Excerpts from "The Fasciae"

6

Fascial Mechanics

THE MECHANICAL BEHAVIOR of the fasciae plays an essential role in all bodily functions and in the maintenance of the anatomical integrity of its various parts. In the final analysis, the fascial system functions as a unit, but for a better understanding of the underlying mechanisms, we shall first study them at the local level before analyzing the mechanics of the system as a whole (*Fig.* 6-1).

Local Mechanics

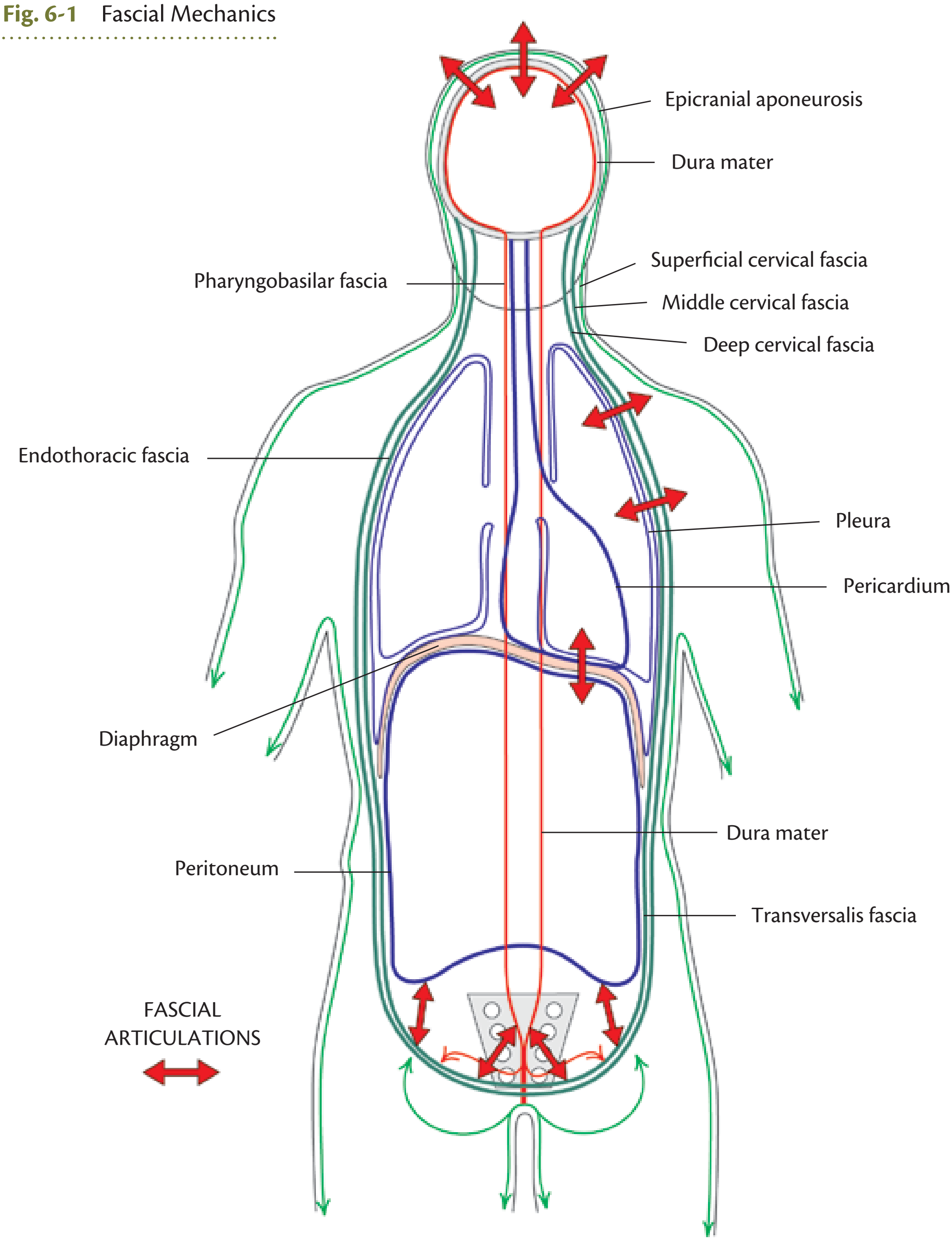
The local mechanics of the fasciae have many and varied consequences, and these tissues perform vital roles in areas as diverse as suspension and protection, retention, separation, shock absorption, and pressure attenuation.

Suspension and Protection

Suspension

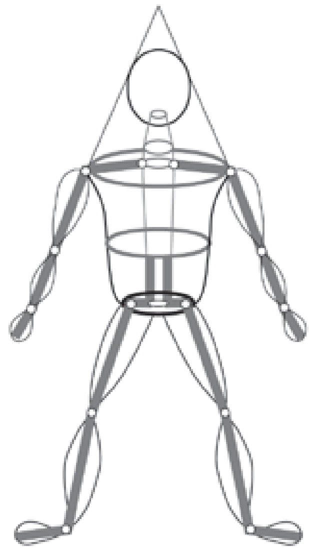
The fascial elements which play a role in suspending the various structures of the body are the internal ones, for example, the mesentery, the ligaments, and the true fasciae. They guarantee internal cohesion by providing points of attachment which keep each organ in its proper place. The resultant support is firm but, in most cases, not rigid, so that each organ retains some degree of mobility, that is, there is some play in the attachment system. Mobility is not only essential for the ability to respond to the diverse forces to which the human body is regularly subject, but also enters into the general context of the mobility of the body itself – mobility which is essential for the full expression of the body's many different functions and physiological processes.

Fig. 6-1 Fascial Mechanics



The fascia play an important role in the suspension of other structures, not only in the body cavities, but also in the periphery (*Fig.* 6-2). Fascial elements such as the aponeuroses and ligaments constitute the support system for all the muscles and joints, whereas the true fasciae support all the vessels and nerves. This all-encompassing peripheral system invests and provides points of attachment for all the vessels, nerves, muscles, and joints, and is itself anchored at fixed points on the bones. Thus, the fascial system plays a central role in maintaining the anatomical integrity of the body as a whole and its component structures.

Fig. 6-2 Fascial Suspension



The integrity of the structure of bone tissue depends on the functional state of the tissue itself and, by extension, on the physiological condition of the body as a whole. By itself, a bone is useless—its functionality and its interactions with other skeletal elements depend exclusively on the means of attachment that unite it to neighboring bones.

It appears then that, although the skeleton provides the framework and the anchor points, it is nevertheless completely dependent on soft tissues for maintenance of its cohesion and function. Therefore, there is an inevitable, reciprocal interdependence between the skeleton and the soft tissues—and thereby between structure and function and function and structure.

