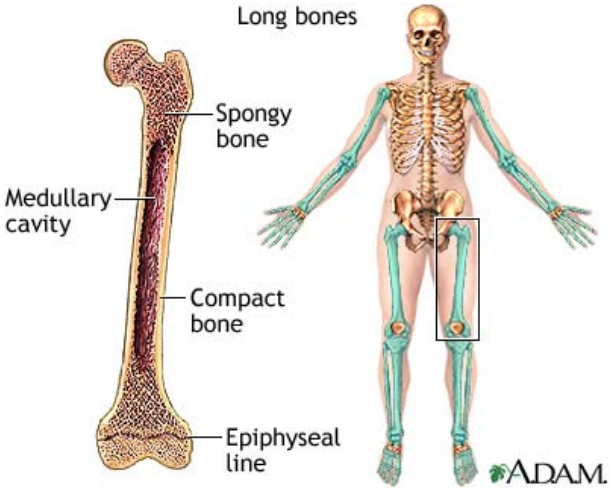
Dec 3-10:45 AM

An adult has 206 bones in their body. These bones are grouped into three regions, the head, trunk and limbs.

Bones are made up of bone cells which are connuously being renewed. The bone ssue is the hardest material in the body.

Two types of bones:

- Spongy bone: has numerous small cavies
- Compact bone: very dense

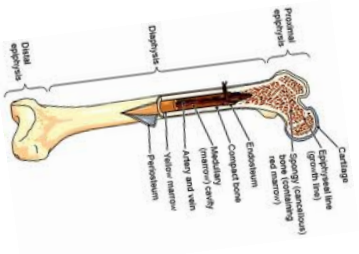


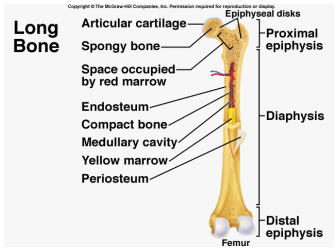
Dec 3-3:34 PM

Bones come in a VARIETY of shapes and **sizes**.

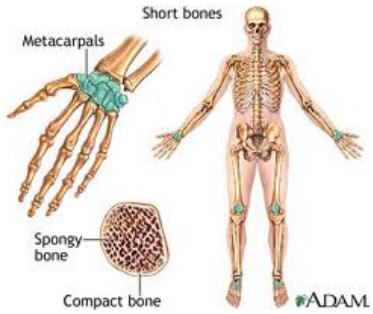
Bones are divided into four categories:

1. Long Bones: They are longer then they are wide. Made of mostly compact bone. Found mostly in the limbs.



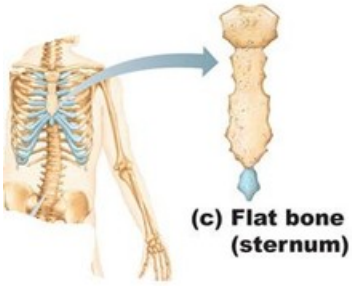


2. Short Bones: Cubic in shape. Made of mostly spongy bone. Found mostly in wrists and heels.

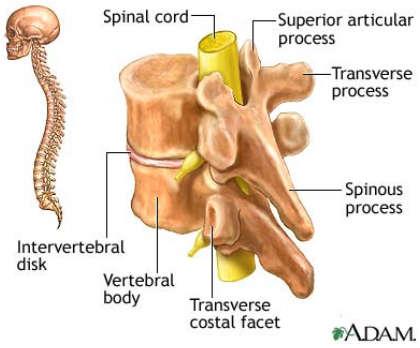


Dec 3-4:08 PM

3. **Flat Bones:** Thin, flat and curved. Two thin layers of compact bone separated by a layer of spongy bone. Examples: the skull and ribs.



4. **Irregular Bones:** Do not belong to any other group due to their irregular shape. Found mainly in the spine.



Dec 4-3:58 PM

What do bones do? What is their funcon?

- Provides support. Bones allow us to hold our posture, stand, sit, crouch.
- Provides protecon. Bones protect our organs.
- Provides movement. Bones allow us to move around or raise part of our body.
- Provides storage. The inner parts of bones store fat, and the ssue stores minerals.
- Producon of blood cells. The bone marrow (found inside certain bones) produced the formed elements of blood (red and white cells and platelets).

