

INTRODUCTION

The fascinating way our bodies work

People are constantly seeking methods of healing and trying to understand the principles that underlie our life and how our bodies function. Only if we understand how the body works can we help when something goes wrong.

For several months Mrs. K. had been suffering from severe tension and pain in her right shoulder and the right side of her neck. There was noticeable shortening on this side, compared with the other. She uses the telephone a great deal and told me that she always holds the receiver between her head and her shoulder. By doing so, she twists her neck. She had seen an orthopaedic consultant and had already had treatment seventeen times from a chiropractor. The manipulation helped at first, but a few days later the pain would return, so she went back to the chiropractor. Later on she consulted her doctor again, who prescribed physiotherapy and sports, but this failed to help. ●

The chiropractor's treatment is to realign the vertebrae, working against the muscle tension. This approach is very helpful when dealing with acute torsion affecting the vertebral column, but any realignment can only be of short-term benefit when the muscles have shortened, resulting from years of misusing the body. These muscles are bound to soon return to their shortened state.

Our muscles need to be informed of how to re-establish balance. We cannot relax if our body has forgotten what relaxation feels like.

Muscles do not work alone, however. As groups of muscles work together it is rarely one single muscle that suffers strain. Thus, if the head is constantly tilted to the left, the muscles on the left side will shorten while on the right side they will lengthen. Moreover, this change occurs not only in our muscles, but also in the connective tissue that links the muscles, thereby creating functional lines. This tissue too becomes overstretched or contracted.

This connective tissue – the anatomical name is 'fasciae' – has plastic properties. The fasciae envelop and link muscles, joints and organs throughout the body in a kind of network. We sometimes see fasciae in everyday life: when we buy a piece of meat to roast we may find a layer of whitish tissue which we usually remove because it tends to be tough when cooked. This is fascial tissue. The fasciae form a communication system within the body. This fascial tissue contains pain receptors, sensory receptors, nerve cells, immune cells and fat cells. To give another example of its importance, our muscles are not directly attached to our bones, but are linked to them by tendons made of fasciae. These enable all the various parts of the body to work together in all our movements. There are also biochemical processes which take place in the fascial system.

In acupuncture, an area of traditional Chinese medicine, the needles are placed on certain lines of the body in order to stimulate the healing process. The concept speaks of a flow of energy that is being re-stimulated. Thus, for example, the practitioner might place a needle on the person's hand in order to stimulate the kidneys to function better.

Awareness of energy flow lines in the body dates back to antiquity. It is curious to discover that the fascial lines which link individual muscles in functional lines correspond quite closely to the lines described in Chinese medicine, called meridians. Sometimes they even lie directly on these lines. Over the last century several systems of manual therapy were developed that work with the fascial system. Rolfing and osteopathy,⁵ for example, work to release adhesions in the fascial tissue.

Research into the fascial system is constantly moving forward, and in this book I refer to some relevant information to help explain my work. A list can be found in the References section, with links to the websites of research groups working on fasciae.

⁵ See Appendix

How does Bodilance differ from other forms of therapy?

In the Bodilance® method, the trainer or teacher works to change the client's movement patterns. In our daily lives we misuse the possibilities for movement that we have, and thus come to use parts of our body in a harmful way, manual therapy can sometimes be of limited help.

Unless we change our harmful movement patterns and postural imbalance, we are likely to continue using our muscles and joints in the same, harmful way. Before long the old problems will recur. The solution to this can come from realizing how we are using our bodies. This is why the Bodilance® trainer gives corrective impulses while the client is performing the movements of everyday tasks.

The first Bodilance® session might run like this:

You stand in front of the mirror, and the trainer shows you where any imbalances in your body are. Perhaps one shoulder points forward more than the other, or is higher than the other. Perhaps there is torsion in the lumbar region of your vertebral column, or maybe your legs are rotated inward or outward.

The Bodilance® trainer will be able to explain to you how these imbalances affect your muscles; whether they are shortened or overstretched, what effect that has on your movements and how this problem can cause the pain you are experiencing.

While you are standing, the trainer may give gentle impulses in your arm and shoulder region to stimulate the muscles to restore balance. These impulses are delivered in alignment with the functional lines that link the individual muscles via the fasciae. These links have a remarkably strong effect, so the trainer only needs to give a gentle fingertip impulse to stimulate the uprighting response, which is also present in your arms. Your body responds to the impulse, and you want to sit down.