The role of the fasciae in suspending other structures varies according to the region of the body under consideration. The fasciae have different capacities for stretching in different locations, for example, the skin can stretch ten times more than can a tendon—this reflects the fact that the tendon is composed of type I fibers arranged in parallel, whereas a variety of different types of fiber are present in the skin and the bundles run in all directions. The thickness of collagen fibers is organ-specific, but also changes with age. The elasticity of the fasciae tends to decrease with age. There is thickening, shortening, and calcification of the fibers as a result of all the forces resisted, and the damage inflicted, in earlier years.

The function of suspension shows remarkable adaptability to different situations. Thus, during pregnancy the uterus becomes enormously distended, which necessitates lengthening of all the associated ligaments—without any kind of pain. Not only is the uterus distended, but it pushes into the abdominal cavity, distending the fasciae of the abdominal wall, again without causing any pain. In other, nonphysiological situations in which the uterine ligaments are subjected to stress and tension, they respond by becoming thicker and undergoing calcification; nothing like this happens during pregnancy.

After parturition, the uterus reverts gradually to its normal state, that is, it retracts to recover its original tonus and elasticity. This phenomenon is pre-programmed and may lead one to think that the fasciae have some kind of mechanical 'memory'.

Let us look at the case of obesity, a condition that may be considered pathological. Some people put on an enormous amount of weight,resulting in an accumulation of adipose tissue at all levels. The considerable increase in volume necessitates distension of the fasciae to contain the surplus tissue. However, when the weight is lost again, especially if the process is gradual, the fasciae nearly always regain all their original tonus and elasticity. Is this not an altogether remarkable example of adaptation?

There are other examples. The kidney is contained in a fascial sac which is suspended by various ligaments and the renal artery. If the system of suspension becomes loosened, the organ experiences prolapse and the renal artery becomes stretched. However, the kidney can be successfully restored to its normal position by osteopathic manipulation and, provided that this is done in time, the kidney is soon re-established in its correct position and its supporting structures regain their tonus.

The fasciae demonstrate a remarkable degree of malleability that permits them to adapt constantly to the forces to which they are subject. However, they are also capable of reverting to their original configuration because they are 'pre-programmed' to recognize the body's normal physiological state, as long as they are given some outside assistance within a reasonable time frame.

Protection

In addition to their role in maintenance, the fasciae also underlie a protective mechanism which guarantees the physical and physiological integrity of the body. The mechanism of protection depends on a number of different factors and is based not only on the solidity, but also on the contractility and elasticity of the fasciae.

Maintaining anatomical integrity.

The fasciae, by virtue of their strength, protect the anatomical integrity of the different parts of the body and help the organs preserve their shape. This does not depend on complete rigidity but, on the contrary, is the result of flexibility and adaptability. The exact degree of suppleness varies between different parts of the body.

Thus, the fasciae that invest the kidneys and the liver, or those that maintain the structure of the arteries, although endowed with a measure of elastic potential, have much stronger tonus than the fasciae of the intestines, stomach, veins, and urethra. These are all organs that are subject to variations of shape and pressure, depending on their state of fullness.

Fasciae which must constantly adjust their dimensions to accommodate variations in tension tend to have a particular type of composition, with relatively

Main Fascial Chains

Given the ubiquity of the fasciae, it could be said that fascial chains are present everywhere in the body. Certainly, if one concentrates on a particular area, it is always possible to identify a fascial chain because it is this unit which acts as the transmission belt for the propagation of force.

However, as we have seen, the major body functions always involve the body acting as a whole. This means that the important chains are far more extensive, linking the entire body from one end to the other. Even at this level, we could describe a large number of different chains. However, anatomical analysis of the fasciae, including the direction and thickness of their fibers, and their collagen content, as well as the more specific function of certain parts of the body compared with others, leads us to believe that certain fascial chains are preferentially brought into play in human mechanics.

We will focus on a few of the most important fascial chains. The transmission of force towards the interior of a fascial chain occurs not only upwards or downwards, but also from the inside towards the outside and vice versa. At crossover points, these chains can even pass from one side of the body to the other. Some of the chains in the trunk mainly function in an oblique direction and therefore also link one side of the body to the other. Obviously, any fascial chain will behave in the same way, whether the energy is ascending or descending.

We will look at a few internal, external, and meningeal chains, although it should always be borne in mind that all such chains are permanently interrelated with one another.

EXTERNAL CHAINS

Starting in the lower limb

Three different fascial chains which start here will be described:

- one lateral
- one anterior
- one posterior

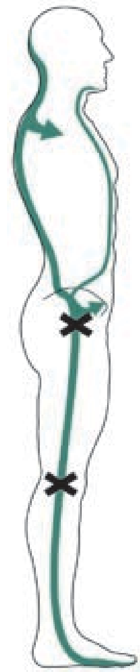
Lateral chain

Starting in the foot, it rises through the following elements (*Fig.* 6-6):

- the lateral fascia of the leg
- transfer points at the knee and the head of the fibula
- follows the anterolateral surface of the thigh via the iliotibial tract and the fascia lata
- transfer points at the hip and pelvis

Here it meets with a horizontal chain linked to the perineum via the piriformis and internal obturator muscles.

Fig. 6-6 Lateral Chain



From the pelvis it ascends:

- *either* along an anterior pathway following the rectus abdominis muscle and then the thoracic fasciae
- transfer points at the clavicle
- finally arriving at the lateral cranium via the superficial fascia;
- *or* along a posterior pathway following the thoracolumbar fascia
- arrives at the posterior part of the scapular girdle, where it forms a transfer point at the scapula
- where it meets with the oblique chain of the scapular girdle through the fasciae of the external rotator muscles of the shoulder
- finally arriving at the posterior part of the base of the skull via the fasciae of the trapezius, splenius, and longissimus capitis muscles

Anterior chain

Starting in the foot, it rises through the following elements (*Fig.* 6-7):

- the anteromedial fascia of the leg
- forms a transfer point at the medial surface of the knee
- where part of any force can be transmitted to the anterolateral part of the thigh by the oblique fascial fibers
- then follows the fasciae of the adductor muscles
- forms a transfer point at the pubis and the inguinal ligament before rising, like the previous chain, through the rectus abdominis muscle and then possibly passing over to the other side via the fasciae of the oblique muscles

- At the pelvis, it meets with two internal chains:
  - one represented by the fascia iliaca
  - another perineal chain via the superficial perineal fascia

Fig. 6-7 Anterior Chain

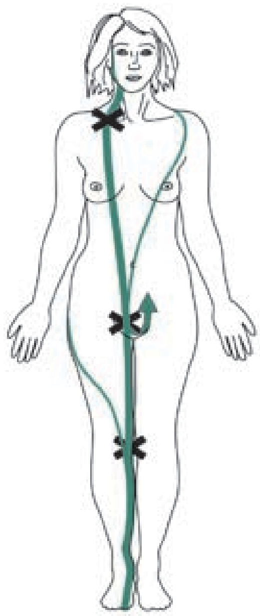
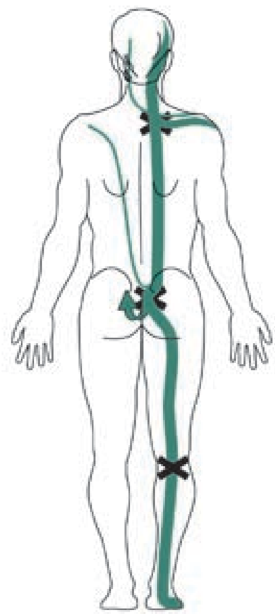


