

FUNCTIONS OF MUSCLES:

Muscles act to:

- Facilitate locomotion and movement through the contraction of muscle fibres
- Maintain stability of the joints by preventing undesirable, excessive movement
- Support the skeletal structure

MUSCLE ACTIONS:

Contraction of the muscle fibres brings the insertion towards the origin, resulting in shortening of the muscle belly and movement of the skeleton.

The contraction of FLEXOR muscles cause the joint to articulate (or open), while contraction of EXTENSOR muscles act to straighten (or close) the joint.

ABDUCTOR muscles contract to move the limb outward and away from the midline of the body, while ADDUCTOR muscles bring the limb inwards toward the midline.

Muscles work in four different ways: isometric, concentric, eccentric and ballistic contractions.

ISOMETRIC contraction occurs when a muscle contracts without causing any movement; it stabilises or fixes a body part. These contractions are used when mounting a horse or when a horse is balancing in a horse float.

CONCENTRIC contraction occurs when a muscle shortens as it contracts, causing articular movement: these muscle contractions cause protraction (forward movement) and retraction (backward movement).

ECCENTRIC contraction occurs when a muscle gradually releases, assisting movement and avoiding jerky or unstable actions. These contractions resist movement and allow the body part to move in a controlled manner, for example, when lowering a foot or in the landing phase of a jump.

BALLISTIC contractions allow the horse to move with immense momentum; these muscles allow the horse to reach further and faster than normal, as when swinging head and neck sideways toward the hind end to reach a fly.