CONTENTS

Foreword 9
Acknowledgements 11
Introduction 13

PART 1: THE FASCIAL NET AND FEEL 17

CHAPTER 1 FASCIA 18
An Introduction to Your Fascial Body 18
Slings, Sheets, Straps and Bags 21
Fascia in Horse and Rider 24
Tensegrity – Balancing 'Push' and 'Pull' 25
'Bounciness' and Hydration 28
Locked Long and Locked Short 29
Two Views of Training 31
Fascial Types 33
Myofascial Force Transmission 34

CHAPTER 2 FEEL 38
Learning and Feel 38
Conscious Competence 40
What is Happening Inside the Body-Mind as we Develop Feel? 41
The Fascial Connection 42

PART 2: FRONT, BACK AND SIDES – THE OUTER SLEEVE 45

CHAPTER 3 THE RIDER'S FRONT AND BACK LINES 46
Stabilisation or Relaxation? 46
Front-Back Balance 47
The Superficial Back Line 48
The Superficial Front Line 50
The Superficial Back and Front Lines and 'Neutral Spine' 53
How to Balance the Superficial Back and Front Lines: Finding Neutral Spine 57
Breathing and Bearing Down – an Introduction to Your Core 62

How Different Riders Can Find Neutral Spine 66
Finding Neutral Spine as a Hollow-backed Rider 66
Finding Neutral Spine as a Round-backed Rider 68
Checking and Strengthening Neutral Spine 71
The Superficial Back and Front Lines in the Thighs and Calves 73
To Elongate the Superficial Front Line and Shorten the Superficial Back Line 74
To Elongate the Superficial Back Line and Shorten the Superficial Front Line 79
Toes and Tendons 81

CHAPTER 4 THE HORSE'S SUPERFICIAL FRONT AND BACK LINES AND RIDING IMPLICATIONS 82
Hyperextension in Horse and Rider 85
Rising Trot Mechanism – Ballistic Training for Horse and Rider 87
Matching the Forces in the Thrust of Rising Trot 90

CHAPTER 5. THE LATERAL LINES IN RIDER AND HORSE – THE INTERMEDIATE AND OUTER STABILITY SYSTEMS 92
The Lateral Lines in the Rider 92
The Lateral Lines in the Horse 94
The Ribcage and Hind Legs 97
Bendy Body Parts 98
Rider-Horse Interaction 99
Side Bends and Hot-air Balloons 99
Whose Problem Is It? 101
Know Your Enemy! 102
Narrowness in the Thighs and Seat Bones 104
Overcoming Your Instincts 107
The 'Boards' Exercise for the Intermediate Stability System 107
Using the Outer Stability System to Solve the 'C' Curve Problem 112
Influencing the Horse Who Falls Out on a Circle 114
When the Horse Falls In, or Wants to go Straight on 115
The Lateral Lines in Your Legs 116
A Helpful Off-horse Exercise 118
An Overview: the 'Double Yellow Lines' 119

PART 3: FUNCTIONAL LINES AND ARM LINES – PUSHING THE HANDS FORWARD 121

CHAPTER 6. THE FUNCTIONAL LINES 122
Working with the Functional Lines 125
Off-horse Fixes 127

Timing the Functional Lines 127
Centring the Cross of the 'X' 128
The Functional Lines in Your Legs 129
The Functional Lines in Your Horse 129
Some Thought Experiments with the Horse's Functional Lines 131

CHAPTER 7. THE ARM LINES 134
The Human Arm Lines 134
Misbehaving Arms and Hands 138
Organising the Wrists and Elbows 140
Matching the Forces, Pushing the Hands 141
Passive Resistance 144
Short Reins and 'Arm Cuffs' 145
The Contact Scale 148
Shortening the Reins 149
When the Horse Puts a Loop in the Reins 150
When the Horse Offers to Lengthen His Neck 151
When the Horse Pulls 151
Visualising the Reins as Rods 154
The 'Arm Lines' in the Horse 154
Laterality 156
Grazing Position and its Effects on Asymmetry 156
Minimising Asymmetry 157

PART 4: TWISTS, TURNS AND THE REAL DEAL OF THE CORE 159

CHAPTER 8 – THE SPIRAL LINES 160
An Introduction to the Spiral Lines 160
Squeezing the Toothpaste Tube 162
Side Bends and Lateral Shifts 164
The Upper 'X' – Easing Your Head-carriage 165
The 'X' in the Abs 167
The Heavier Seat Bone 168
The 2.0 Problem 170
The Spiral Lines in the Legs 172
The Sacroiliac 'X' 173
The Spiral Lines in the Horse 174
And so We Finally Arrive … 176
Spiralling Around, or Not? 178
'Rebars' 179
Leg-yield and Shoulder-in 182

CHAPTER 9 – THE DEEP FRONT LINE 184
An Introduction to the Rider's Deep Front Line 184
The Deep Front Line from Toes to Diaphragm 188
- Curling Toes and Wobbly Calves 188
- The Thighs 191
  - The balance between the inside and outside thighs 191
  - The three orange segments of the thigh 192
  - 'Leg-pits' 193
- The Pelvic Floor 195
- The Psoas Muscle – the Core in the Torso 198
  - Functional and compromised psoas muscles 199
- The Two Tracks of 'Locals' 200
- The Quadratus Lumborum (QL) 201
  - Intractable issues of mid-back and hips 202
- The Diaphragm as Two Squares 203

The Deep Front Line above the Diaphragm 204
- Connectors and Spacers 207

The Fan of Muscles 208
The Deep Front Line in the Horse 210
Core to Core? 212
- Connecting to Your Horse's Psoas Muscles 212
- The 'Ring of Muscles' and Longus Colli 213
- The 'Treadmill' 214

Conclusion – Riding as a Long-term Project 216
Glossary –the 'Lines' 218
Internet Connectivity 219
Index 220

FOREWORD

by Thomas Myers

I first fell in love with my wife watching her and her horse gallop in wild but coordinated abandon down a beach in Maine where I live. She and Dakota were one being; it was magic. Even though I was already developing Anatomy Trains at the time, I did not think of this event in terms of biomechanics – it was pure love – between her and the horse, and soon between her and me. Her connection felt entirely intuitive, and, non-rider that I was, I did not imagine that skill could be unpacked with analysis.

