

KNOW YOUR HORSE inside out...

Understanding how your horse's body works is the key to keeping him sound and helping him succeed, as expert Gillian Higgins explains



Meet the expert

Gillian Higgins is a sports and remedial therapist. She trained in human massage and manipulation before training as an equine therapist and taking the McTimony Corley Spinal Manipulation Course.

Gillian uses a variety of techniques to relieve muscular aches and pains, and has developed her own system of assessing and treating horses and humans from all disciplines. This involves a mix of massage, soft tissue manipulation, stretches and exercises.



About Horses Inside Out...

Horses Inside Out is the teaching extension of Gillian's work. A series of entertaining lecture demos, each demo stars Freddie, a 16.2hh novice event horse. With his muscles painted on one side and his skeleton on the other he's able to demonstrate how the musculo-skeletal system works in walk, trot, canter and over jumps. Horses Inside Out teaches riders how their horses work in order to improve performance, reduce injury and maintain top physiological condition. The demo covers all aspects of applied equine anatomy and physiology and includes massage techniques, stretches and warm-up exercises you can do at home to help improve your horse's performance.



How your horse works

The horse's body is made up of two interrelated structures – the skeleton which is the framework, and the musculature which moves that framework.

The horse's spine (except for in the neck and tail) is relatively rigid. This is what allows us to ride our horses. The hind legs are attached to the backbone via the sacro-iliac joint. Flexion of this joint allows the quarters to engage effectively. The fore legs, however, are not attached to the rest of the spine by bone – they're attached by muscles and ligaments. This lack of a 'collar bone' allows greater freedom of movement.

The horse can be compared to a rear wheel drive car with the massive hindquarters providing the power. The function of the fore legs is to suspend the weight of the forehead. The bones of the hind leg, including the pelvis, have to cope with forces placed on them by the attached muscles to create forward thrust.

The musculature of the horse is a complex arrangement of many layers of deep and superficial muscle. Muscle can be built up and we often talk about improving top line. However, this can only be effective if the anchoring, underlying framework is correct – and any imbalance in one will affect the other.

Poetry in motion

The six cervical (or neck) vertebrae in the horse are situated much lower down than many people realise. Apart from the caudal (tail vertebrae), they form the most flexible part of the spinal column – and it's this flexibility that allows the horse to move his neck from side to side.

The positioning of the horse's neck in turn influences the positioning of his back. When his head is down the resulting tension in the ligaments lifts the back. When the neck is up the ligaments slacken, causing the back to sink.

It's the abdominal muscles – mainly the rectus abdominae – that support the weight of the rider, as these are the muscles which actually help to lift the back up.

Any restrictions or soreness in the longissimus dorsi, which connects the musculature of the hind quarters and the front end, can cause the horse to hollow, his back to lower and his head to come up. This action therefore reduces the degree of engagement of the quarters.



Freddie's a very unusual coloured horse who's used in demos to show how a horse's body works on the flat and over fences.

It's vital to know your horse from the inside out in order to understand:

- How to work towards achieving the ideal posture.
- How to anticipate and prevent structural weaknesses.
- How and which muscles to train in order to ask your horse to perform certain movements and achieve the best levels of performance.
- How to ride in a more sympathetic way.
- How to set realistic goals for yourself and your horse.
- How and why your horse gets sore.
- The importance of giving the musculo-skeletal system time to recover after it's worked hard.
- The demands we place on young horses – and so improve their training.

Sports therapy for riders...

"Many riders I treat come to me because they're suffering muscular aches and pains, over-use problems, joint pains and other riding related problems," says Gillian. "Using my system, I find I can really make a difference."

"The benefits include helping to alleviate pain, easing stiffness, relaxing muscles, improving performance, promoting relaxation and reducing stress. And, very importantly, if performed on a regular basis, it can keep your muscles in tip-top condition and reduce the risk of injury."

...and for the horse

"Exactly the same principles apply to the horse," adds Gillian. "They too feel all the same stresses and strains we do. I like to treat horses on a regular basis as an insurance against muscular problems. Like us, they suffer from delayed onset muscle soreness, aches and pains – and the benefits of regular sports therapy are the same for both horse and rider."

Case study

"The results were amazing"

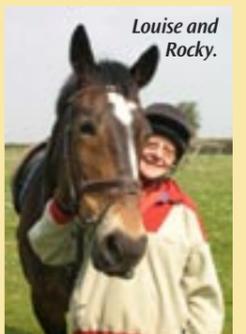
"Louise approached me to look at her horse Rocky at the end of 2006, having been advised by her vet that he'd benefit from remedial massage," says Gillian. "Rocky, a 16hh, 14-year-old all-rounder, had been losing condition and was also stiff and grumpy."

"Rocky was taken to Willesley Equine Clinic for investigations following a bout of colic. He was diagnosed with a neural problem that stemmed from his neck. A piece of one of the cervical vertebrae had broken off and was floating (it had been there for some time). During the investigation it was also found that Rocky had multiple kissing spines, which ruled out operating."

"After some physiotherapy work with muscle stimulators we started regular hands-on massage. Rocky's now been treated regularly for 15 months – and the results are amazing."