Dec 3-4:06 PM

It's Brainpop Time :D

http://www.brainpop.com/health/bodysystems/skeleton/prev

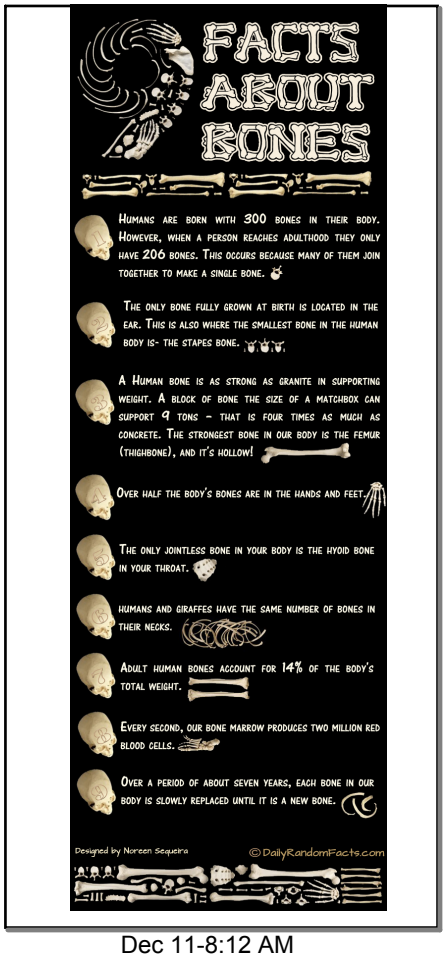
http://www.brainpop.com/health/diseasesinjuriesandconditions/brokenbones/preview.weml

http://www.youtube.com/watch?v=Jpvuqj5nv6U

Dec 4-4:05 PM

Notes

Dec 3-4:01 PM



Dec 11-8:12 AM

FAQ

How do my bones move?

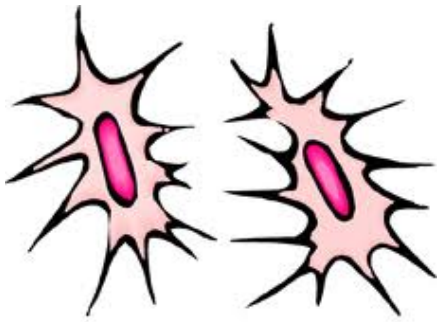
With a lot of help. You need muscles to pull on bones so that you can move. Along with muscles and joints, bones are responsible for you being able to move. Your muscles are attached to bones. When muscles contract, the bones to which they are attached act as levers and cause various body parts to move. You also need joints which provide flexible connections between these bones. Your body has different kinds of joints. Some, such as those in your knees, work like door hinges, enabling you to move back and forth. Those in your neck enable bones to pivot so you can turn your head. Still other joints like the shoulder enable you to move your arms 360 degrees like a shower head.

Dec 11-8:13 AM

Are your bones alive?

Absolutely. Bones are made of a mix of hard stuff that gives them strength and tons of living cells which help them grow and repair themselves. Like other cells in your body, the bone cells rely on blood to keep them alive. Blood brings them food and oxygen and takes away waste.

If bones weren't made of living cells, things like broken toes or arms would never mend. But don't worry, they do. That's because your bone cells are busy growing and multiplying to repair the break! How? When you break your toe, blood clots form to close up the space between the broken segments. Then your body mobilizes bone cells to deposit more of the hard stuff to bridge the break.

