

LEARN & WIN

Horses Inside Out founder GILLIAN HIGGINS is an author, anatomical artist, equine & human therapist, functional anatomist & biomechanist



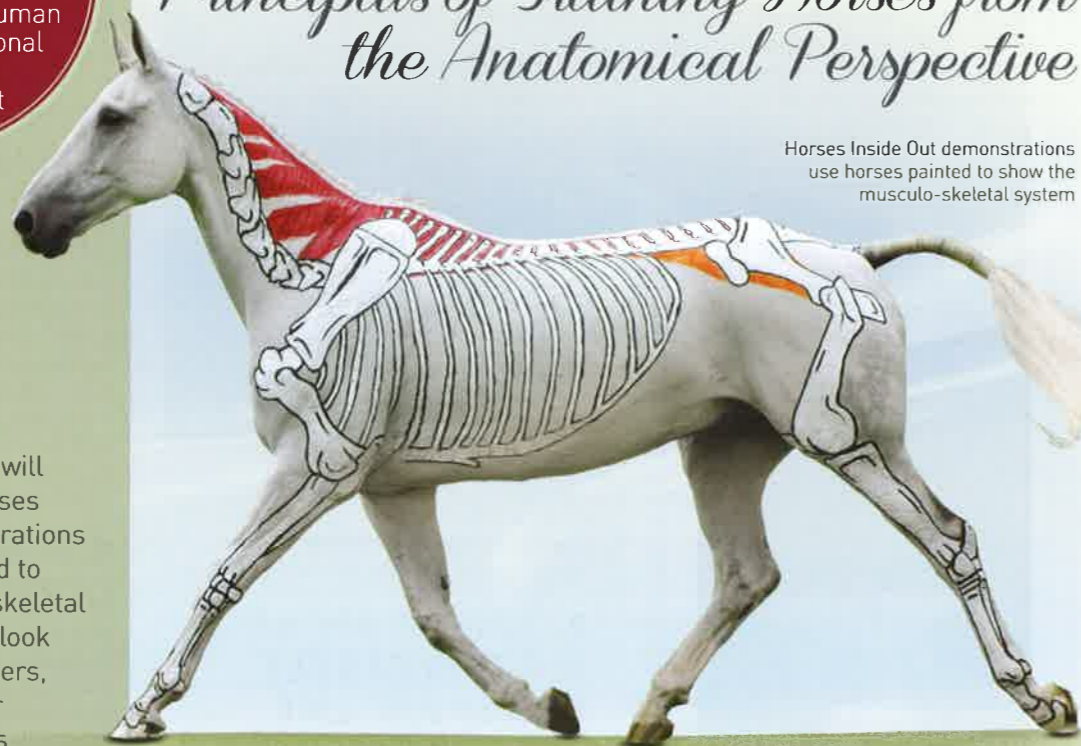
Many horse owners will be familiar with Horses Inside Out, demonstrations using horses painted to show the musculo-skeletal system. The demos look to show riders, trainers, therapists and other equine professionals how understanding equine anatomy and biomechanics can improve welfare, performance and reduce the risk of injury.

Horses Inside Out founder GILLIAN HIGGINS is an author, anatomical artist, equine and human therapist, functional anatomist and biomechanist. Her latest book is *Posture and Performance – Principals of Training Horses from the Anatomical Perspective* (see p32 for a review).

Here, we feature a couple of extracts from the book: skeletal maturity and how to tailor the training of young horses to safely prepare them for their future work and; the principles of posture.

Posture and Performance

Principals of Training Horses from the Anatomical Perspective



Horses Inside Out demonstrations use horses painted to show the musculo-skeletal system

SKELETAL MATURITY: MANAGING YOUNG, SKELETALLY IMMATURE HORSES

Young horses are generally well balanced and move naturally with good posture.