Fig. 6-8 Posterior Chain



Posterior chain

Starting at the foot (*Fig.* 6-8):

- follows the posterior fascia of the calf
- forms a transfer point at the knee
- preferentially follows the fascia of the biceps femoris
- forms a transfer point at the buttocks with the ischium, sacrum, coccyx, the sacrotuberous ligament, and then finally at the iliac crest. From there it rises behind in the same way as the external chain, and can also cross over to the other side via the oblique fibers of the thoracolumbar fascia.
- At the buttocks, it meets up with two other chains:
  - one horizontal chain: the perineal chain through the coccyx and the sacrospinous and sacrotuberous ligaments
  - the other, a vertical chain: the dura mater chain through the coccyx and the fibers which are continuous between the dura mater and the sacrotuberous ligament via the sacrum and the coccyx

Starting in the upper limb

We will cover one medial and one lateral chain.

Medial chain

Starting at the hand (Fig. 6-9):

- follows the anteromedial edge of the muscles to the medial epichodyle of the humerus
- forms a transfer point at the elbow;
- here, some of the energy can be transmitted into the lateral chain by the oblique fibers of the aponeurosis of the biceps
- follows the medial intermuscular septum
- then extends via the coracobrachial fascia
- forms a transfer point at the acromion and the clavicle
- terminating at the anterolateral cranium via the superficial cervical fascia and the aponeuroses of the scalene muscles

Lateral chain

The lateral chain works most heavily in the upper limb and, as will be discussed later on, it is in this chain that osteopathic help will most often be needed.

Starting at the wrist (Fig. 6-9), the chain follows :

- either the anterolateral edge of the fascia along the radius
- or the posterolateral edge of the same fascia
- forms a transfer point at the lateral surface of the elbow
- follows the lateral intermuscular septum;
- at the deltoid "V," it can continue in two different directions:
  - an anteromedial path via the medial part of the deltoid fascia. Here it transverses along a chain composed of the pectoral fasciae and then follows the same path as the internal chain.
  - or along a posterolateral pathway via the lateral edge of the deltoid fascia, forming a transfer point at the spine of the scapula. Here, it meets up with the posterior oblique chain represented by the fasciae of the latissimus dorsi and the lateral rotator muscles, and finally arrives at the base of the skull by following the same path as the posterior chain.

Internal chains

We will focus on three internal chains:

- one peripheral
- one central
- one mixed

Peripheral chain

We will start with this chain at the perineum, but it should be remembered that it is linked to the external chains through the perineal fascia and those of the piriformis and obturator muscles.

Starting at the perineum (Fig. 6-10):

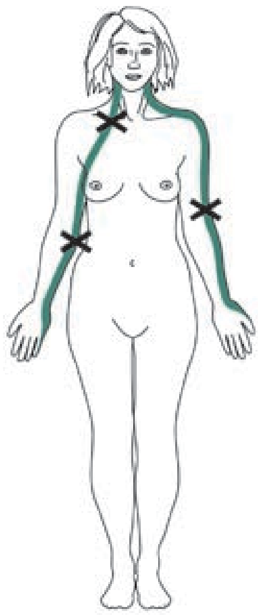


Fig. 6-9 Medial and Lateral Chains

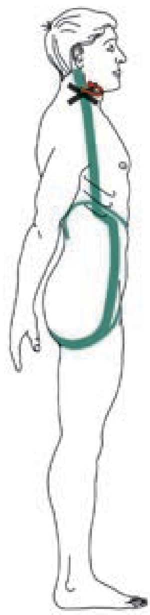


Fig. 6-10 Peripheral Chain

- it continues up through either the transversalis fascia or the peritoneum
- forms a transfer point at the diaphragm
- follows the endothoracic fascia
- arrives at the scapular girdle, where it forms a transfer point
- then follows approximately the same path as the external chains to finish at the base of the skull

It should be noted that the peripheral chains can also pass by the pleurae to arrive at the shoulder at some fasciae above the pleura (sometimes known as the diaphragm of Bourgerey) and from there passes up to the base of the skull like all the other chains.

Central chain

We will start with this chain at the diaphragm, but it should be remembered that below this lies a whole system of supporting fasciae, and that the abdominal fasciae are continuous with the pelvic fasciae.

From the diaphragm, this chain follows:

- the pericardium
- the pharyngobasilar fascia
- at the thoracic outlet, it makes connection with the deep and middle cervical fasciae, and therefore some energy could be redirected towards the supporting bones;
- subsequently, it forms a transfer point at the hyoid bone; here also, the superficial cervical fascia could absorb some energy;

- it then arrives at the base of the skull via the pterygotemporomaxillary and interpterygoid fasciae
- from where it can continue into the dura mater of the brain via nervous extensions which bring it to meet up with the above-mentioned fasciae

Mixed chain

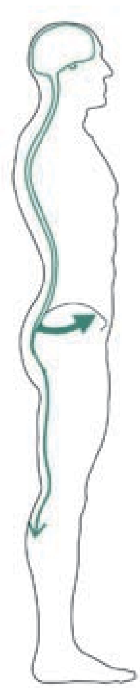
From the perineum, it follows:

- the umbilico-prevesical fascia
- forms a transfer point at the umbilicus
- where it meets the fascia transversalis
- or follows the round ligament of the liver and the falciform ligament
- forms a transfer point at the diaphragm
- from which it follows the same path as either the peripheral or the central chain described above

Meningeal chain

Its lower point of departure is the coccyx, but, as previously noted, it may be influenced by the internal chains, the perineal fasciae, or the external chains which form transfer points at the coccyx, the sacrum, and the pubis (*Fig. 6-11*).