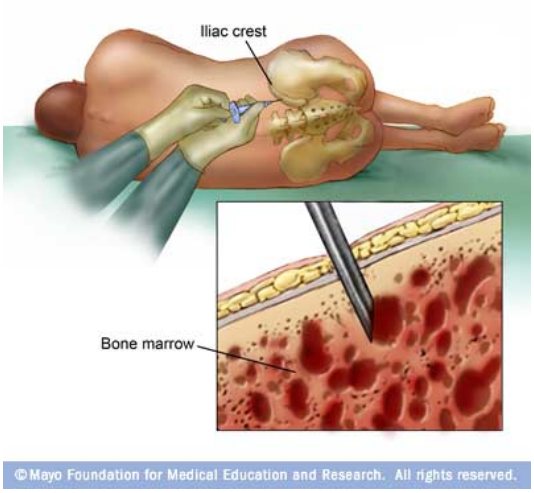


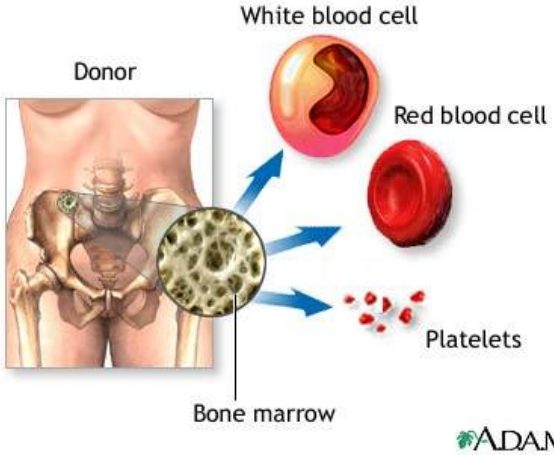
Bone Cell

Dec 11-8:18 AM

What's bone marrow?

Many bones are hollow. Their hollowness makes bones strong and light. It' s in the center of many bones that bone marrow makes new red and white blood cells. Red blood cells ensure that oxygen is distributed to all parts of your body and white blood cells ensure you are able to fight germs and disease. Who would have thought that





Dec 11-8:19 AM

Do all critters have a backbone?

Nope. In fact, some 97% of critters on earth don' t have a backbone or spine. Remarkably enough, of those that do have a backbone, there are lots of similarities: a skull surrounding a brain, a rib cage surrounding a heart, and a jawbone or mouth opening.

Dec 11-8:21 AM

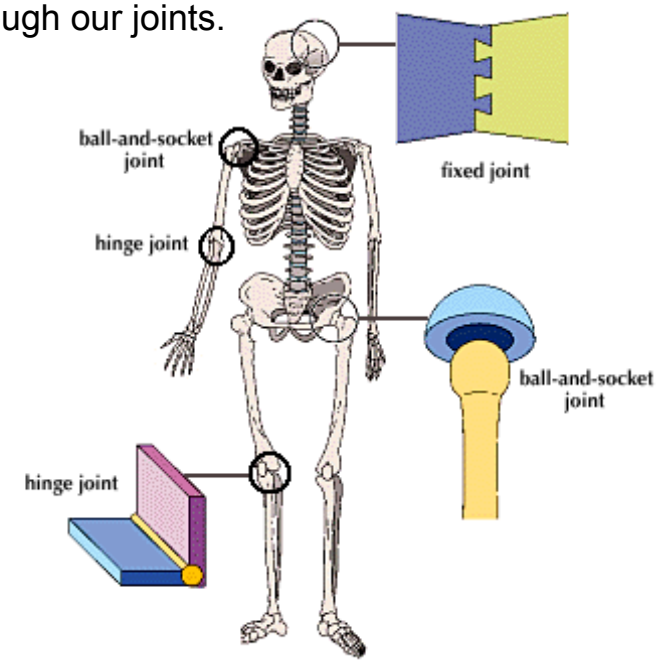
Joints

How are bones held together? How are they able to move and provide mobility?

They can do this through our joints.

A joint is a junction between two or more bones.

Almost all bones have at least one joint.



Dec 11-8:09 AM

Mobility of Joints

The way joints move varies greatly from one joint to another.

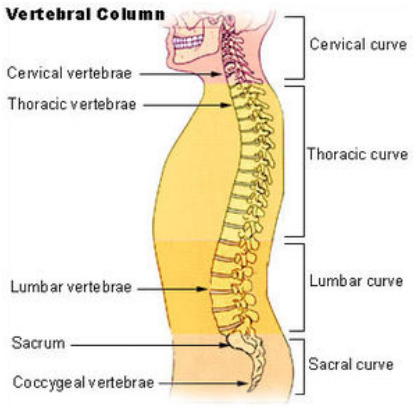
Fixed Joints : These are solid joints that provide protection (example the joints that connect the bones of the skull which provides protection for the brain against blows to the brain)

Dec 11-8:09 AM

Mobility of Joints

The way joints move varies greatly from one joint to another.

Semi-movable Joints : These joints are semi-movable such as the joints connecting the vertebrae. They provide protection for the spinal cord and flexibility of the spine.