Experiencing this for the first time can feel like magic at work. But there is in fact a logical explanation for it, found in the links created by the fascial chain and the direction in which this chain operates. For example, if the muscle lines in your arm are out of balance, your arm will hang on the shoulder, pulling part of your upper back with it. This weight, falling forwards and downwards, exerts an extra pull on your arms, a load that you then carry around all day as you work. (See also: Functions of the arms and hands.)

If the trainer were to deliver impulses while the client is in a resting position, this would be no different from manual therapy. Impulses should be given during movement, for example while standing up or sitting down. In this case the body's improved balance combines with this movement experience and the whole postural behaviour of the body is organized anew. If for example your body has lost the information it needs in order to bend, and cannot find the bending point at the hip, the trainer can stop the incorrect movement and give back the correct information the body needs. In this way your body re-learns to bend at the point - or joint - designed to perform the action. Muscles that had shortened can now relax and extend, while overstretched muscles can contract and work in a more balanced way.

The trainer stops the wrong impulse and your brain finds the solution in the correct movement. This stimulates a learning process in the whole body.

A training session usually ends with a short spell in which the client lies on the table. In this position the trainer can activate the downward-directed functional lines and encourage them to relax. This work is described in the: 'Work with client lying down'

Fascial tissue

Fascia is found everywhere in the body. A fine, tough layer of fasciae runs through the entire body, linking muscle groups, bones, nerve cells, blood vessels and all the organs, creating a three-dimensional network. The tendons are also part of the fascial system, forming the link between the bones and muscles.

Fascial tissue (also called connective tissue) has plastic properties. Anything that has plasticity can be stretched and moulded only up to a certain point, however (plastic material is able to react up to a certain extent). If there is any attempt to stretch it beyond that point, it cannot retract of itself. An elastic material, on the other hand, has a greater capacity to stretch and retracts to its original position when the force (e.g. tension) is removed.

The myofasciae (myo = muscle) are of particular importance for the locomotor system. The myofasciae link individual muscles into functional chains; because of these connecting links, individual muscles that are constantly tense affect others in the entire muscle chain.

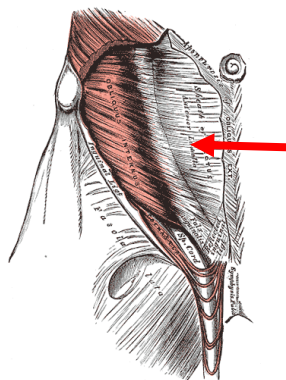
Fascial tissue permits movement up to a certain point, while at the same time giving stability. For example, a fascial line on the lateral aspect of the thigh, the Lateral Line, works in concert with the iliotibial tract to reinforce the fascia lata (which also forms part of the Spiral Line). This fascial structure gives lateral support to the hip and knee joints while also allowing movement in the joints. Without sufficient support, rotation of the hip and flexing and extension of the joints in the leg would be unsafe and unstable. (See also: Relation of the functional lines to each other.)



This supportive flexibility and plasticity mean that fascial tissue cannot stretch or contract again as quickly if it is constantly shortened or overstretched. Even if we stretch a muscle by doing exercises, the shortened fascia around that muscle (in the case of chronic strain in that region) will cause it to contract again afterwards.

Where there is greater load on one side of the body, the fascial tissue reacts by strengthening those places where the body needs more support. The tissue fibres adhere and thicken. This results in increased stability on that side, but it also reduces flexibility. The body loses elasticity and mobility.

Some manual therapies work to release fascial adhesion, which can achieve positive results. However, if the cause of the adhesions is faulty muscle use over a period of years, these results will not last. Moreover, releasing adhesions fails to strengthen the corresponding fascial function line that runs in the opposite direction. Bodilance® works with the idea that myofascial function lines are like sets of pulleys: we work with a system of lines, running in opposing directions, some upward, others downward. The release of one functional line is linked to the strengthening of its opposite line; thus in Bodilance® work, balance is achieved as the body moves into an upright position and during movements made in that upright position.



The Figure on the left shows the strong fascial structures in the abdominal region (rectus sheath). These blend into the external oblique. Part of the fascia lata can be seen laterally. Ventral view.

Fig.: Wikipedia commons, from Gray's Anatomy



If there is shortening of the fasciae on the side that essentially runs upward (red arrow, as shown on the Figure above), and these fasciae are then lengthened again, this simultaneously affects the fasciae of the corresponding, essentially downward-running side (yellow arrow). They had been overstretched; the effect now is to shorten them. Relaxation can only happen when a balance is achieved between these two opposing forces.