Fig. 6-11 Meningeal Chain



It then rises in the vertebral column where it makes contact with many transfer points with the vertebrae (which serves as a safeguard and back-up system):

- **anterior**: with the common posterior vertebral ligament over the entire length of the column, two transfer points of which are particularly strong:

  - the lower part of the coccygeal ligament
  - its upper attachment points at C2 and C3;
- **lateral**: the dura mater sends out two lateral meningeal extensions which travel with the nerve as far as the intervertebral foramen. Here, it is strongly attached around the edge of the bone, thereby forming bilateral strong points as well as spinal roots. This prevents overstretching of the roots and the spinal cord.
- Then it enters the cranial cavity via the foramen magnum, around which it is strongly attached. Inside the cranium, this chain spreads out spherically to attach all over the cranial cavity. The articulations are most pronounced at the base of the skull. In order to guarantee improved mobility and to enhance its protective function, it forms two large septa:
  - the tentorium cerebelli, which provides enhanced horizontal anchoring
  - the falx cerebelli and falx cerebri, which are attached to the crista galli and which provide enhanced sagittal anchoring

It is continuous with the exterior surface of the cranium:

- at its base, through its extensions around the cranial nerves
- over the vault, with the epicranial fasciae via the dural venous sinuses

MAJOR POINTS OF DAMPENING

Fascial chains transmit mobility throughout the body but are also a focus for forces which might disturb their function. So that these forces are not automatically transmitted all along the chain, there are special dampening points distributed throughout each chain. Some of these, located at convergence points, are particularly important (*Fig.* 6-12). We will specifically mention, moving from below upward, the:

- pelvic girdle
- diaphragm
- scapular girdle
- hyoid bone
- occipitocervical junction

Pelvic girdle

Transfer point between the lower limbs and:

- the trunk
- the perineum

This represents a point of convergence for forces, in response to which it is permanently adapting, controlling, and redirecting by virtue of its mobility and architecture. Here, descending, ascending, and transverse (via the internal chain) forces are dampened and dissipated as soon as they reach a critical level.

This is a perfect example of how fascial dynamics affect the overall mechanics of the body. When performing this type of test in patients who are depressed (in whom the fasciae are usually affected), one must be especially attentive because these patients have a tendency to fall backwards—be ready to support them.

Listening tests for the lower limbs

The general method for all listening tests involves placing the hand on a certain region of the body with a view to detecting underlying abnormality. It is also possible to place the two hands at some distance apart and feel if the motility which establishes itself between the two points is normal or not.

After years of experience, and with particularly exquisite sensitivity, the ultimate goal is to be able to place one or both hands on any part of the body and detect a center of tension anywhere else in the body. This is not a minor ambition—some achieve it, but it must be admitted that they are rare.

To come back to the lower limbs, we are now going to cover the protocol for the various tests with its variations: the patient, of course, is supine and completely relaxed.

Place the hands flat on the dorsal side of the feet: feel whether movement is harmonious or whether there seems to be any tendency to pull in a specific direction. Such pulling would indicate a pathological axis: a change in organization in connective tissue due to some trauma (of any kind) has created a preferred vector of nonphysiological movement. Subsequently, the tension should be followed back, step by step, until the precise starting point is identified.

In order to confirm what you feel passively, shift the hand ever so slightly—more as if you were about to shift it, or thinking of shifting it, rather than actually shifting it. If the shift is in the direction of the center of tension, no resistance will be offered. On the other hand, if the movement is in the wrong direction, straight away you will feel tension opposing the movement.

The modalities and principles underlying motility tests are the same for all parts of the body and therefore do not require further description. All listening tests are performed with the patient in a supine position. We prefer to start at the foot and move upward towards the pelvis in a step-by-step manner.

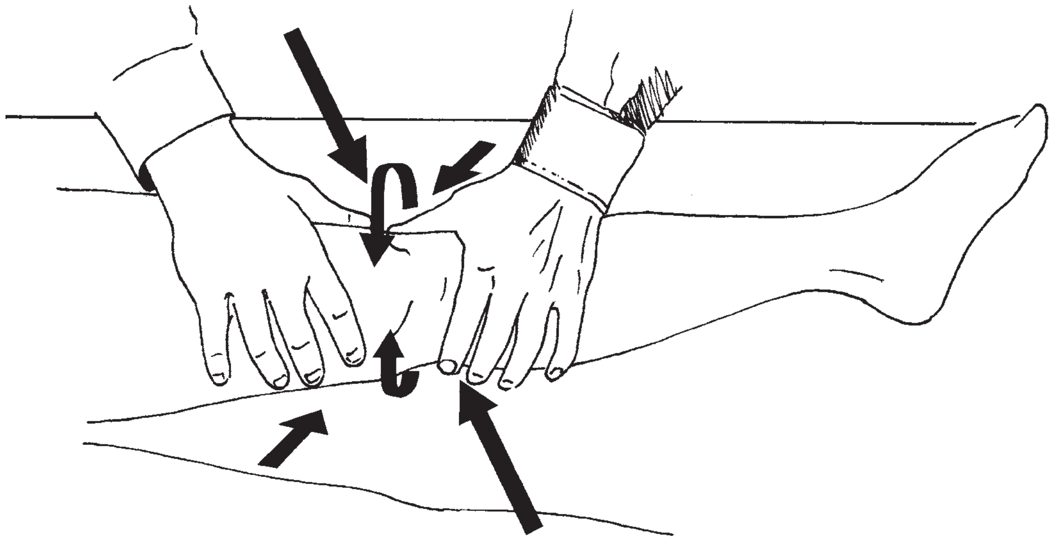
Listening to the ankle

Place one hand on the dorsal side of the foot, and the other on the lower edge of the tibia. In a normal situation, you should feel movement between the two hands which harmonizes in all spatial planes, as if you were manipulating a sphere.

Listening to the knee

Place one hand over the tibial condyles, and the other on the lower part of the femur, excluding the patella. In a normal situation, lateral, superior, and inferior translation should be free, as should rotations, with the latter often dominant (*Fig. 7-1*).

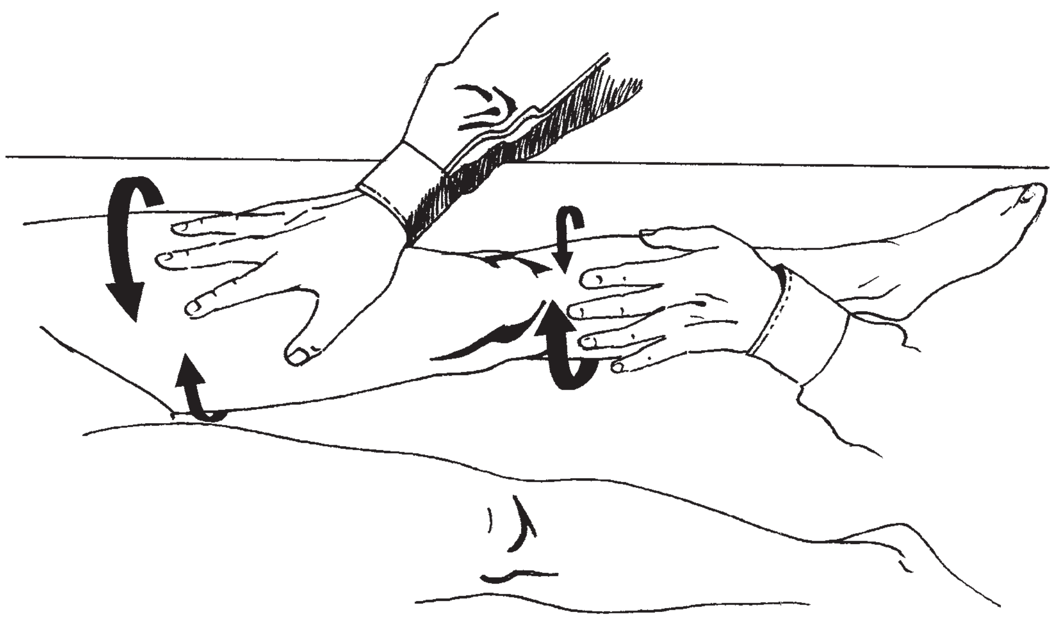
Fig. 7-1 Listening to the Knee



Listening to the thigh and lower leg

Place one hand flat in the middle of the thigh, and the other on the anterior, lateral side of the tibia. The cephalad hand should feel internal and external rotation, with the former being dominant. External rotation should dominate in the caudal hand (*Fig. 7-2*).