Dec 11-8:09 AM

Mobility of Joints

Freely-movable Joints : There is a wide variety of joints that are freely movable (example: those in the elbow or hip)

They fall into five categories:

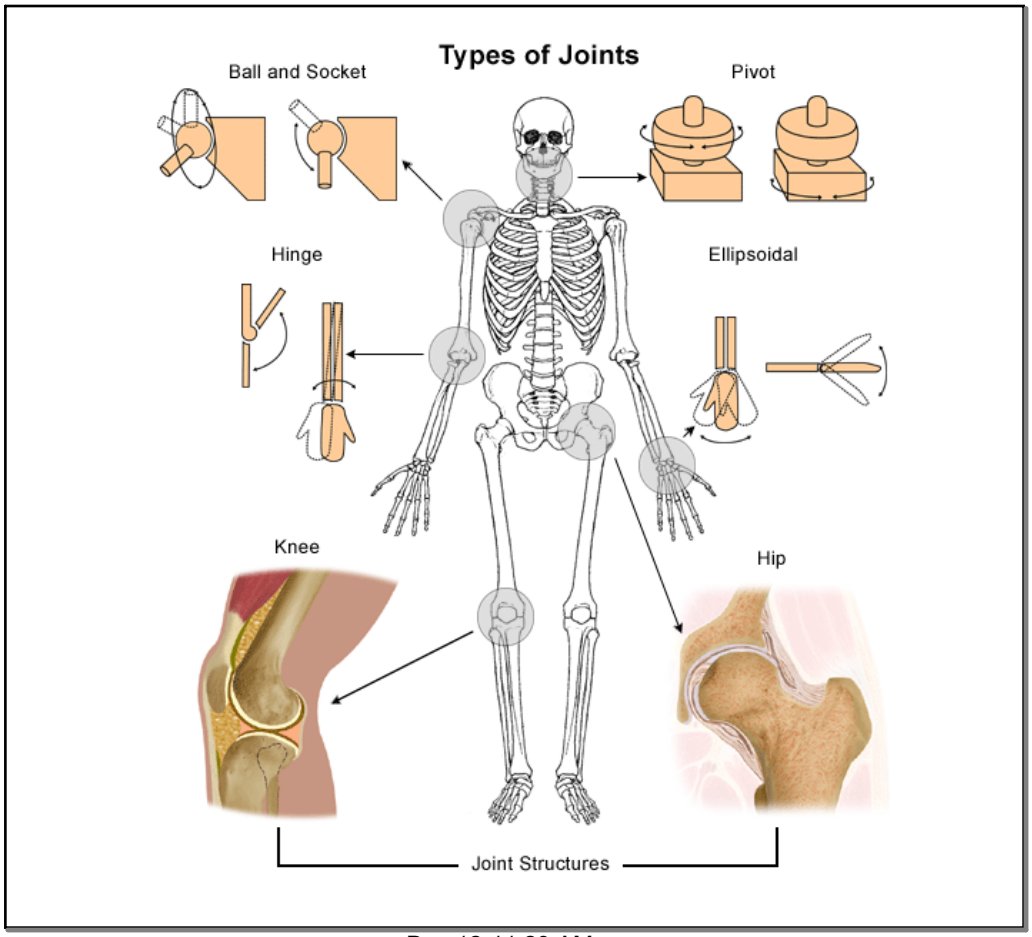
Ball and Socket Joints: Enables bones to move in all directions (shoulders, hips).

Pivot Joints: Enables side to side rotation (neck).

Hinge Joints: Enables bones to move in two directions (knees, elbows).