These have an influence on how the horse moves, carries himself and performs. **Early influences by human intervention include:**

- Restriction of liberty
- Familiarisation with tack
- Hoof trimming
- Injury and trauma
- Dentistry
- Carrying weight



It is important that growing horses have access to free field exercise for optimum musculo-skeletal development

There are a significant number of beneficial activities which can be practised before the horse is skeletally mature and which will prepare him for his future work.

These include:

- Handling and leading from both sides
- Appropriate 'Pilates' type core strengthening, stretching, posture and balance exercises
- Lungeing and long-reining
- Groundwork exercises
- Pole work
- Loading
- Accepting a light burden
- Mild exercise on a variety of slopes, surfaces and terrain
- Slowly increasing the time handled or worked to build muscular and cardiovascular fitness.

Racehorses and some horses used for futurity competitions are started before they are skeletally mature, sometimes between 18 and 24 months. For most horses not destined for this type of competition, four is a safer and more sensible age to start placing weight on the back.



Build up muscular strength slowly. Only work for very short periods of time (10 minutes is enough to start with). As a rule of thumb work a 4-year-old no more than four times a week and a 5-year-old five times per week

In summary, the later we can start riding our horses and the more preparation and conditioning we can do beforehand, the better. When starting a young horse it is important to ensure he constantly works in a good posture.

Avoid expecting the horse to carry too much weight for too long or too often, and avoid working him when he is tired. Understanding the maturation of growth plates can help reduce the strain we put on joints, enable us to train more sympathetically and make informed decisions about the type of movements we ask of our horses, how often and for how long we train.

PRINCIPLES OF POSTURE: SPINAL CURVES

One important indicator of posture is spinal curves. These are natural curves within the horse's spine.

When referring to the curves, we are referring to the level of vertebral bodies and not the topline which can be influenced by the musculature.



1. The cervical vertebrae create an 'S' shape allowing the neck to protract and retract rather like a telescope. This enables the positioning of the head and neck to influence posture. At the top of the neck the cervical vertebrae curve upwards (dorsally concave). From mid-neck the curve changes direction with a dorsally convex curve. The thoracolumbar section of the spine should be straight or slightly curved upwards (dorsally concave).



2. When the upper curve rounds (flexes) and the lower curve hollows (extends) this shortens the neck.



3. When the neck elongates the upper and lower cervical curves flatten out.



This horse is illustrating basic good posture with well-positioned spinal curves

A spinal junction is the joint between the different sections of the spine. Their efficient functioning is fundamental to good posture.

At each junction there is a change in the mechanics, anatomical configuration and amount of movement of the vertebrae.

Spinal curves are influenced by:

- Gravity
- Muscle development, fitness and tone
- The weight of the rider
- The weight of the digestive system
- Age

The four mechanisms used by the horse to maintain good posture are also applicable to maintaining the optimum position of the spinal curves. One of the most common poor postural positions is extension through the thoraco-lumbar region.

This detrimental posture, which is so well illustrated in the picture with the rider, is coupled with a more extended curve through the base of neck (protraction through the cervicothoracic junction) and a

more extended lumbosacral junction. This position will be uncomfortable for the horse, put strain through the joints of the spine and hindlimbs and add weight to the forelimb.



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These effects will be exacerbated in the immature horse where the growth plates of the spine are not yet fully fused.

The spinous processes are linked by the intraspinal ligament between them and the supraspinous ligament along the tops. In a normal, fully flexed thoracolumbar spine, the spaces between the spinous processes range approximately from 1mm to 7mm.

When the spine is held in an extended position, the spaces reduce, increasing pressure on the intraspinal ligaments and causing the spinous processes themselves to support weight. Over time this scenario may lead to kissing spines.

Gillian Higgins has a special interest in assessing movement, compensation patterns and designing exercise programmes for rehabilitation and maintenance. Based on the latest scientific research and using live painted horses and slow motion video, Gillian runs an annual conference and courses for both horse owners and professionals in anatomy, biomechanics, assessing movement, massage and stretching. She owns

two horses, is a BHS senior coach and has evented up to advanced level and has published several books and DVDs. More information at www.HorsesInsideOut.com. 