Fig. 7-2 Listening to the Thigh and Leg

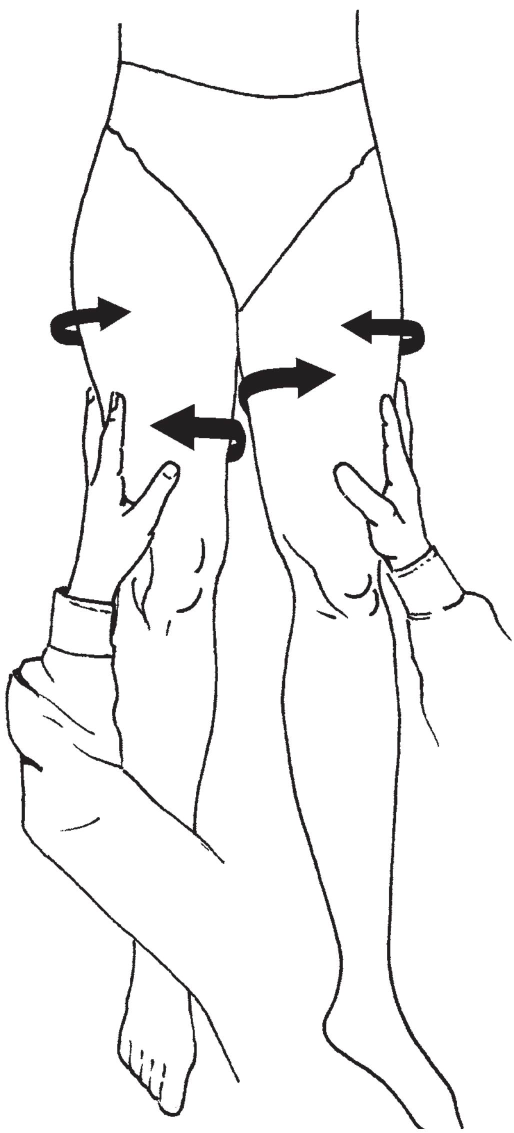


We have seen that the fasciae of the lower limb are composed of fibers running in different directionsin the linked thigh-leg mechanism, it is the medially oblique fibers which predominate in the thigh, and laterally oblique fibers in the lower leg.

Listening to the entire lower limb

The practitioner takes up a position to the side of the patient, facing cephalad. Place one hand flat on the anterolateral side of the lower part of the thigh. Feel movement of the whole lower limb, with external rotation predominant. In fact, the anterior external parts of all the fasciae are thicker and stronger. This listening test can be performed on both sides (*Fig. 7-3*).

Fig. 7-3 Listening to the Entire Lower Limb



Listening tests for the upper limbs

As previously mentioned, listening tests for the upper limbs are more tricky than those for the lower limbs. In some cases, a listening test cannot even be successfully performed in this region. The difficulty is due to the special features of the upper limbs, which would seem to be connected in parallel, rather than in series, to the rest of the body. If your hand is placed on the dorsal surface of the patient's hand in the normal manner, the sensation of motility is significantly less than in the lower limb—and the situation is the same with local listening tests.

Listening to the arm and forearm

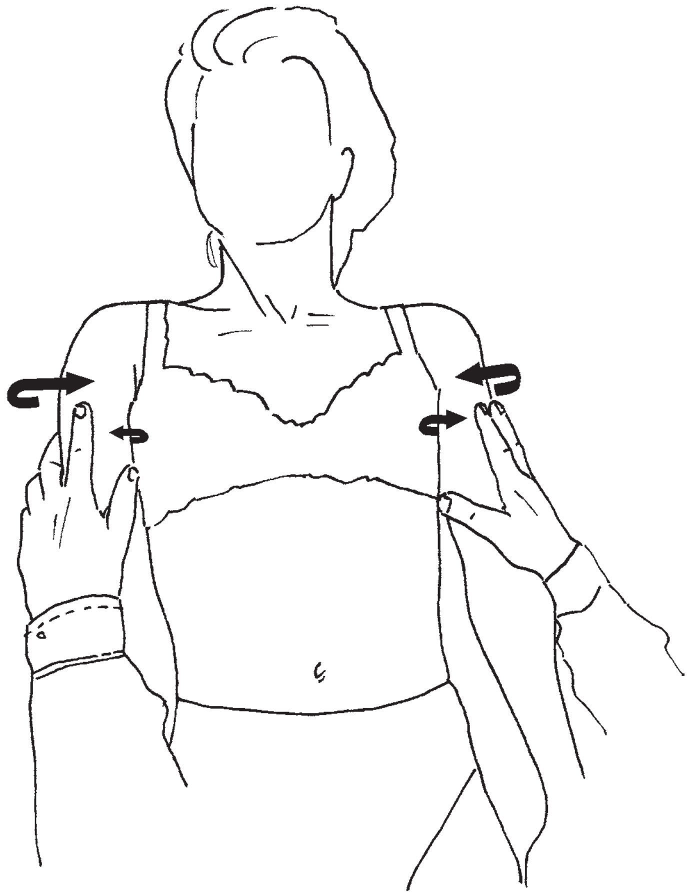
Place one hand on the external anterior surface of the arm below the deltoid 'V,' and the other below the elbow fold over the epicondyle muscles. Use the cephalad hand to feel a movement with external rotation predominant; the caudal hand will feel a movement with internal rotation predominant (*Fig.* 7-4).

Fig. 7-4 Listening to the Arm and Forearm

Listening to the entire upper limb

The practitioner takes up a position at the side of the patient, facing cephalad. One hand is placed over the elbow joint at the inferior part of the humerus, where the predominant movement will be internal rotation. This listening test can be performed on both sides simultaneously (Fig. 7-5).

Fig. 7-5 Listening to the Entire Upper Limb Bilaterally



Is this due to the powerful chest muscles and their associated fasciae pulling the upper limb into internal rotation? We have already mentioned the natural tendency of the upper part of the body towards internal rotation. Therefore, it would appear that, in terms of the direction of its motility, the behavior of the upper limb is exactly opposite that of the lower limb. Could this be to establish a general equilibrium and thereby to create functional balance?