We need energy; we use it to stand upright as well as to move in that upright position. If our body statics are in balance, we do not feel the energy that that uprights our body, and all our movements are performed with ease.

The following sentences, from Schultz and Feitis⁷, help us understand the interplay of structures and activity involved in movement in a living body:

The muscle-bone concept presented in standard anatomical description gives a purely mechanical model of movement. It separates movement into discrete functions, failing to give a picture of the seamless integration seen in a living body. When one part moves, the body as a whole responds. Functionally, the only tissue that can mediate such responsiveness is the connective tissue.

⁷ Schultz L, Feitis R. The endless web. Berkeley: North Atlantic Books;1996: vii.

ASSESSING THE PROBLEM

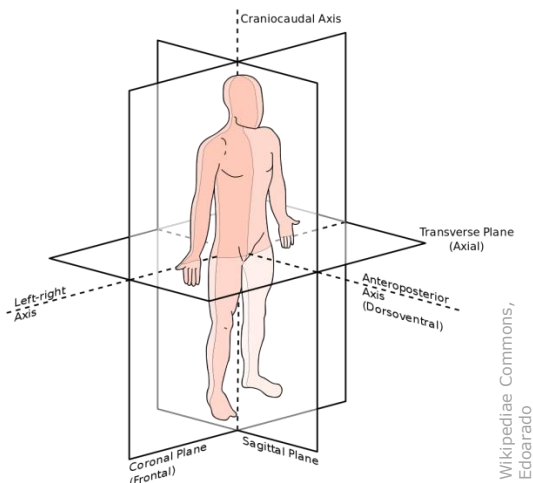
This touches on the fundamental principle underlying the Bodilance method. The ability to recognize visually where the static balance of a client's body is out of kilter, and where best to begin the postural training to address the imbalance, is key. This fundamental ability is especially important at the very outset of instruction for Bodilance trainers, and is introduced then. While this chapter cannot replace direct instruction, it will be useful as a source of ideas to help nurture new trainers' ability to 'read' the body.

The balance of the body can be disturbed in various ways. The following questions will help make perception easier and enable systematic analysis:

- In which planes is the body out of balance?
- Where is the static balance of the body disturbed?
- Where is the line of gravity: in which direction does body weight fall?
- What are the reasons behind the imbalance?
- Where is the main impact of pain or discomfort?
- Where should postural training begin?

In which planes is the body out of balance?

The three planes



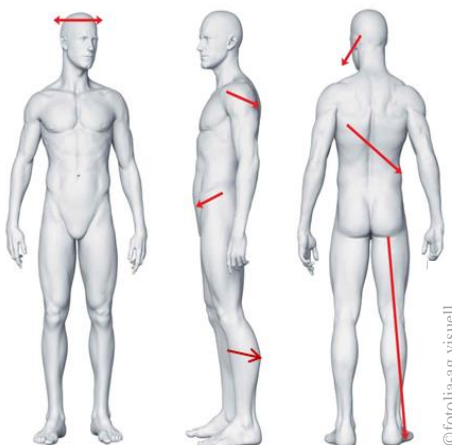
The *sagittal plane* divides the body into left and right. The two sides are symmetrical, a mirror-image.

The *frontal plane* (or *coronal plane*) divides the body into anterior and posterior.

The *transverse plane* (a horizontal plane) divides the body into superior and inferior.

Where is the static balance of the body disturbed?