I first met and saw Mary Wanless at work coaching riding in an arena in the English countryside, near where I happened to be teaching a course. Here, many years later, I saw how wrong I was. Some of what I saw between my wife and Dakota that day was, of course, pure love, and parsing that is far beyond me. But here was Mary, clearly a master in her element, breaking the 'oneness-with-the-horse' part into its component parts, and using my 'map' to do it. It was a revelation.

Love remains a mystery for the poets and mystics, but the book you hold in your hand unravels the mystery of becoming one with your horse. Mary's many years of experience working with and watching every kind of rider from the beginner to the Olympian is distilled into this beautiful, practical, and comprehensive book for the rider who wants to inhabit that connection, that love, between human and animal.

Animal movement – and humans are animals – is not quite such a mystery as love, but the current scientific explanation – that individual muscles work via tendons over joints limited by bone shape and ligamentous restriction – is clearly inadequate to the task. The actual dynamics at play in riding – or any other complex movement – clearly require a new understanding beyond the levers and vectors of Newton's Laws of Force and Motion. I developed the Anatomy Trains myofascial meridians map to put the mystery of combined stability and fluidity of animal movement one step closer to a scientific analysis with a more relativistic understanding of how movement is generated and modulated.

Such an understanding requires some attention to the 'forgotten' body-wide fabric of connective tissue often termed 'fascia'. Seeing how the muscles function as coupled organs within the fascial net allows a new understanding of how agonists, antagonists, and synergists work together seamlessly to produce (or not, as when I myself began to learn to ride) the coordinated movement required to guide a horse.

Coupled with the work of the Danish veterinarians Vibeke Sødring Elbrønd and Rikke Schultz, referenced herein, who have done the yeoman work of extending my theories of myofascial connection to horse anatomy, Mary has intriguingly married the anatomy of the rider to the anatomy of the horse, and developed a method

whereby many of the seeming 'faults' of the horse can be ascribed to the faulty biomechanics of the rider. This book details the corrections the rider can make to become one with the horse and correct the faults in both. It is a personal pleasure to see the Anatomy Trains scheme extended so beautifully, practically, and accurately beyond where I ever imagined it could go. It is a great professional pleasure to see Mary's many years of assiduous and detailed work take the form of this book, so that many others can appreciate the 'one-ness' that lies at the heart of the art, science, and craft of skilled riding.

Thomas Myers
author of *Anatomy Trains*
Clarks Cove, Maine

CHAPTER

5

THE LATERAL LINES IN RIDER AND HORSE – THE INTERMEDIATE AND OUTER STABILITY SYSTEMS

The Lateral Lines in the Rider

We will now presuppose that the Superficial Back and Front Lines are already well stabilised, and turn our attention to the two Lateral Lines (LLs), which run down the sides of the body from the ear to the outer arch of the foot. They form what we could call the 'outer stability system' of the body, and also give rise to the 'intermediate stability system'.

Fig. 5.1 The Lateral Liness from the back (a) and side (b), showing the 'plimsoll lace' 'Xs' lacing the sides to the Superficial Front Line and Superficial Back Line at the front and back.

As with the Superficial Back and Front Lines, I will describe the LLs from the bottom to the top (see Fig. 5.1). However, in practice, tension is passed along the lines in either direction. With riders in particular, it may be directed both towards and away from the waist, as the fascia on one LL pulls in on itself and locks short, whilst the other LL becomes locked long.

Each LL takes root from two tendons, one of which inserts into the joint just up from the big toe (at the base of the first metatarsal) and the other into the equivalent joint of the little toe. Both tendons pass around the outside of the mid-foot, supporting the lateral arch, and hooking behind the obvious bony knobble of the ankle (the malleolus). The line continues through the muscles of the outer calf which blend into the iliotibial tract, a very strong sheet of fascial fabric that you can feel just above the outside of your knee. This continues up the outside of each thigh as a defined band that is most visible on skilled, fit male riders, but also there – and strong – on women.

The band widens out to cup the bony knobble of the thigh bone (the greater trochanter of the femur). This is what you land on if you fall sideways skiing, and it is easy to feel (see Fig. 5.2). From here the line becomes a 'Y' shape, whose branches attach to the front and back of your iliac crest, the bony ridge that your hands rest on when you put them 'on your hips'.

From here up, the LL continues as a series of 'Xs' similar to plimsoll laces, in essence lacing together the front and back of the torso. There is a large 'X' criss-crossing your sides in the space between your ribs and hips, through the external and internal obliques. Between each rib lie two layers of muscle (the intercostals) that again criss-cross, forming a series of tiny 'Xs' like basket weave. These tie

Fig. 5.2 Find the greater trochanter of the femur by putting your hands on your panty line and leaning to one side. It should become clear on the side you are leaning towards.

Fig. 5.3 When seen from the back, most riders have one bigger, rounder-looking buttock, which tends to fall off the side of the saddle – this is the 'girlish' side, seen here on the left.

all your ribs together all the way up your sides, but soon become covered by the large shoulder muscles. But the LL re-emerges in your neck with the last 'X', two broad muscles that work to keep the head balanced and steady as the body moves underneath – an active process in both running and riding.