Listening tests for the abdomen

Here, we are not going to consider in detail all the possible listening tests for the abdomen—this has been covered already in many other texts, including *Visceral*

Manipulation II by Jean-Pierre Barral. Rather, we will simply point out the difficulties encountered in this region.

The main difficulty is related to the large number of structures which are encountered under the hand, including the peritoneum, the fasciae, the ligaments, the mesenteries, and the organs themselves. Another difficulty is the depth of palpation—how many layers there are between the superficial fascia and the renal fascia!

The general principle with respect to the abdomen is to place the hand flat around the umbilicus and feel for any tension. In order to narrow down the diagnosis, it may be necessary to move the hand in the direction of any perceived tension to pin down its origin as closely as possible.

In the normal situation, the motility of the abdomen is similar to that of all the other tissues, that is, the hand should float over the abdominal cavity with freedom in all spatial planes.

Listening tests for the thorax

The thorax is a region in which the tissue is particularly motile. The difficulty is in distinguishing between the superficial and the deeper tissues, where there are two major fascial systems, namely, the pericardium and the pleurae. In addition, in the lower thorax, there is the diaphragm.

The patient should be in a supine position, with the practitioner positioned at the head.

Lower part of the thorax

Spread the hands wide open on the sides of the thorax, with the fingers following the ribs posteriorly, and the thumbs pointed medially. Test the thorax as a whole, and then make a side-to-side comparison. In a normal person, this elastic cylinder should seem to be able to move around in all planes without any blockage.

An alternative method has the practitioner by the side of the patient and facing cephalad (*Fig.* 7-6).

Upper part of the thorax

This region is especially difficult because of the presence, in addition to the superficial fasciae, of the pericardium, the dome of the pleura, and the fasciae which are continuous with the scapular girdle.

▶ TWO-HAND TEST (FIG. 7-7)

With both hands wide open on the sides of the thorax, and the base of the hands placed just below the clavicle, spread the fingers to cover the pectoral muscles and point the thumbs in a medial direction. In the normal situation, the movement felt under the hands should be harmonious. If there are tensions present, these may be:

- in the medial direction, if the problem is in the superficial fascia directly over the sternum

LOWER LIMB

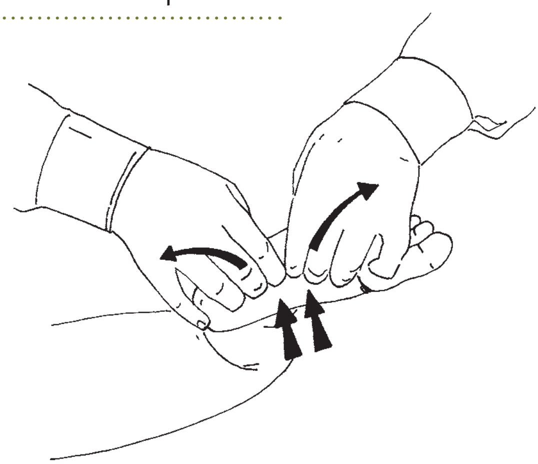
Plantar aponeurosis

As a result of the many distortions to which the foot is subject, seriously abnormal tension is common in the plantar aponeurosis. Such tension will inhibit foot function, can prevent successful therapy based on structural techniques, and is sometimes the cause of a pathological heel spur.

With the patient prone and their leg bent, penetrate deeply to feel the cord-like structure which supports the plantar arch. First, apply sliding pressure, concentrating on the area which is most sensitive. Then hook the ligament with the tips of the fingers and stretch it in a transverse direction (*Fig.* 8-6).

This technique is extremely painful, so one must first warn the patient and obtain their permission. Never exceed the limit of tolerable pain. Given these basic precautions, the manipulation should be firm but brief. Results are often very fast—in the vast majority of cases, one or two sessions will suffice, although more may be necessary if the lesion is of long standing and the original injury was very serious.

Fig. 8-6 Treatment of the Plantar Aponeurosis



If there is a pathological heel spur originating from the calcaneal tuberosity, treat the plantar aponeurosis first, and then concentrate your efforts on the tuberosity itself, applying pressure with rotation. Then treat the fascia around the heel, and ascend back upward along the achilles tendon as far as the calf, where tension most commonly resides in the cleavage plane between the two bellies of the gastrocnemius muscles. Again, the pain from treatment should not last too long. Often the process becomes reduced and sometimes disappears altogether.

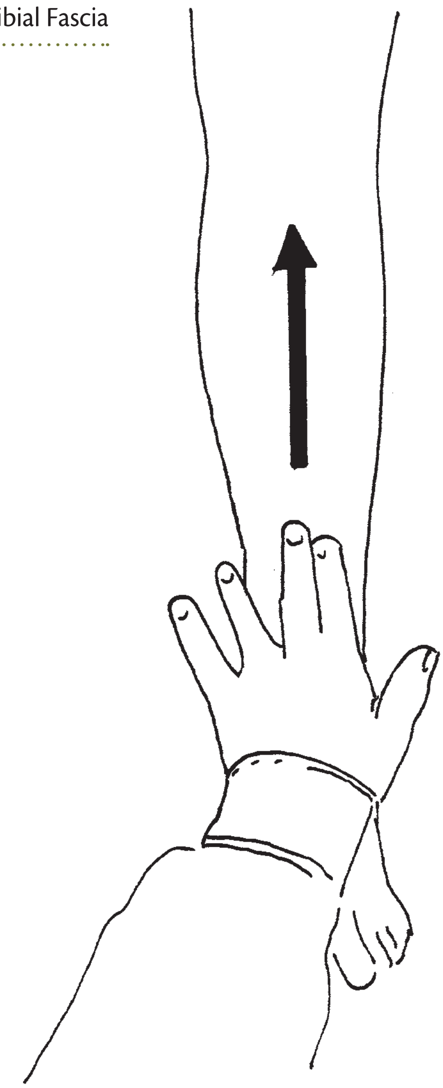
Tibial fascia

The fascia which directly invests the tibia is often involved in lower limb lesions and is often key to successful treatment of knee and ankle problems.

This is treated with the patient supine and their knee either extended or bent, with the foot resting on the table. Apply sliding pressure along the fascia with stretching, massaging, and rotation at any points of restriction. Ascend back up to the medial tibial plateau (*Fig.* 8-7). Once all restrictions have been relaxed, it will be possible to slide the finger all the way along the fascia without encountering any impediments to progress or inducing any pain.

Treating the tibial fascia is often key to a problem of a sore ankle associated with difficulty with respect to plantar flexion. Following distortion, the sudden stretching entailed by an inappropriate movement is entirely absorbed by the tibial fascia. Although this preserves the ligaments of the ankle, it can create tension and induce restrictions of the tibial fascia itself.

