

Vidya Bhawan Balika Vidyapith

Lakhisarai

Sub. Physical edu. , Class 11th

BASED ON NCERT

Types of movements

There are various types of movement in body parts which can be divided in four types i.e. gliding & angular movements, circumduction & rotation and few other movements.

Gliding movements: Gliding movements is the simplest kind of movement that can take place in a joint, one surface gliding or moving over another without any angular or rotator movement.

Angular movement: Angular movement occurs between long bones. By angular movement the angle between the two bones increased or decreased. The various movements which fall under angular movements are described below:

- a) **Flexion:** Bending parts at a joint so that the angle between them decreases and parts come closer together (bending the lower limb at the knee).
- b) **Extensions:** Straightening parts so that the angle between them increases and parts moves farther apart (straightening the lower limb at the knee).
- c) **Abduction** means moving a part away from the midline (lifting the upper limb horizontally to form a right angle with the side of the body))
- d) **Adduction** means moving a part towards the midline (returning the upper limb from the horizontal position to the side of the body).

Circumduction: Circumduction is that movement which takes place between the head of a bone and its articular cavity. This kind of motion is best seen in the shoulder and hip joints.

Rotation: Rotation is a form of movement in which a bone moves around a central axis without undergoing any displacement from the axis. Moving a part around an axis is called rotation.eg. Twisting the head from side to side.

Major muscles involved in running

The major muscles involved in running are described below:

Glutes: these muscles stabilize your hips and legs. These muscles work with hamstring muscles and help in hip flexors.

Quads: Quads propel you forward and help straighten out the leg in front so that it can make a good contact with the surface of ground.

Calves: these muscles give you spring in your step and at the same time these muscles act as shock absorbers.

Hamstrings: As you move forward, the action switches to your hamstrings, the muscles at the back of your thigh muscles. These muscles help you in pulling the leg back behind and give you strength to propel your body forward.

Core muscles: Strong abs and back are really important because they keep your posture upright and overall form good. These muscles play a significant role in running.

Biceps: biceps also play a vital role in running. Biceps maintain a bent arm and help in swinging your arms back and forth while running.

Major muscles involved in jumping & throwing

The leg, feet and gluteus muscle groups are used in jumping. Specific muscles which are involved in jumping are gluteus maximus, hamstrings, quadriceps and soleus. In fact, jumping occurs in three stages. The first stage is the preparatory stage where ankle muscles, calf muscles and soleus tense to prepare launching. The second phase is the launch phase, where hip extensors, the hamstrings and gluteus maximus combine and the knee extensors extend the knees to allow the body to launch into the air. In the last stage is the landing phase where all the muscles embrace impact and allow the body to return to a resting position.

The major muscles are pectorials, major, latissimus dorsi, anterior deltoid and teres major are involved in throwing. These muscles are comparatively responsible for velocity during the throw. The pectorialis major is the large muscle in the chest and latissimus dorsi are the large muscles on each side of the back. Deltoid, biceps, triceps are also involved in throwing a javelin in athletics.