In a fish, the LLs provide the primary motive force for locomotion, but the LLs in human beings form an adjustable stability system on the outside of your body, activated on the supporting side as your foot makes contact with the ground in each step. Adjustability and a ready ability to tone these lines are necessary to the undulating skier, the dodging footballer, and the responsive but stable rider.

It would be so helpful if we could all begin our riding career with two equally toned LLs! Unfortunately, we distort them whenever we carry a heavy shoulder bag, soon reaching the point where the bag only sits comfortably on one shoulder. Carrying a young child consistently on one hip creates even more profound distortions. When you look at a static rider from the back – even a young one with little experience of bags and children – you will almost always see one side of the pelvis having a more 'girlish' cast, whilst the other side can look more 'boyish' (no sexism implied). The 'girlish' side, which has the larger, rounder, more feminine-looking buttock, is the side of the longer LL (see Fig. 5.3).

The Lateral Lines in the Horse

The LLs in the horse (see Fig. 5.4) look very similar to those in the human, lacing his sides and similarly helping in side-to-side stability. They pass from just behind the

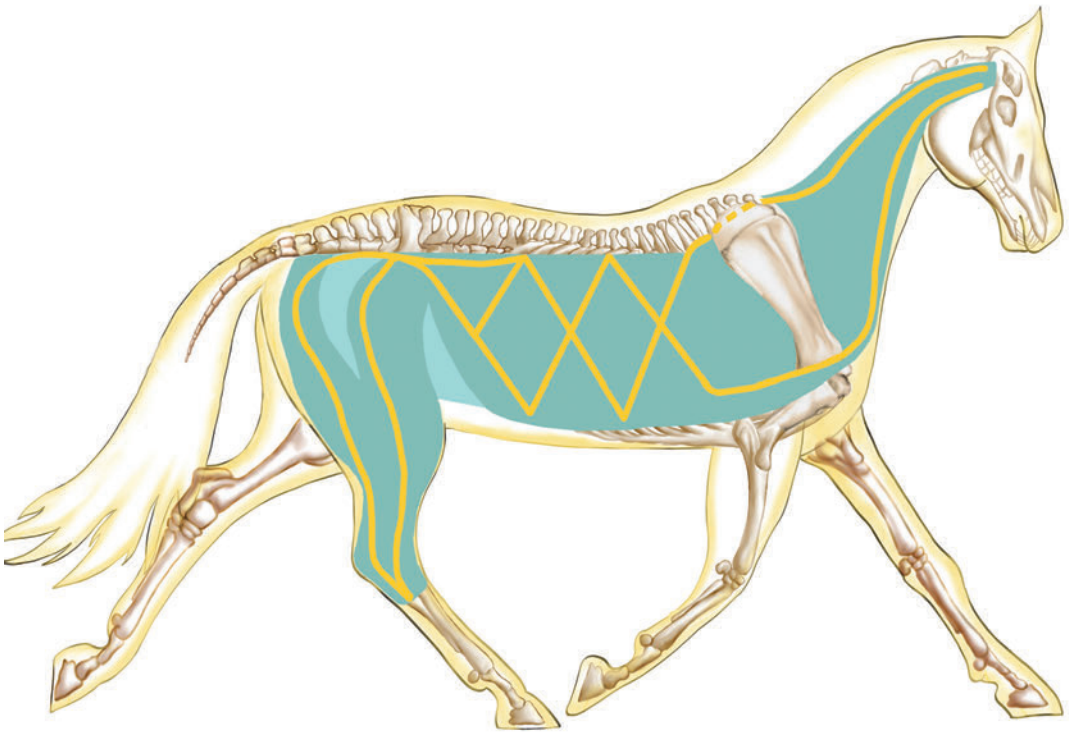


Fig. 5.4 The Lateral Lines in the horse mirror those in the human, making 'Xs' along his sides. If his back is hollow, the upper set of 'Vs' act to shorten one side and elongate the other. When he is lifting his back and reaching into the reins, the bottom set of 'Vs' shorten one side and elongate the other. You can mimic this in your own body by hollowing or rounding your back as you side bend.

ear, through the neck to the small muscles between the many ribs, and also to the lateral abdominal obliques which form the 'X' behind the ribs. In the hindquarters, the LLs turn 90 degrees (not true for us with our extended hips), and go down to the outside of the hocks (the equivalent of our heels).

The veterinary researchers think of the LLs as 'Vs' rather than 'Xs', and call the line of the upper inverted 'Vs' the Deep Lateral Line. It passes under the shoulder-blade and though deeper muscles of the neck, creating a side bend in the horse when his head is up and his back is hollow.

The lower 'Vs' they consider the more Superficial Lateral Line (SLL), which passes not only through the small muscles between the ribs, but also through the large and important cutis lateralis. This is the muscle your horse uses to shake of flies in a manner no longer available to humans! The cutis muscle is literally in the skin, but at 1.2 inches thick it is large and strong enough to participate in the horse's side-to-side balance. Furthermore, it links the LL to the outside of the hock, suggesting the mechanism through which our lower leg can influence the horse's hind leg.

This superficial branch of the LL passes over the lower end of the shoulder-blade, again through the cutis muscle, and then through more superficial muscles of the neck to meld with the upper line just behind the horse's ear. As those lower 'V's come together, the LL side-bends the horse *and also flexes his back and neck,* influencing his carriage.

Imbalance between the LLs on each side leads to an uneven rein contact, and difficulties in turning. A locked short LL on one side will make it impossible for the horse to bend to the opposite side. Many riders would think of this as the primary issue, but I think of it as the problem *beyond the initial problem*, which lies in his tendency to 'hinge' at the withers.