Fig. 8-7 Treatment of the Tibial Fascia



It should also be pointed out that the tibial fascia is a common area to which gynecological problems are projected. This causes changes in fascial reflexes, usually around the middle of the lateral aspect of the tibia, and around the medial condyle, in the form of edema, infiltration, and pain. Treating such areas often has an impact on the underlying gynecological problem.

Sometimes the function of the entire tibial fascia is impaired without there being any specific focal points of restriction. The treatment will consist of listening and induction: either in a general (also known as global) mode, by placing one hand over the lower part of the tibia and the other over the upper part; or by adopting a more localized approach, gradually moving closer and closer to the localized structures. Once this has released, you should finish by using a general technique that affects the entire fascia.

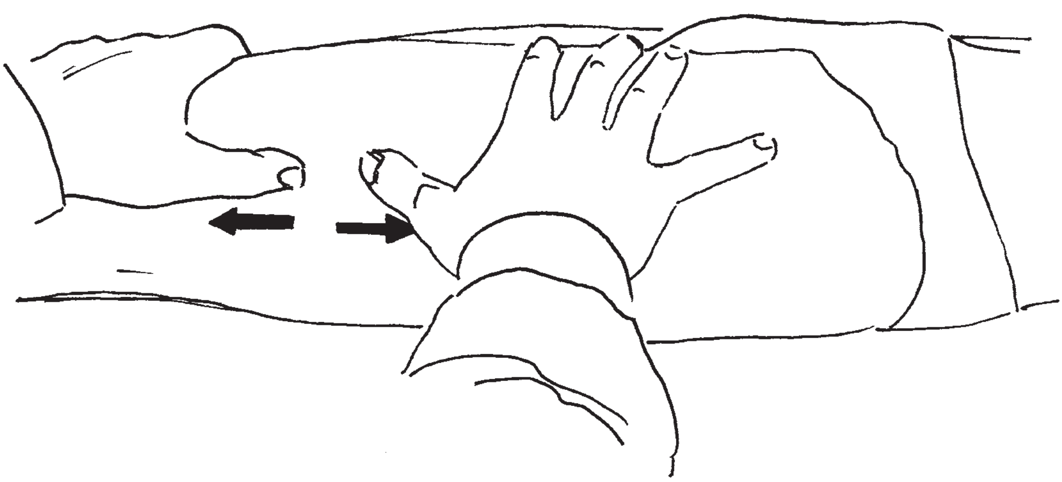
Thigh

In the vast majority of cases, problems here involve just the lateral or just the medial thigh.

Lateral thigh

These are distortions involving the fascia lata. With the patient supine and their legs stretched out, use the tips of two or three fingers to apply sliding pressure along the iliotibial tract (*Fig.* 8-8). You will often encounter a rippling in the tissues, sort of like a corrugated roof. You must steadily work to reduce the intensity of the rippling, one ridge at a time.

Fig. 8-8 Treatment of the Lateral Fascia of the Thigh

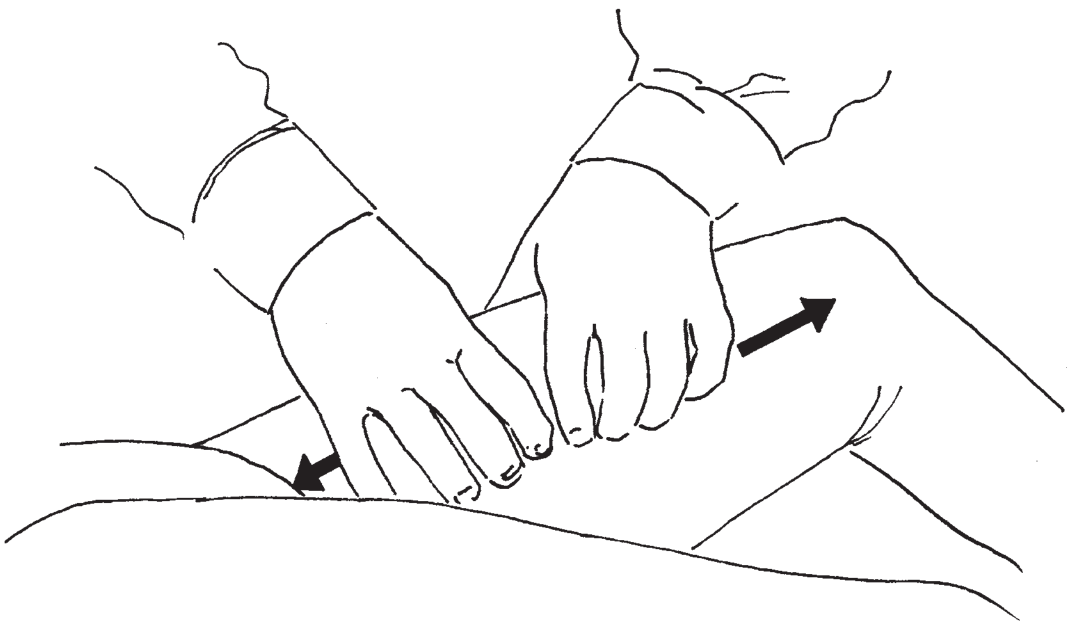


Painful points will be encountered all along the fascia in the form of nodules—these can be reduced by massage and rotational movements. Here, as in all cases of fascial treatment, effective therapy will result in reduced tension, major reduction in the associated pain, and of course improved functionality.

Medial thigh

With the patient supine, knee and hip slightly bent, the practitioner takes up a position to the side of the patient, with their knee on the table. Rest the lateral aspect of the patient's thigh against your own thigh. Place the finger tips of both hands along the cleavage plane between the adductor muscles, and then apply a stretching pressure (Fig. 8-9). If there is a more serious restriction, place both thumbs on the upper edge of the adductor muscles and perform a transverse stretching movement, pushing towards the table.

Fig. 8-9 Treatment of the Medial Fascia of the Thigh



Sciatic nerve fascia

We will finish with the lower limb by talking about treatment of the sciatic nerve fascia. In the previous chapter, it was mentioned that this can be the site of chronic irritation, and the reason for the persistence of sciatica. Sometimes problems with this fascia can even be the cause of sciatica.

Pertinent to this is an anecdote which is significant in our approach to fasciae. Just about all osteopaths in Europe have had patients who have reported visiting some kind of bone-setter who "put their nerves back where they belong" and, in the case of sciatica especially, sometimes with spectacular results. The technique actually consists of using the thumb—with the patient either prone or standing—to trace the path of the sciatic nerve all the way back to the buttocks, or even to trace the tension up through the lumbodorsal fascia as far as the cervical vertebrae. Of course, in nearly all cases, the patient retains an indelible memory of the thumb lightly caressing the area to be treated and leaving a sensation which took a long time to disappear. Is the patient's sciatica improved every time?

