The Role of Ridden Lameness Evaluation

Elizabeth J Davidson, DVM, DACVS, DACVSMR
Associate Professor in Sports Medicine
New Bolton Center
University of Pennsylvania, Kennett Square, PA

The lameness diagnostician relies on the ability to recognize symmetrical (sound) and asymmetrical (lame) gaits. Historically, gait assessment (i.e. the lameness examination) is performed while the horse is walking and trotting with its handler. This method of lameness evaluation dominates the equine veterinary literature and is the basis for nearly all lameness grading systems. It is the best way to assess a “head nod” and/or “pelvic hike” upon which lameness is localized to a limb or limbs. Despite its inherent value, the horse’s gait in-hand may not accurately represent the gait in the ridden horse. This is particularly true in sport horses when specific movements, sport-specific gaits, and/or changes of pace such as canter-to-trot transitions are not only training but competition elements of the horse’s performance. For these athletes, the role of the ridden lameness evaluation becomes an important diagnostic tool for the lameness detective.

Poorly performing riding horses can exhibit a wide array of abnormal gait characteristics such as overt limping, reluctance to go forward, resistance in the bridle, hopping-type gait, loss of rhythm, bucking, and/or rearing [1]. Many of these pain-related performance abnormalities are only apparent or exacerbated with a rider [2]. Traditionally, most of these ridden abnormalities have been attributed to back pain. Although the addition of a saddle and weight changes the mechanics of the back resulting in increased back extension [3], lame horses similarly adapt their gaits by stiffening the thoracolumbar-sacral region [4]. The addition of a rider’s weight also causes increased limb loading [5] whereby mild pain related lameness may worsen; lame when ridden despite sound in hand. Posting trot causes uneven loading of limbs with peak forces higher on the sitting trot diagonal compared to the rising trot diagonal [6]; sitting on the left diagonal increases the forces on the corresponding left front and right hindlimbs. Subsequently, this uneven weight during rising trot, particularly changing diagonals, can be used for not only the detection of lameness but determining which leg is the lamest; hindlimb lameness is often worse when the rider sits on the diagonal of the lame leg [1]. In addition to uneven stresses on the limbs, rising trot also creates asymmetrical stresses on the back. Maximal back flexion occurs during unloaded rising trot stride and maximal extension during loaded sitting trot stride [3]. However, changes in back movement are not strictly limited to rider positions. Limb lameness also results in back hyperextension [4]. This resultant thoracolumbar stiffness is often perceived as back pain by the rider even when the underlying pain and decreased back flexibility is due to limb lameness.

Although the mere presence of a rider can influence the incidence of lameness, rider effects on an individual horse cannot be predicted [7]. Some horses will be lame in hand and sound with a rider, and vice versa, and the prevalence of lameness may be related to the rider’s skill level [7]. Professional riders may mask underlying gait abnormalities while unbalanced beginners may exaggerate asymmetrical gait conditions. For all riders, accurate identification of lameness and/or localization of the lame limb is
often difficult and a high proportion of “owner-sound” are lame when assessed comprehensively by a skilled lameness diagnostician [8]. Another rider-horse interaction includes saddle fit. Ill-fitting saddles can cause primary back pain [1] and ridden gait abnormalities. Saddle slip, where the saddle consistently slips to one side of the horses back, traditionally, was thought to be due to poor saddle fit. However, current research indicates that lameness influences the presence of saddle slip, with most saddles slipped to the side of the lame hind limb [9].

Similar to in-hand lameness examination, diagnostic analgesia is an essential tool by which the lameness detective can authenticate the underlying source(s) of pain in the ridden horse. Resolution of limb lameness after nerve blocks may also eliminate the saddle slip and the rider’s perception of back pain illustrating its high diagnostic value in the riding horse. Although time consuming, nerve blocks should be performed in a systematical and thoughtful manner since “best guesses” frequently result in improper diagnosis and treatment followed by continued poor performance in the athletic horse.

Although ridden evaluation is not a substitute for in-hand lameness assessment, it can enhance the clinician’s ability to detect and localize lameness. Keen observations in horse moving with and without a rider are paramount for the lameness diagnostician.

References