When the horse falls out, his withers acts like the hinge of an articulated lorry (an eighteen-wheeler), and he 'jack-knifes' (see Fig. 5.5(c) page 97). His torso then

follows his withers, and you probably know from experience that any attempt to steer by pulling on the inside rein is doomed to fail! The horse's outside LL has become overstretched, as has his outside Superficial Back Line: they are *strung out*, and locked long, reminiscent of some kid pulling her chewing gum into a long thin string (Sorry!).

When the horse's locked short side is on the outside, he will tend to fall in – and whilst this too presents a challenge, the rider's instinctive response is less damaging than it is on the rein where he falls out.

Fig. 5.5(a), The most bendy part of the horse is his neck, and the next most bendy part is from the eighth to the sixteenth thoracic vertebrae. This reaching around involves the Lateral Lines and also the Spiral Lines (see Chapter 8), which rotate the torso and neck. In us too, rotations normally accompany a side bend.

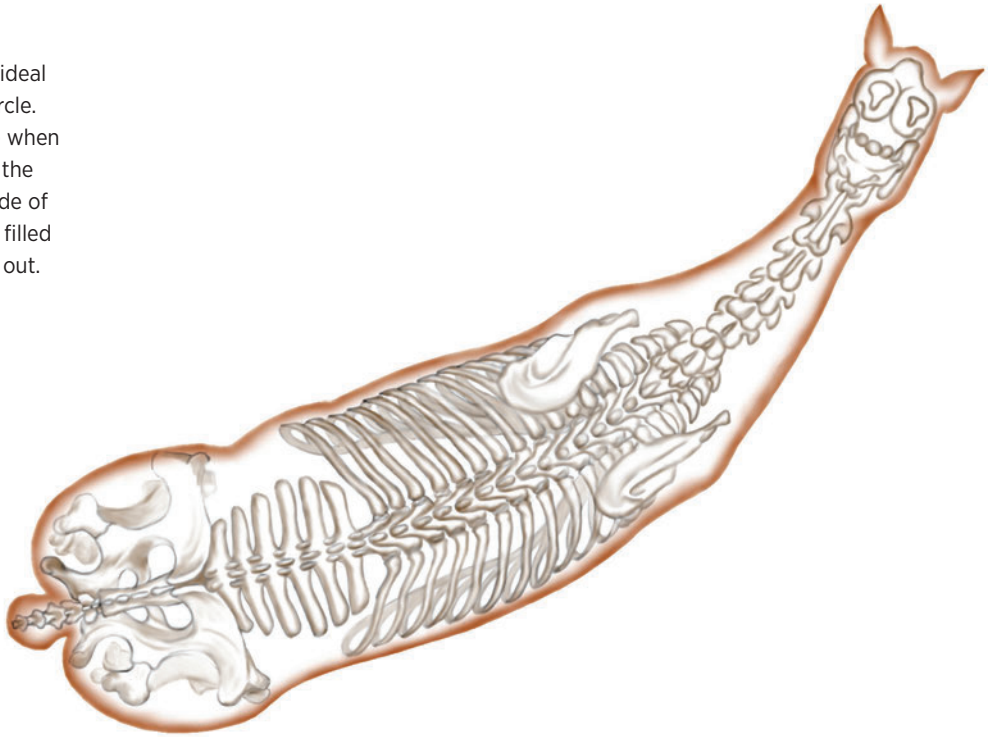
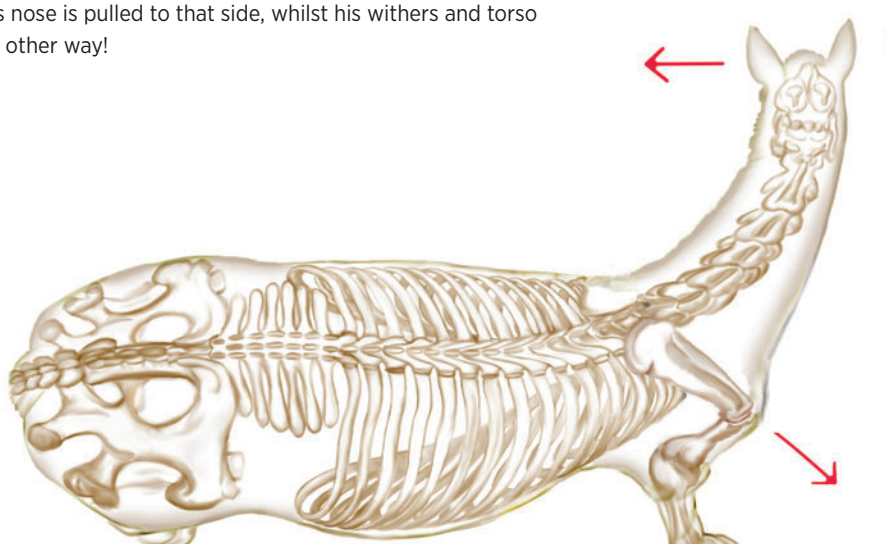


Fig. 5.5(b), Shows the ideal bend on a 20 metre circle. This becomes possible when the rider can maintain the boundary on the outside of the horse, making him filled out rather than strung out.

Fig. 5.5(c) The jack-knife, where the horse hinges just in front of the withers rather than adopting the bend that results from smaller lateral displacements in many more joints. This very often happens when the rider pulls on the inside rein: the horse's nose is pulled to that side, whilst his withers and torso go the other way!