This has always surprised us and we sought an explanation for many years. In the end, the explanation is a simple one, yet it is a profound understanding of anatomy which provides it. The sciatic nerve is invested by a fascia, and tension in the nerve inevitably causes irritation of the fascia. The bone-setter is not working the nerve, but rather the fascia. This is an example of how traditional remedies nearly always have some kind of foundation in truth.

The 'stress' induced by the technique seems to 'wake' the amnesic fascia up, which suddenly realizes that its function is impaired. The strong stimulus banished the exhaustion and restored the memory of the normal physiological situation. We have adapted this principle and have often used it with success.

The patient is prone. After you have identified the restricted area (which is usually around the middle of the thigh, as described earlier), introduce the finger tips of both hands deeply and then perform transverse, longitudinal stretching (*Fig. 8-10*). Move down the length of the fascia as far as the calf, at which point it will be more comfortable for you if you place one thigh on the table and apply pressure above the patient's bent leg. Regardless of your position, you then proceed to stretch or use pressure to inhibit the specific point (*Fig. 8-11*).

It is not necessary, in the vast majority of cases, to use such strong pressure that the patient feels pain. Nor, of course, is it necessary to work the entire lower limb with the thumb, because the same result can be obtained by the much gentler procedure.

Fig. 8-10 Treatment of the Sciatic Nerve Fascia

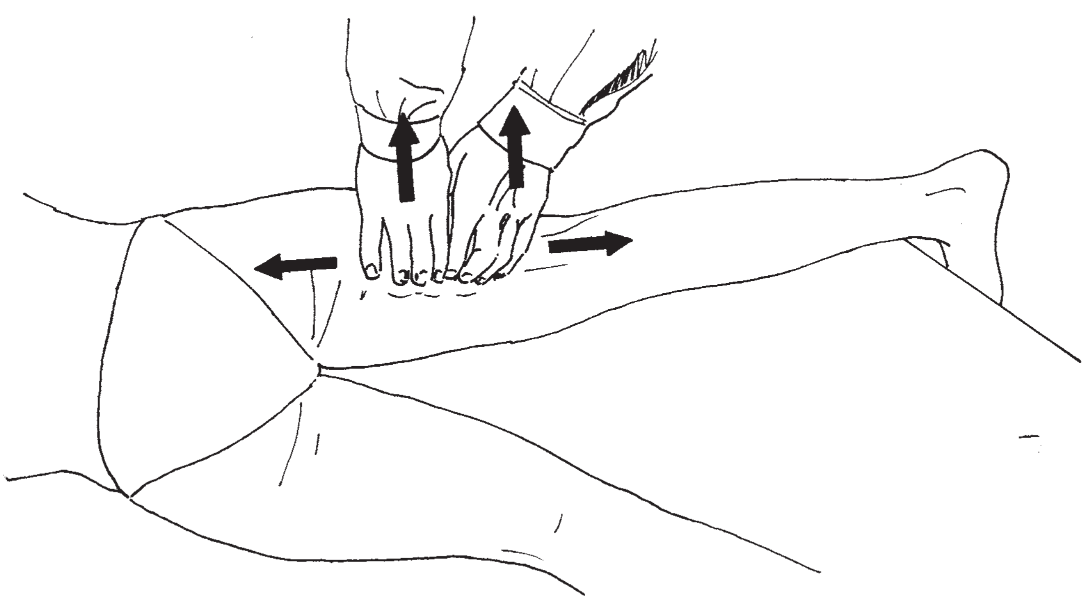
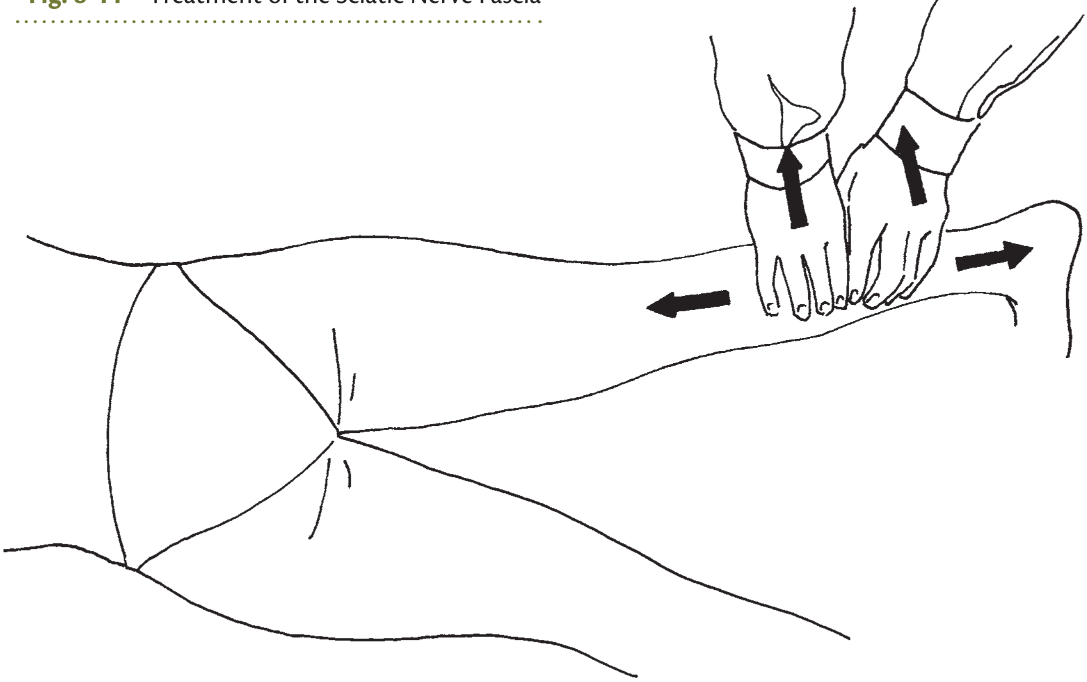


Fig. 8-11 Treatment of the Sciatic Nerve Fascia



After such an approach, we often observe improved function, notably attenuation or disappearance of Lasègue's sign. Of course, this technique is not the only treatment modality for sciatica, and is always coupled with a scrupulous examination for possible causes. Moreover, it often needs to be combined with other techniques.

PELVIS

We will not go into how to release the sacrotuberous and sacrospinous ligaments or the piriformis muscle in any detail because these techniques are familiar to all. However, we would emphasize that the sacrospinous ligament is often a key factor in problems of the pelvis and the lower limb. It should therefore be inspected as a routine procedure. We will concentrate instead on two specific techniques for:

- the fasciae of the gluteus muscles
- the iliolumbar and lumbosacral ligaments

Fasciae of the gluteus muscles

These fasciae cover an extensive area and are quite active, especially in the standing position.

With the patient prone use the thumb to apply sliding pressure. Alternatively, a stretching or inhibition technique can be used. Treatment should be applied to the following areas: