



## The Stay Apparatus

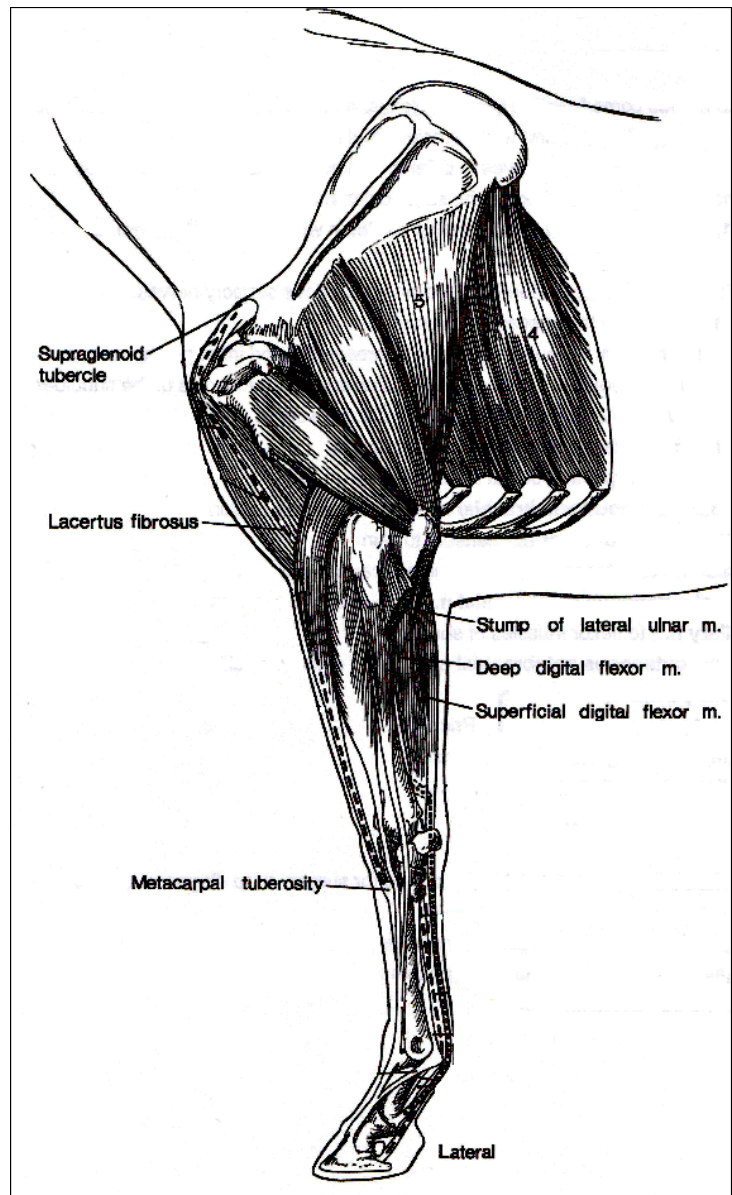
"Horses can stand on their feet for long periods, much longer than other domestic animals," says Dr. Gerald J. Pijanowski, professor of morphology at the University of Illinois College of Veterinary Medicine at Urbana. "This enables them to rest and doze and still be prepared to take flight in a second's notice if need be. If they were lying down when a predator arrived, the time it would take to get to their feet and get moving could cost them their lives."

Three features of equine leg anatomy allow horses this advantage. They are the stay apparatus, the reciprocal mechanism, and the locking mechanism of the stifle joint. The stay apparatus consists of ligaments and tendons that stabilize all the joints of the forelimb and the lower joints (the fetlock and pastern) of the hind limb. Minimal muscular activity is needed to hold tension on these ligaments and tendons, which in turn prevent flexion of the joints and collapsing of the leg. This allows the horse to balance its weight on its legs almost as if they were legs of a chair.