The Ribcage and Hind Legs

The difference between the two LLs is often obvious when a young horse is first worked on the lunge, and most trainers describe him as having a 'stiff side' and a 'soft side'. The rein contact may be rather strong on the stiff side, and close to non-existent on the soft or hollow side. The horse neither weight-bears equally, nor pushes off equally, with each hind leg. This imbalance usually extends to unequal Functional Lines and Spiral Lines (see Chapters 6 and 8), and keeps his ribcage held to one side – often seen in the lack of an equal swing from side to side.

Many equestrian authors suppose that the hind leg on the side that the ribcage bulges to is restricted in its movement, but bears more weight. It is often called 'the carrying leg'. The other hind leg can more easily come under the body, but it bears less weight. Some authors call it 'the pushing leg'. This begs two questions. The first is, 'How much are the hind legs influenced by the position of the ribcage, and how much are they (and also the horse's hindquarters) asymmetrical in their own right?' This mirrors the proverbial question about the chicken and the egg! However, in my experience, the rider's greatest influence on this kind of imbalance arises from learning *how to reposition the horse's ribcage*, not from focusing on the hindquarters or hind legs themselves.

Secondly, we have to ask, 'Is the pushing leg pushing weight towards the shoulder on the same side, or towards the opposite shoulder (which is the side of the bulging ribcage)?' The two Superficial Back Lines transmit force parallel to the horse's spine, as would LLs that are equally toned. However, the helical lines of pull (the Functional and Spiral Lines) go diagonally across the spine, suggesting that the net overall pattern can vary from horse to horse and also between different gaits and movements.

Riders have long been told that when the horse is working well on a circle, and also in shoulder-in, his inside hind leg carries more weight. We do not actually know that this is true and Hilary Clayton, Professor Emerita at Michigan State University, has shown in her laboratory that, when a horse is working on the lunge, *the outside fore and hind limbs actually carry more weight* than the inside ones.[1]

Traditionally, we are taught that our riding interventions should address the horse's hind legs to develop and equalise their pushing and carrying power. But if we think of the horse's spine like a train with thirty-two carriages hinged together, that train is not on rails. (Between the poll and the dock there are thirty-two joints between vertebrae, allowing varying degrees of lateral bending. As becomes clear from Fig. 5.5(a) page 96, tiny amounts add up.) So when pushed along from the back the train can become extremely wiggly, especially if the horse's guy-ropes are loosely strung! By analogy, you can push on the end of a broom handle, but you cannot push on a rope.

Thus it serves the horse well to pull himself along from the front, allowing all of his 'carriages' to follow along passively.[2] This suggests that straightness should have a place nearer to the beginning of the dressage 'scales of training', since without it, the 'train' of the horse's body so easily 'derails'.

Dr Andrew McLean, one of the founding members of the International Society for Equitation Science, is a leading proponent of the idea that the forelegs are *at least as important as the hind legs*, and should be addressed in their own right, instead of being considered as passive recipients of the weight directed onto them by the hind legs.[3] In fact, the forelegs tell the hind legs what to do, via the 'central pattern generator'. This is a neural oscillator – a cluster of nerves lying within the spinal cord, which acts like a light switch with multiple settings. It coordinates the rhythmic motions of limb movements. He argues passionately for a revision of the training scale.[4]

Bendy Body Parts

The horse's neck is his most bendy body part, with most of the movement happening between the poll and the atlas (see Fig. 5.5(a) page 96). This joint allows a flexion to the inside – if the horse had a unicorn horn, it could point up to 40 degrees each way just on this first joint, which at its most upward point creates a dimple a few inches behind his inside ear. His next most bendy joint is just in front of the withers, between the two lowest neck vertebra (C6 and C7). This, along with its neighbouring joints, creates the hinge 'at the withers', which allows the horse to jack-knife (see Fig. 5.5(c) previous page).

The tiny amounts of lateral displacement between the vertebrae of the ribcage and loins have allowed us to invent the various lateral movements, which we will consider the Chapter 8 on the Spiral Lines. However, they also allow for some creative misinterpretations on the horse's part – especially if his lateral 'guy-ropes' are rigidly stuck at different lengths, or so loosely strung that steering him is like trying to line up a pile of noodles!

Many books have diagrams similar to Fig. 5.5(b) page 96, which shows the ideal

bend on a circle; but they do not show the jack-knife of Fig. 5.5(c) page 97. There is a huge difference between the two, and it does not serve us to pretend that 5.5(c) never happens! My experience is that unless the rider is unusually skilled, she needs to learn how to *equalise* the horse's two LLs (and contain that jack-knife) before she can learn about 'bend'.

My approach in this chapter is designed to help you to steer the horse's withers on the track of your choosing, by positioning the withers, neck, head and ribcage so that his two LLs become more even. This, in turn, helps to make the asymmetrical ribcage more even and, by proxy, it affects how the hind legs step, since they are not then inhibited by the imbalance. This method is unusual, since it is based on your need to even out *your* two LLs as you discover how to even out your horse's – but it is a very practical way to help you to steer and, unlike most discussions of 'bend', it does not presuppose skills that you do not have. (We will arrive at this point in Chapter 8 on the Spiral Lines; resist the temptation to jump head of yourself!)

Rider-Horse Interaction

Our best intentions as riders do not always manifest in reality. Steering, in particular, brings out those discrepancies, and the 'default' created by our unequal LLs influences the horse in ways that are often blatantly obvious, but sometimes subtle enough to pass underneath the radar of our awareness.