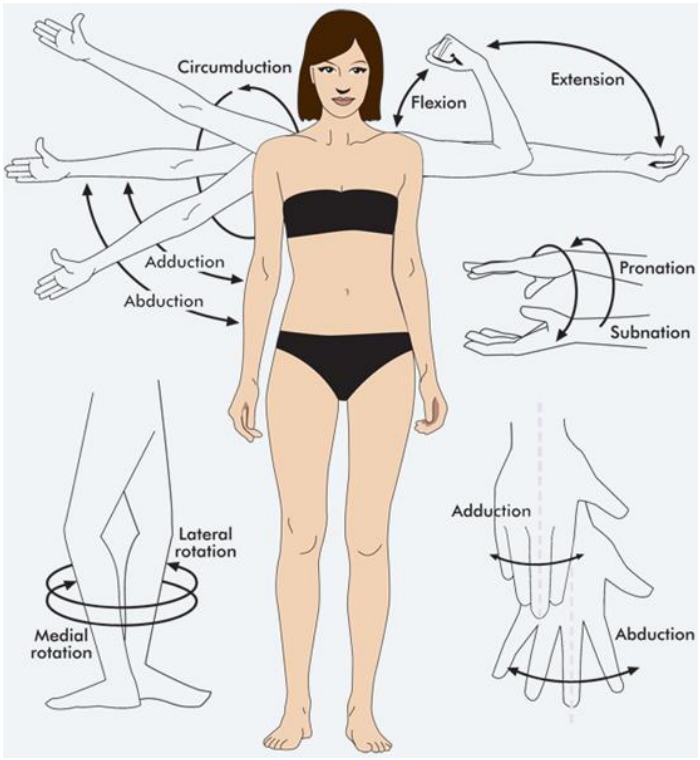
Gliding Joints: Enables flat bones to glide over each other (hands, spine).

Dec 11-8:09 AM



Dec 12-11:29 AM

Joints make it possible for our limbs to perform various movements.



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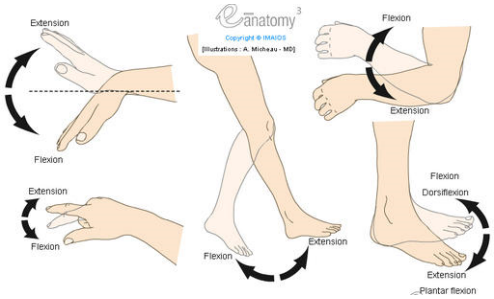
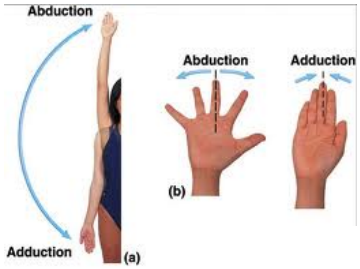
Types of Movement made possible from our joints.

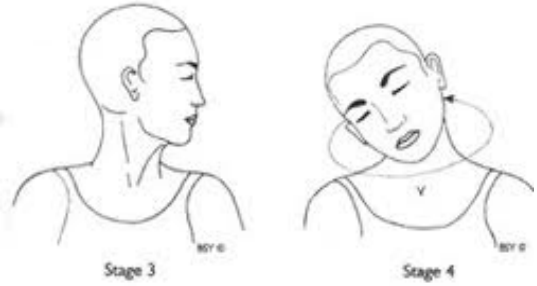
Extension increases the angle between two bones. **Flexion** decreases this angle.





Abduction increases the distance between a limb and body's main position. **Adduction** decreases this distance.

Rotation is the movement of a bone around an axis.



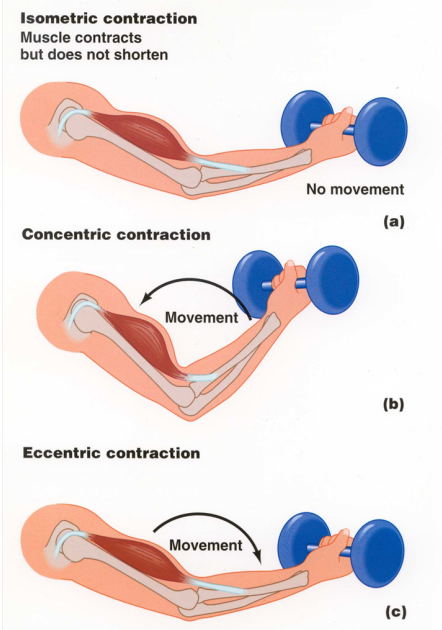
Dec 12-11:32 AM

Muscles

Muscles are found on bones and various organs. They help to shape our figure. They have the ability to contract causing our bodies (or our internal organs) to move.

Muscle Functions

Movement: Each movement is the result of muscle contraction followed by a release. The muscle shortens then resumes its original position.



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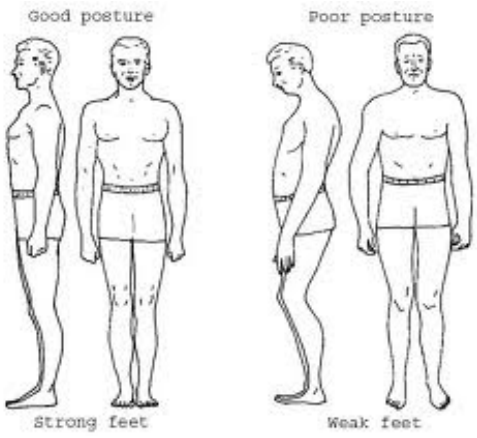
Muscles

Muscle Functions

Posture: Even when we do not move, our muscles contract and release. They must continuously work to maintain our posture.



Joint Stabilization: Muscle movement supports and stabilizes joints. Without muscles some of our joints would not stay in place.

Heat Release: When a muscle contracts energy is released and transformed into heat which helps to maintain our body temperature.

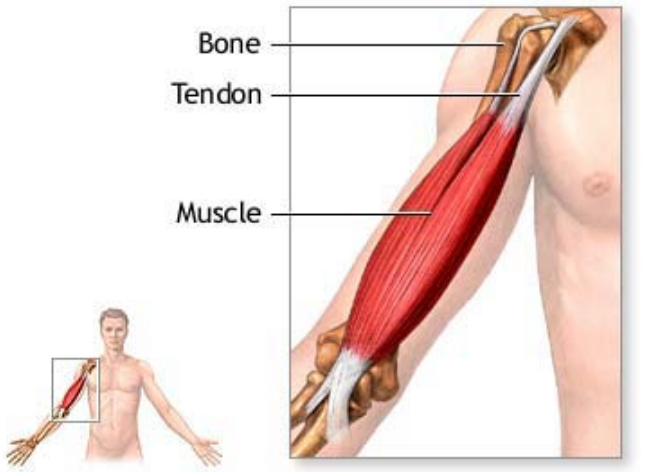
Dec 11-8:09 AM

Three types of Muscles

Skeletal Muscle: The only voluntary muscles. They are attached to the bones of skeletons and contract and move with the bones.

Tendons are what attach muscles to bones.

Skeletal muscles have little endurance, they tire easily.

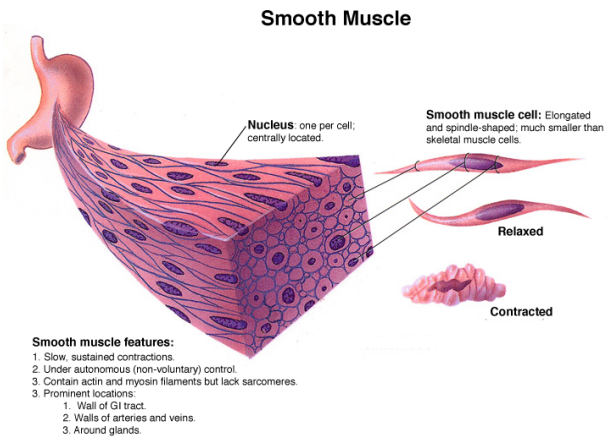


Dec 12-11:41 AM

Three types of Muscles

Smooth Muscle: Smooth muscle makes up the walls of certain internal organs (such as bladder, stomach and uterus). They are involuntary.

They are weaker then skeletal muscle but have more endurance (they work slowly but tirelessly).



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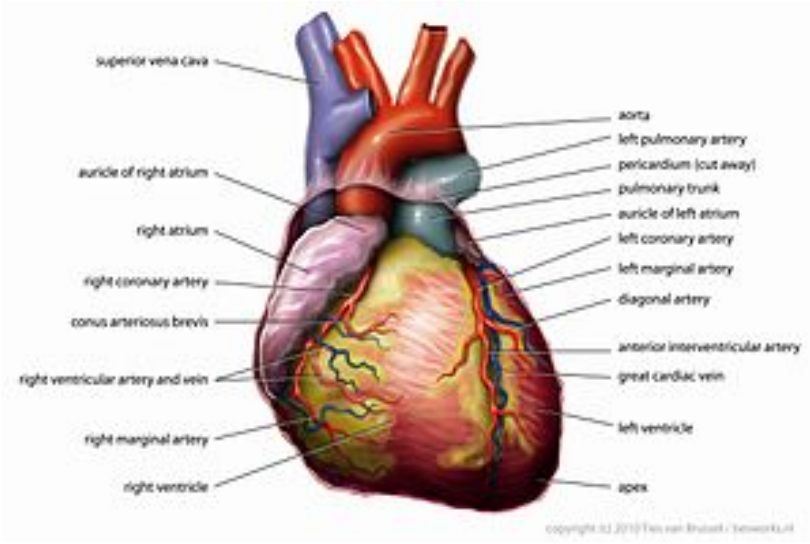
Three types of Muscles

Cardiac Muscle: makes up the heart, it is not found anywhere else in the body. It is involuntary and has great strength and endurance.