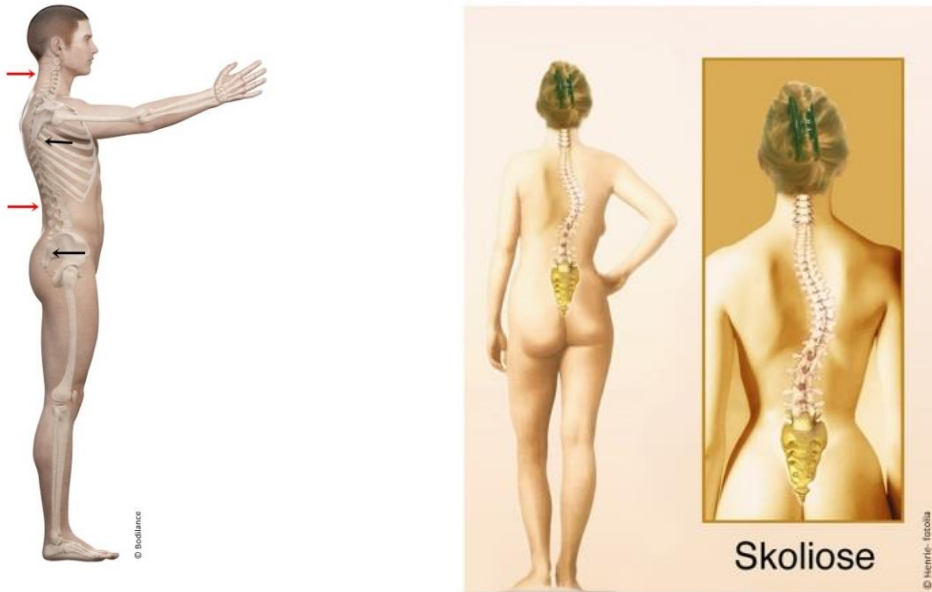
Analysis is done together with the client standing in front of a mirror. Begin at the head and work downward.



- How does body weight fall, from the head through the body to the feet?
- What is happening in body posture, working upward from the feet?
- Is there any shift to the side, e.g. to the left, compensated by a shift to the right in another part of the body?
- Is the body turned inward in any way (e.g. funnel chest)?

Statics of the vertebral column

A healthy vertebral column has four physiological curvatures (lordoses → and kyphoses ←) auf.



Scolioses⁸, on the other hand, are curves in the vertebral column which are not natural. (In scoliosis, the curvature shows a sideways shift.) There are two kinds: idiopathic (90% of cases) and symptomatic (the remaining 10%). Idiopathic scolioses do not have a clear, known cause (there is no demonstrable pathology), but they are often brought about by muscular imbalance. Symptomatic scolioses, on the other hand, do have an identifiable cause. They may be due to congenital malformation, for example, or they may be the result of nerve or muscle disease.

Another potential problem is the shifting of body statics. If the body's static balance is shifted, we need more muscular effort to maintain upright posture against the force of gravity. This imbalance can occur in various ways: for example, if the pelvis falls forward, the upper back has to compensate for the shift by falling in the opposite direction to restore balance. Or the imbalance might occur in a sideways direction: one side of the hips tends to the right, for example, and this is compensated by the rib cage, which shifts to the left to even out the balance.

Another problem can be torsion and distortion. The body can twist in ways that do not affect how body weight falls. A collapsed chest (such as the funnel chest caused by rickets) or, in the hip region, any constricting of the pelvis, make the body contract and curl inward to the body's centre. Torsion can also occur in a spiral direction, when the body twists about its own axis. This can happen in the chest, in the pelvic region, or at the level of the legs and feet.

What is important here is not to focus too hastily on a single aspect without considering the bigger picture. A lowered shoulder or a crooked posture that extends upward to the head may turn out to be due to an imbalance at the feet. Some imbalances are in fact caused by one particular, single aspect, and the details of how this can happen are explained below. For example, the head may be held in a tilt because of differences in visual acuity.

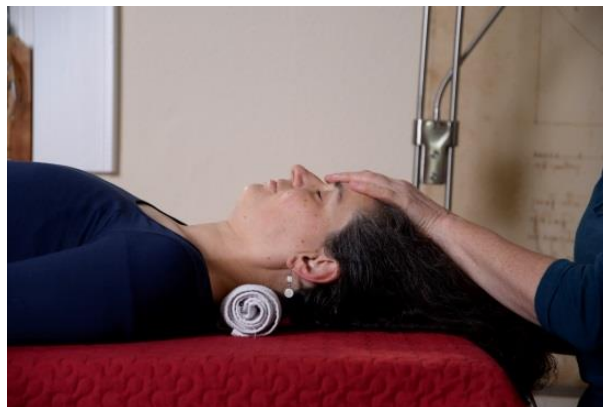
Where is the line of gravity: in which direction does body weight fall?

During a Bodilance session we usually look at a person from head to toe, working downward, so this account of body balance will begin with the head and neck region before moving on to describe the trunk, pelvis, legs and feet.

⁸ For a description of scoliosis, see Appendix



The first training session in front of the mirror. The trainer explains to the client where there are imbalances and the effect of these on the body.



The *Bodilance* session ends with a period of relaxation on the treatment table.