Biomechanics of Walk, Trot & Canter

Walk

A four-beat gait with less stretch and recoil than the other gaits

Force on horses back = 1 x Riders Weight every stride

Encourages relaxation, physically and psychologically, making it ideal for warm up and cool down sessions

With this low impact gait risk of injury is reduced, therefore recommended for weak, old or horses in rehabilitation

Walk gives a greater increased range of motion in the back than trot

Spinal rotation and lateral flexion are also at their highest in walk, making it beneficial for mobilising the back

Back movement can be assessed by observing symmetry of head and neck movement

Performing strengthening exercises in walk enhances results

To encourage good posture and natural recruitment of the mechanics of the nuchal and supraspinous ligament, walk with the head in a low position

Walk maintains the length of the longissimus dorsi muscle as well as the strength of the muscle, vital for a healthy back and neck

Horses cannot mask a problem by using spring as walk relies on muscular and joint activity. It has no suspension or tendon bounce/recoil

Walk is a complicated gait of unilateral and triangular stance phases. It becomes harder for the horse when mounted due to the unilateral contraction of the longissimus muscle being compromised by the additional weight

Trot

A two-time symmetrical, rhythmical gait where diagonal limbs should land exactly together

Force on horses back = 2 x Riders Weight every stride

Trot is often used for assessing straightness, soundness and symmetry as a good trot should have good rhythm, regularity and impulsion

In ridden horses riding on the correct diagonal will stop the horse from creating compensatory patterns to cope for the rider, resulting in asymmetry

Trot has the least range of motion in the back and trotting under saddle significantly reduces this further

A good trot, and horses with a healthy musculoskeletal system, should have an easy spring, push up into suspension and therefore absorption of landing forces. This moment of suspension creates an increase in the stretch of muscles, tendons and ligaments

Canter

A three-beat gait with a moment of suspension

Force on the horses back = 2.5 x Riders weight every stride

Canter work can be prescribed for toning abdominal muscles on both sides of the horse

Canter will improve posture, strength, back mobility, flexibility and conditions the cardiovascular system

Varying speed and stride length will assist to improve symmetry and give a more complete workout if performed in true canter and counter canter

Encourages flexion and extension in the back and lumbosacral junction and is excellent for mobilisation in these areas

To assess your canter look for achieving rhythm, energy, power, balance and for diagonal limbs landing together

The rhythmical rocking motion of canter is often used to strengthen thoracic sling muscles

It will also improve muscular strength, power, balance, mobility and elasticity