The locking mechanism of the stifle (equivalent to the knee) and the reciprocal mechanism together allow the horse to put weight on one hind limb at a time while it rests the other. A horse can lock the stifle joint by lifting and rotating the patella (knee cap) and then releasing it with one patellar ligament hooked over a protuberance of the femur. The patella is thus firmly secured and the joint is locked in an extended or open position. It can be unlocked quickly by reversing the motions that locked it.

The reciprocal mechanism forces the stifle and hock (the joint below the stifle) to move in unison so that the hock must be extended or flexed when the stifle joint is extended or flexed. Therefore, when the stifle joint is locked by the locking mechanism, the hock is also locked by the reciprocal mechanism.

The stifle and hock are fully locked only when the horse puts most of its



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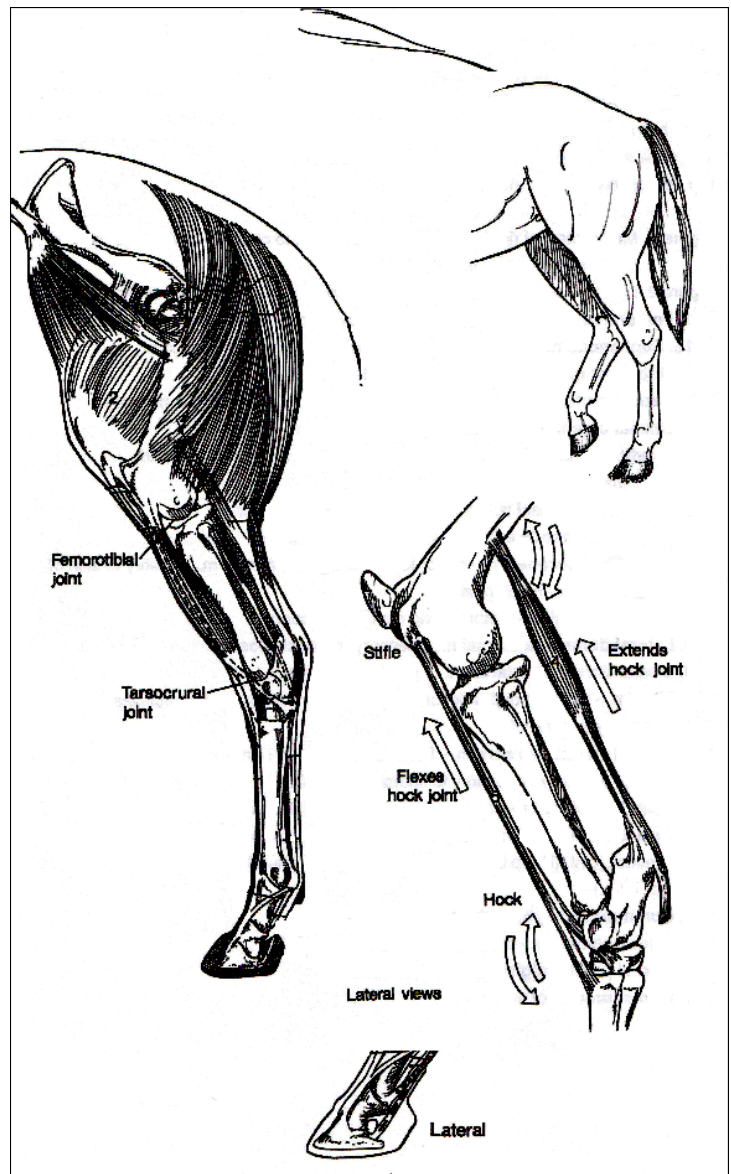


weight on that limb. The other leg rests on the tip of the hoof. This posture can be recognized because the resting hip sags lower than the supporting one, just as a person's relaxed hip sags when all the body weight is put on the one leg. This does take some minimal muscular effort and every few minutes a horse will shift its weight from one leg to the other, alternately resting the other leg.

So, next time you see a horse standing with its head hanging low, its bottom lip drooping, and one hip sagging and you think it looks like it is napping, it may well be. But give it just a slight provocation and it will be off in a flash.

For more information on equine health, contact your local veterinarian.

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