All too often, the combination of our default and our horse's default can be a problem squared, not a problem doubled (and sometimes 1+1= 11!). This means that groundwork is often a helpful way to reduce the effects that unequal LLs have on the horse's carriage and movement, and even on his temperament, since the most asymmetrical horses are often quirky, as well as predisposed to lameness. Also, when we are on the ground, the effect of our asymmetry is minimal compared to when we are riding. But since increasing our ridden skills requires us to open the Pandora's box of the LLs, here goes …

Side Bends and Hot-air Balloons

If we think of the 'X's of the LLs lacing the outside of the rider's torso like shoelaces, we can then think of eyelet lines defining where the LLs meet the outer edges of both the Superficial Front Line and Superficial Back Line. These boundaries form four strong fascial straps which are approximately vertical and more or less follow the lines of a man's braces (suspenders), front and back. These guy-ropes comprise the body's 'intermediate stability system'. (We will meet the 'inner stability system' in the Deep Front Line of the body's core, in Chapter 9.)

We could compare these straps to the four ropes of a hot-air balloon, which attach the balloon itself (the ribcage and its contents) to the basket (the bowl of the pelvis). As soon as the 'ropes' of the intermediate stability system do not have equal tension, the rider will 'collapse a hip', and this shows most obviously as a difference in length between her two sides, i.e. in the outer stability system of the LLs. Whilst riding on a

circle where the locked short fascia is on the inside, the rider's torso will make a 'C' curve to the inside, with creases between the ribs and hips. On the other rein, with the *locked long* fascia on the inside, the rider will usually stay much closer to vertical and steer more effectively.

Do the following exercise, either on a firm chair or gym ball.

1. Cross your hands on your upper chest, and make a side bend with your torso. Notice which side you choose, and how easily that side falls into creases. This is the side that is locked short.
2. Come back to vertical, and then side bend the other way. Almost everyone finds that this is less familiar, and that the torso does not so easily make creases – the fascia is locked long and the muscles are locked into eccentric loading.
3. It is rare that someone does not clearly sense a preferred direction for a side bend. Those who do not, usually have a very square torso, which may look from the back like a square table top. If you are long and willowy you will side bend more easily.
4. If one seat bone becomes heavier and one becomes lighter as you do this exercise, do not assume that you know how this will happen whilst riding – when the surface you are sitting on is saddle-shaped, the weighting of the seat bones may be different (this is explained in page 169).
5. Side bend to the easier side, and add a rotation, twisting so that you advance the shoulder of the longer side. This, too, may have a familiar feel. (It involves the Spiral Lines of Chapter 8, but is worth doing here so that you understand this common addition to the 'C' curve.)
6. Come back to just the 'C' curve, and then rotate that same shoulder back, so you are looking up. I expect that this feels really weird – it is not what spines tend do naturally, given the shapes of the vertebrae!
7. Repeat both of these movements to the opposite side for an even bigger experience of being 'not you'! You might feel some fascial pulls that are very unfamiliar. Challenge the edges of your movement somewhat, but do not risk a pulled muscle.

Nothing in nature is symmetrical and, on a horse, virtually no one's seat bones will naturally carry equal weight. Neither will they be positioned just to each side of the horse's spine: very often one will drop away from his spine, and a small percentage of riders will find that one may even cross it. The rider's spine then curves away from the 'girlish' side of her pelvis (see Fig. 5.3 page 94), and the inner thighs are pulled out of the ideal symmetrical 'V' shape that should encase the horse's mid-line. The rider's knees will not stay hooked onto a horizontal bar (see page 75) – the knee on the inside of the 'C' curve will come up, and/or the other one will go down.

Whenever the rider's torso deforms there are huge knock-on effects throughout the fascial net. Many riders I know have found that bodywork is immensely helpful in changing their pattern – indeed it can reduce the need for years of compensating for your problem, years of trying, and years of not truly succeeding.

Whose Problem Is It?

When riders suffer the associated difficulties of steering their horse, they may kid themselves that they are experiencing issues that are their horse's alone. Of course, horses bring the issues of their disorganised lines of pull to the partnership – but so do their riders. A horse turning by himself will tend to lean in more than we riders find comfortable, and virtually all us have endured the 'wall of death'! However, horses rarely fall *out* when turning on their own, and the rider's contribution to their shared problems tends to amplify this tendency.

On any turn or circle, the centrifugal force tends to throw them both to the outside, mirroring the way that the spin cycle of your washing machine sends clothes to the outside of the drum. When the inside of the rider's body is locked long she can largely withstand this force, and a small percentage of riders will actually lean to the outside. But when the *outside* of the body is locked long (and the inside locked short) the torso is easily deformed (see Fig. 5.3 page 94).

As the rider's outside LL becomes longer, so her inside LL becomes shorter, forming creases between armpit and pelvis, and bringing her chin to the inside of the horse's mid-line. As this happens (as in the exercise above), she is also likely to rotate to the inside, which will face her shoulders and chest that way. This puts her inside hand further back than her outside hand and, before long, she is pulling on the inside rein as the horse jack-knifes and falls out on the circle.

The differences that we have seen in the Superficial Front and Back Lines within the rider's legs (see Chapter 3) also come into play, and on the side where the rider tends to rotate in, the inside heel will usually go forward and down. On the side the rider is rotating away from, her outside leg will usually go too far back and on tiptoe. The sad truth is that, even without the addition of the centrifugal force, the inequality in the rider's various lines of pull creates a force within her body that acts *from the side that is locked short towards the side that is locked long*.

The horse will also be most affected by the centrifugal force when his longer side is on the outside. He becomes *strung out* on that side, and falls out of the circle, jack-knifing instead of turning (see Fig. 5.5(c) page 97). But realise that the rider can only fill out that side if she can *keep it contained within a defined boundary* (see Fig. 5.5(b) page 96). Books and teachers who prescribe 'inside leg to outside rein' are presupposing that your outside rein can easily create and maintain a boundary for the horse's outside LL. The unfortunate truth is that *this will not work* unless your seat bones and thighs are correctly positioned. When they are not, you will *inevitably give that outside hand forward, however much you are told not to!* It is essential to address this piece of the puzzle, lost to our culture through expertise-induced amnesia.

If your asymmetry is running rampant – and especially if you and your horse are both locked short on the same side – steering to that direction will be an amplified drama of falling out on a turn. Riding on the other rein may well present the opposite drama, whereby the horse falls and leans in with his forehand, whilst his quarters swing out of the circle.

With luck, you and your horse will not compound each other's asymmetry quite so dramatically, but you will probably be shocked to discover that I have often known

horses to *reverse their stiff and soft sides* within a few minutes of a new rider getting on. This means that, if the first rider can circle easily to the left but struggles to the right, the second rider's influence reverses this pattern so that this rider struggles to steer left. The horse has mirrored that new rider's pattern!

This suggests that the rider's asymmetry can be the dominant factor in how steering pans out. Whilst I have seen and experienced this many times, it will doubtless still surprise some readers to realise the extent to which balance (or imbalance and subsequent compensation) along the LLs of the rider becomes echoed in the horse. In time, the unwitting side-to-side forces of the rider mould him into having issues that most would assume were originally his.

When the horse's pattern is indeed dominant, I believe that he has significant issues with his LLs that make him particularly unmalleable. But whatever the reasons for a significant asymmetry in a horse's LLs, the process of him maintaining that pattern may have different effects on two riders whose asymmetries give them different 'weak links'. However, *nota bene,* the rider's asymmetry is *a much bigger factor than most people want to acknowledge*. As a result, working well it with yields huge improvements to both rider and horse.

Know Your Enemy!

Use the following list of questions to help you identify your asymmetry. Of necessity, they begin with an assessment of how clearly you feel your seat bones.

1. Can you feel your seat bones? Do you have equal weight on each one? If one or both are unclear, put your fingers under the panel of the saddle or under the saddle cloth as in Fig. 5.6 and pull upwards. As you do this, be sure to keep your chin and zipper over the horse's mane. Your seat bone should poke down through your flesh and become clearer.
2. You may need to *let go* in the muscles under your backside to keep this clarity – you could unwittingly be 'popping yourself up'. Slowly contract them and let them go a number of times.
3. Check also that you are not pushing into your stirrups, as this too sends your seat bones up (as in the exercise on page 74).
4. The bones should feel clear on your hands,

Fig. 5.6 Finding the 'missing' seat bone by pulling up on a saddle cloth or the saddle flap. Be sure to keep your torso vertical and facing forward.

but should not poke down into them. If they do, you need to firm up the muscles around them a little so that they too become part of your sitting surface. The underneath of each rider's torso-box is different, and we are all subject to the 'Goldilocks principle'. To find 'just right' some riders need to let go in the muscles around their seat bones, whilst others need to firm them up. Be willing to experiment, and then practise 'just right' whilst driving your car!

When you are clear on this, perform the following checks in walk and trot on both reins on a 20m circle, ideally with a friend who can ask you these questions whilst aiming a camera.

1. Can you keep 50/50 weight on each seat bone whilst in motion? If one seat bone frequently disappears, where does it go? Can you discover how to bring it back?
2. Is one seat bone placed closer to the horse's spine, and one further away from it? Is one further forward, and one further back?
3. Are your chin and mid-line stacked up over the horse's mane, or are they off to one side?
4. Are there creases on one side of your torso? Does your spine make a 'C' curve, or an 'S' curve? The latter is less likely but possible, and is discussed in Chapter 8 on the Spiral Lines.
5. If you had three skewers sticking out of the front and back of your mid-line, as shown in Fig. 5.7, would they all be horizontal? This double-checks that you are vertical and neutral. Would they point straight on over the horse's mane i.e. on the tangent of a circle, or would they point to the inside or the outside of your circle?
6. Is the inside of one thigh lying more snuggly against the saddle than the other?
7. Are your knees hooked on their imaginary bar, with the bar level?
8. Do you have equal weight in each stirrup? Are your stirrup leathers the same length? You need to take them off the saddle and measure them, you cannot trust your felt-sense of this!
9. Do you tend to pull on one rein? Is one rein always longer than the other? Does one wrist or arm 'droop', keeping that rein loopy? Does one of your hands tend to stay closer to, or tend to cross, the horse's neck? Does one hand stay further away from his neck?
10. When you ride a 20m circle, in which direction do you have more difficulty turning your horse? Take your time as you become clear about how your pattern varies when riding in each direction.

Fig. 5.7 If three skewers on your mid-line stuck out front and back, would they be parallel and all pointing straight ahead? When riding a circle they should point along the tangent.

Your answers could be very different on the two reins. They form the pattern that describes your asymmetry. Wherever you go, and whatever you do, your aim is to keep 50/50 weight on each seat

bone, with your knees level and your mid-line over the hose's mane, with no creases in your torso and your skewers pointing straight on.

The problem is that, in your attempts to do this, willpower and obedience will inevitably fail! This is not because you are stupid; it is because once your asymmetry is coupled with your horse's asymmetry and also the centrifugal force, willpower and obedience are no match for the distortions in your lines of pull.

Willpower and obedience will fail too in your attempts to make your hands a pair, as they are only symptoms of problems that lie in unequal fascial pulls within your torso. When you can successfully address the root cause, the symptoms take care of themselves (with help from Chapter 7, which discusses the Arm Lines).

Narrowness in the Thighs and Seat Bones

Before we dive into more depth about the LLs, we need take into account the fact that most riders (and especially most women) naturally sit in a way that makes them *too wide* for their horses. If one thigh and seat bone sit snugly against the saddle, the thigh and seat bone in the other side will tend to fall away from it (see Fig. 5.8(a)). The rider is lacking what I call 'narrowness', and this leads to all kinds of steering problems, which are too often blamed on the horse.

