

1. Select three animals (from cheetah, kangaroo rat, pronghorn, tiger, kangaroo, chimpanzee, and/or human) and describe the structures they have that enable them to perform impressive athletic feats.
Cheetah: large nasal cavity to breathe better, narrow face to reduce wind resistance, lean and narrow body and long legs to have big strides
pronghorn: large hoofs to absorb impact, long legs for strides, large lungs for maximum respiration, light bones because less weight is easier to carry
tiger: strong muscles to grip and long legs to jump
2. Muscles have a unique structure that is often referred to as “bundles within bundles.” Describe what the bundles are to someone who cannot visualize them; starting from the largest (fascicle) to the smallest (myofilament); including appearance and function.
What the bundles refer to is that there are groups of muscle cells that make up other muscle cells. It first starts with the fascicle, which is the largest. Fascicles are a group of muscle cells, myocytes, that are bundled together under a protective connective sheath. Myocytes are long muscle cells that have multiple nuclei. They are a bundle of myofibril. Myofibril is a bundle of myofilaments. Finally, myofilaments are the smallest of muscle cells that also bundle into sarcomeres.
3. Muscles have a unique structure that is often referred to as “bundles within bundles.” Describe what the bundles are to someone who cannot visualize them; starting from the largest (fascicle) to the smallest (myofilament); including appearance and function.
Knee ligament injury
Common parts that are injured are the cruciate and collateral ligaments. The cruciate refers to two ligaments called anterior cruciate ligament (ACL) and the posterior cruciate ligament (PCL). The collateral ligaments refer to two ligaments that connect the femur and tibia to stabilize the knee.
When the ACL or PCL are injured, they are usually the result of a tear. For example of the ACL, when your foot is planted and the knee is twisted, the ACL will be torn. Impacts from the back of the knee could tear the PCL. Injury to the collateral ligaments are often from a side blow to the knee.
Injury to any parts of these ligaments would result in the inability to bend the knee properly.
4. Muscles have a unique structure that is often referred to as “bundles within bundles.” Describe what the bundles are to someone who cannot visualize them; starting from the largest (fascicle) to the smallest (myofilament); including appearance and function.
Anaerobic exercises are exercises where it is hard to multitask, even talking as you exercise. Anaerobic exercises cause an increase in number of myofibrils, which are muscle cells, and an increase in energy efficiency.
Unfortunately, when exercising, it is not uncommon to injure a part of the body. There are lots of possible types of injury like sprains, strains, contusion, fracture, dislocation, and ruptures. Strains are when muscles are pulled suddenly. You might associate strains with large muscle groups like hamstrings. I happen to experience this during a basketball game as I sprinted to the other side of the court to get a layup. This was most likely the result of an improper stretch.