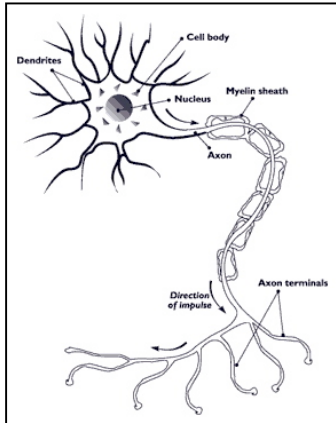


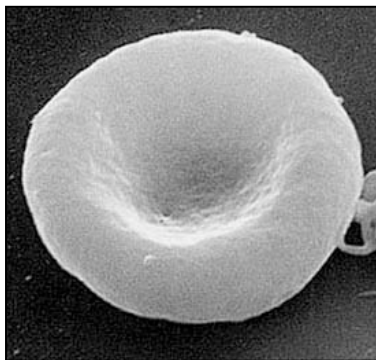
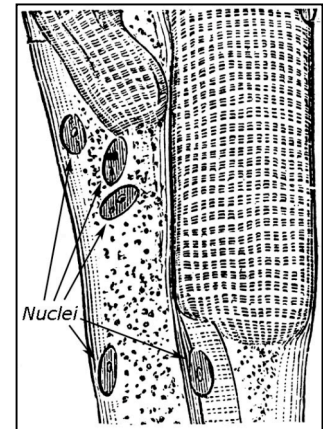
CELL-EBRATION

The human body originates as stem cells that *differentiate* (or specialize) to become hundreds of different kinds of cells, each with their own specific structure and job. This is a very small sample of some of the types of cells working inside of you.



Nerve cells (or **neurons**) carry messages to and from the brain through the entire body via electrical impulses. The impulses are received by structures called *dendrites*, which surround the cell body at one end of the cell, travel down the *axon* (which can be very long) and are then transmitted by the *axon terminals* to another nerve cell's dendrites. These messages control all of the activity, both voluntary and involuntary, throughout your entire body.

Bundles of **skeletal muscle fibers** form the voluntary muscles attached to our skeletons. During development, numerous embryonic cells that fuse together to create these long, cylindrical cells with multiple nuclei. These fibrous cells also contain special organelles called *myofibrils* that run from one end of the cell to the other and attach to the cell membrane at either end. When these myofibrils contract, they contract the muscle fibers and thus the muscles themselves.



Red blood cells (or **erythrocytes**) transport oxygen throughout the body via the blood flow. They lack nuclei and nearly all other normal cell organelles and so cannot undergo cell division, but have a high amount of the iron-containing molecule *hemoglobin* in their cytoplasm, giving them a distinct red color. Hemoglobin binds to the oxygen the cells pick up in your lungs, allowing them to carry it to the bodily tissues that need it.

Osteocytes are a type of bone cell that are trapped in the mineralized *matrix* that makes up bones. These cells consist of a nucleus surrounded by a thin layer of cytoplasm that extends through many small "canals", giving the cells a distinctive star-like shape and allowing them to network together to exchange nutrients and waste. They are not capable of cell division, but assist with skeletal maintenance by destroying old bone.