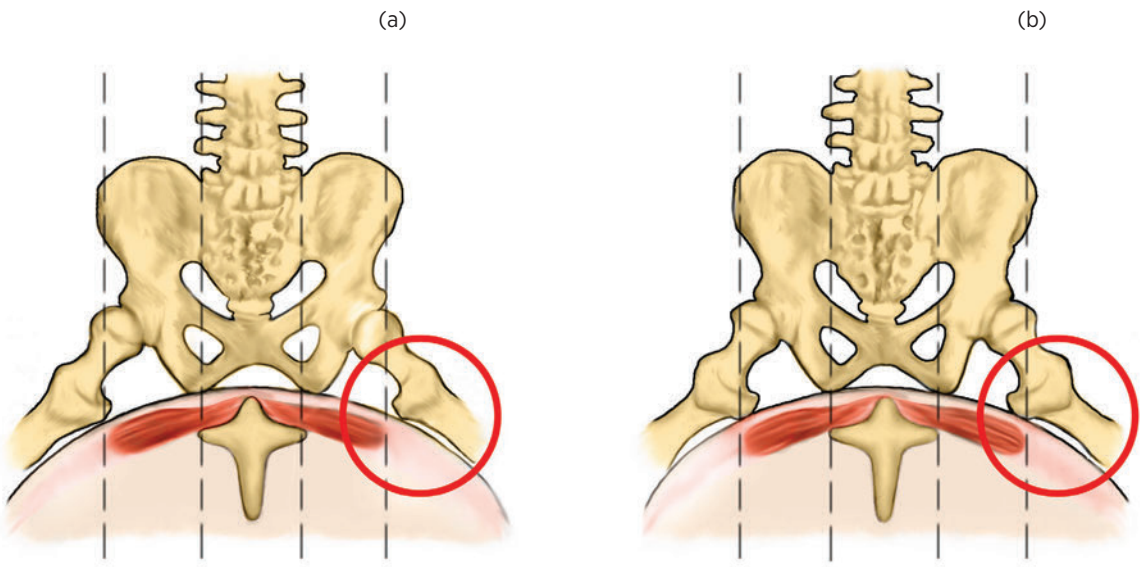


Fig. 5.8 In (a) the rider has one seat bone falling away from the horse's mid-line, and this makes her lesser trochanter (which lies beneath the greater trochanter) fall off the outer edge of the horse's long back muscle. The other side of the pelvis is well placed. (b) Shows an ideal that most riders have to consciously learn to do.

Most riders have experienced the kind of intensive training session that makes such a huge improvement to the 'bad rein' that it suddenly becomes the 'good rein'. The rider will usually experience a few days of euphoria before it dawns on her that the formerly 'good rein' has now become the 'bad rein'! Rarely does a rider realise that the originally loose side has snuggled in against the horse whilst the originally snug side became looser. In fact, some riders make a career out of 'ping-ponging' around on the horse's back, with one side always snuggled in and the other falling away from the mid-line. Others remain stuck in one position for ever; but however frequently you do or do not change sides, the only effective and lasting answer is to *become narrower*.

To steer well, the rider needs to be able to arrange her backside and thighs symmetrically over the horse's long back muscles as in Fig. 5.8(b). This makes intuitive sense, as it affords a specific and symmetrical relationship to those muscles. The rider's backside, thighs, and both sides of the body act like both pieces of bread in a horse sandwich. They limit the 'wriggle room' for his withers, helping to limit the deviations through which he falls in or out. The shape of the male pelvis makes this easier for men, as their seat bones and hip joints are closer together than they are in most women.

This starting point is so valuable that we are going digress briefly to consider the muscles of the inside thighs, which actually belong to the inner stability system of the Deep Front Line (see Chapter 9). Obviously, all the stability systems – the outer LL, the intermediate system, and this inner system – have to work in concert in the end – the separation is for analysis only.

1. Begin from a place where your inside thighs are rotated in, as in Fig. 3.6(b) page 59.
2. Notice which inside thigh lies less snugly against the saddle and, in halt or walk, place your opposite fist on the skirt of the saddle which covers the stirrup bar. Push your knuckles against the saddle, and make a counter-pressure with your opposite thigh (as if you could press your thigh and fist against each other, even though the saddle is in the way – see Fig. 5.9). Notice your thigh firm up, and then maintain this as you take your fist away.

Fig. 5.9 To snug one thigh against the saddle, press the knuckles of the opposite hand against the skirt of the saddle, and make a counter pressure with the opposite thigh.

3. Resolve to keep noticing each time your thigh comes off the saddle, attempting to reduce the time-lag between when it actually happens, and when you notice it has happened! If the correction is not easy, repeat the exercise many times until 'think it' is enough to put your thigh back into place.

There are two other variations on the theme which sometimes work better:

1. Using the hand on the same side as the weaker thigh, place two fingers inside that side of the pommel. Pull outwards with your fingers as you snug your thigh inwards (see Fig. 5.10).
2. Alternatively, put that same fist *across* the pommel and, with the bottom of your fist, press on the skirt as you make a counter-pressure with your thigh. This pressure often affects your seat bone as well as your thigh on the side that your hand originates from, bringing both of them closer to the mid-line (see Fig. 5.11).

Fig. 5.10 Use two fingers on the same side as the weaker thigh to pull directly to the side and snug that thigh into the saddle. This especially targets the tendon at the corner of the pubic bone.

Fig. 5.11 Put the same fist as the weaker thigh across the pommel, and make pressure from your curled little finger. As well as snugging in your thigh on the same side as your arm, this should bring the same seat bone closer to the mid-line.