"Rocky is more comfortable and has built up the muscles of his top line. Louise reports that he's more relaxed and supple, and her instructor has observed that his steps are much freer in walk."

"As the muscles lining either side of the kissing spines continuously get tight and sore as they try to protect the area, Rocky requires regular ongoing massage treatment, but he's a real success story."



Louise and Rocky.

Your questions

answered...

Q Why do horses and riders get sore muscles?

Gillians says... Muscles are made up of hundreds of individual cells or fibres. Inevitably, when they're used some become damaged. This is generally not a problem as adjacent cells go into tension to splint the area. However, if these fibres don't have time to recover, damage will occur in those splinting the area too as they have to work harder – and so the damage snowballs.

To begin with we're not aware of any trauma within the muscle because it compensates and only uses healthy fibres. When there are so many damaged fibres the muscle can't contract without using them, we suddenly become aware of pain or soreness – but this has actually been building up for some time.

A good way for you and your horse to avoid this type of problem is to have regular sports massage. A good therapist will be able to detect sore muscles even before you do. Prevention is better than cure and one of the things you're shown at a Horses Inside Out demonstration is how to keep your horse's muscles in tip top condition.

Q Why does my young horse find it hard to work in an outline?

Gillian says... Young horses are prone to muscle soreness as their musculature is not sufficiently developed to cope with long periods of training. Expecting your youngster to hold his head in a flexed outline for longer than he's capable will only create problems later on. It's important to give him the opportunity to stretch and rest, and build up strength and stamina gradually.

Q How can understanding the horse's muscular and skeletal systems reduce the risk of injury?

Gillian says... By being aware, we can work our horses more efficiently and in a correct anatomical posture, and set more realistic goals. We can react quickly to stiffness problems and take action immediately, or better still give our horse the benefit of regular sessions with an equine sports therapist.

Muscles attach to many other structures – tendons, ligaments, other muscles, connective tissue and bones – and we need to understand that if a muscle is tight it's protecting damaged fibres by secondary tension. If we go on working the horse it's not necessarily the damaged muscle that gives way, but a tendon, ligament, connective tissue or other muscle. So if you become aware of heat, pain or swelling you need to take action.



Take action fast if you detect any heat, pain or swelling.

Case study

"Massage helps her relax"



"Canny Bay Mare (or Canny) is a 12-year-old four-star event horse ridden by Vicky Tuffs, who started having massage when she went to Germany two years ago," says Gillian. "I now give her a regular maintenance treatment and Emma, Canny's groom, says she really enjoys them.

"Massage helps Canny (pictured above) to relax and become less tense as she can be fizzy. It's better than physio because she's felt all over and any muscular problems can be identified and removed before they develop.

"Canny also has a massage treatment before the dressage phase to keep her calm.

"I recommend this type of treatment on a regular basis as it can nip problems in the bud, prevent them escalating, keep muscles in great condition and reduce the risk of injury."

Top tip...

Groom with your hands and feel your horse all over every day. Think about his temperature, the structures under his skin and his muscle tone; notice how he reacts to being touched. This way you'll be tuned into swelling, heat or tension within his muscles. If something hurts – he'll let you know. You'll be able to detect issues early and react before it escalates.

STRETCHING TO SUCCESS...

Here, Gillian explains how the humble carrot stretch can help to keep your horse's neck muscles mobile and elastic

Begin these exercises slowly, and gradually build up to holding the stretch for 15-20 seconds. Tease your horse with the carrot – don't let him have it straight away! Do the carrot stretches regularly, every day if possible, as a mobile neck is the key to the horse's ability to perform many movements.



By bringing the carrot round as far as he can reach, Freddie is stretching the base of his neck, the pectoral muscles and the first few thoracic vertebrae.



This stretch helps to gain more lateral flexion through the joint between the skull and the first neck vertebrae. It's important to try to keep the nose about vertical as you do this stretch. There are a lot of small muscles around the poll which create the small, precise movements that control the position of the head.



We've stretched the base of the neck (see exercise above) and flexed the poll (see above right), but if you hold the carrot half way between those two points you'll stretch the middle of your horse's neck.



This stretches the muscles around the poll which help to hold the horse's head in an outline. It's a useful stretch, particularly if you've been doing a lot of dressage. Hold the carrot just touching his chin.



This stretches the top line and all the muscles involved in holding the horse's neck in an outline. The carrot should be held high between the horse's legs and then slowly lowered to a point between and behind his fetlocks. It's particularly good for youngsters who are learning to work in an outline.



By holding the carrot low, out to the side of your horse's fetlock, you're helping to create a stretch of the top line muscles that hold an outline and help to create lateral flexion.

Find out more

Horses Inside Out clinics will be held on:

- 8 June, Hand Equestrian Centre, Bristol
- 29 June, Hunters Equestrian Centre, Cirencester
- 24 October, Yorkshire Riding Centre, Harrogate
- For tickets to the Hand EC or Hunters EC demos call 01285 640227; for the Yorkshire Riding Centre call 01765 677207.
- For more info visit www.horsesinsideout.com