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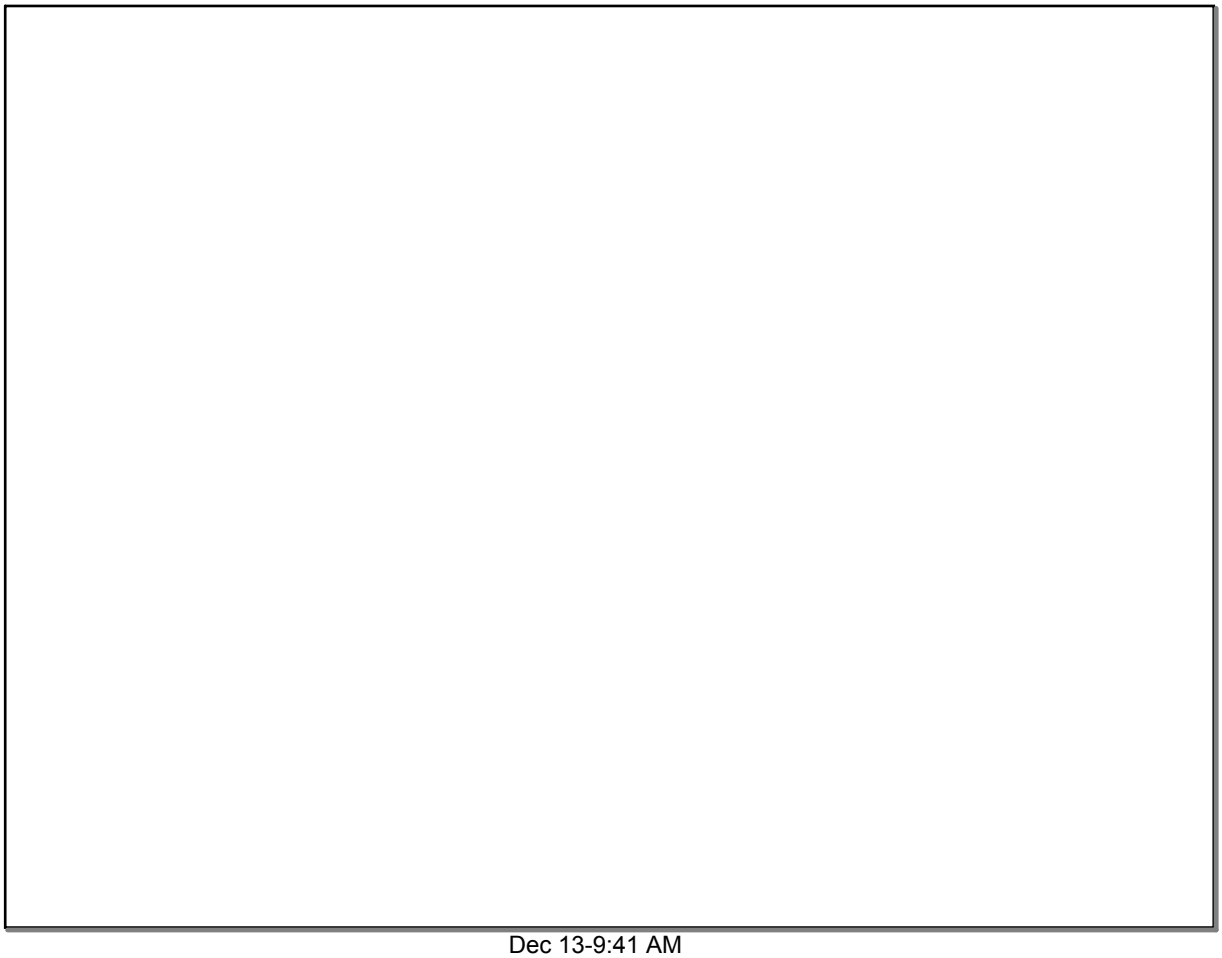

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