

Muscle... there are three type of muscle :skeletal , smooth , cardiac.

skeletal muscle , are the muscle that produce the movement of the skeleton; called voluntary muscle & are made up of striped muscle fiber . A skeletal muscle has two or more attachments . the attachment that moves the least is referred to as the **ORIGIN** ,and that ws by muscle hich moves the most , as the **INSERTIO** . under varying circumstances the degree of mobility of the attachments may be reversed , and therefore the terms origin & insertion are interchangeable . the fleshy part of the muscle is referred to as its **belly** .the end s of a muscle are attached to bone , cartilage , or ligaments by cords of fibrous tissue called **tendons** . occasionally flattened muscles are attached by a thin but strong sheet of fibrous tissue called **Aponeurosis**. A raphe is an interdigitation of the tendinous end s of fibers of flat muscle .

internal structure of skeletal muscle

the muscle fiber are bound together with delicate areolar tissue , which is condensed on the surface to form a fibrous envelope , the epimysium. the individual fiber of a muscle are arranged either parallel or oblique to the long axis of the muscle. since a muscle shortens by one third to one – half its resting length when it contracts , then it follows that muscles whose fiber s run parallel to the line of pull will bring about a greater degree of movement as compared with those whose fibers run obliquely. pinnate muscle ;muscle whose fiber run obliquely to the line of pull .

unipennate muscle is one in which the tendon lies along one side of the muscle & the muscle fibers pass obliquely to it . **A bipenate muscle** is one in which the tendon lies in the center of the muscle & the muscle pass to it from two sides . **multipennate muscle** (1)may be arranged as series of **bipennate muscle** lying alongside one another (2) may have the tendon lying within its centre & the muscle fiber passing to it from all sides , converging . muscle tone. since muscle fiber are either fully contracted or relaxed ,there being no intermediate stage , it follows that a few muscle fiber within a muscle are fully contracted all time. to bring about this state & to avoid fatigue , different groups of muscle fibers , are brought into action at different time .this accomplished by the asynchronous discharge of nervous impulses in the motor neurons in the

*anterior gray horn of the spinal cord . **Basically muscle tone** is dependent on the integrity of a simple monosynaptic reflex arc composed of two neurons in the nervous system . the degree of tension in a muscle is detected by sensitive sensory ending called muscle spindles & tendon spindles . the nerve impulses travel in the afferent neurons that enter the spinal cord . they synapse with the motor neuron situated in the anterior gray horn , which in turn ,send impulses down their axon to the muscle fiber .**Muscle movement** is accomplished by bringing into action increasing number of motor units & at the same time reducing the activity of the motor unite of the muscle that will oppose or antagonize the movement .* NERVE SUPPLY OF THE SKELETRAL MUSCLE

*.....The nerve trunk to the a muscle is a mixed nerve , about 60 percent being motor & 40 percent ,sensory & it also contain some sympathetic autonomic fiber . the nerve enter the muscle at about the midpoint on its deep surface , often near the margin ; the place of entrance is known as the **motor point** .The **motor fiber** are of two types ; the larger **alpha fibers** derive from large cells in the anterior gray horn , and the smaller **gamma fibers** derived from smaller cells in the spinal cord . each fiber is myelinated & ends by dividing into many branches each of which ends on a muscle fiber at motor end plate . each muscle fiber has at least one motor end plate ; the longer fibers possess more . **The sensory fibers are** myelinated and arise from specialized sensory ending lying with in the muscle or tendons called **muscle spindles or tendon spindles** , respectively . these ending are stimulated by tension in the muscle , which may occur during active contraction or by passive stretching . the function of these sensory fibers is to convey to the central nervous system information regarding the degree of tension of the muscle. this is essential for the maintenance of muscle tone and body posture and for carrying out coordinated voluntary movements ..The **sympathetic fibers are** nonmyelinated & pass to the smooth muscle in the wall of blood vessels supplying the muscle . their function is to regulate the blood flow to the muscle .*

smooth muscle

*smooth muscle consist of long ,spindle – shaped cells closely arranged in bundles or sheets . in the tube of the body it provides the motive power for propelling the contents through the lumen . in the digestive system it also causes the ingested food to be thoroughly mixed with the digestive juice .A wave of contraction of the circularly arranged fibers pull the wall of the tube proximally over the contents . this method of propulsion is referred to as **peristalsis** . in storage organ such as the urinary bladder or the uterus , the fibers are irregularly arranged &interlaced with one another . their contraction is slow & sustained & brings about the expulsion of the contents of the organs . in the walls of the blood vessels the smooth muscle fiber are arranged circularly , and they serve to modify the caliber of the lumen . Depending on the organ , smooth muscle fiber may be made to contract by local stretching of the fiber , by nerve impulses from autonomic nerves, or by hormonal stimulation .*

cardiac muscle

*cardiac muscle consists of striated muscle fiber that branch &unite. with each other . it is found in the myocardium of the heart . its fiber tend to be arranged in whorls & spirals , & they have the property of spontaneous & rhythmic contraction . specialized cardiac muscle fiber form the **conducting system of the heart** . cardiac muscle is supplied by autonomic nerve fiber that terminate in the nodes of the conducting system & in the myocardium.*