Fascia - Our Natural Communication System

An excerpt from John's new book *The Bowen Technique - the inside story'*. Click here for further information.
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An understanding of the nature and function of fascia is really crucial to becoming a good Bowen practitioner.

Fascia has extraordinary properties. It surrounds organs and other structures in the body such as muscles and it allows free movement and 'glide' between these structures as we move around. In terms of its quality it is rather like a supermarket shopping bag in that it retains its strength without stretching very much but will tend to hold patterns if it is damaged or stressed.

Fascia is made up primarily of collagen fibres. These are small hollow tubes filled with very fine fluid – very similar to cerebro-spinal fluid which is very high in photons or light particles. Collagen is a protein which makes up around 70% of all the protein in connective tissue and is the most common protein in the animal kingdom. It also has unique properties in that water molecules are attracted to it and will stick to it in a very ordered way, a bit like scaffolding around a building.

This quality allows a high degree of fluidity in the fascia which is essential a) for the free movement and glide (e.g. between groups of muscles, or between organs) and b) for effective intercellular communication. The degree of fluidity in the fascia is determined by use and hydration – gentle stretching is one of the best ways to encourage fluidity into the tissues.

Not only is drinking water important for the hydration of fascia, but also the quality of the water is crucial. In normal tap water, water molecules group together in about 10 – 12 whereas in more alkaline water (for example water that has been ionized) it groups in 5 – 6. The smaller grouping in alkaline water seems to be much more effective at ridding the body of toxins as it is able to pass more freely through the cell walls. This is possibly why Mr Bowen used to encourage people to drink distilled water if they were having any kind of toxic reaction to the treatment and also often to get his clients on a more alkaline diet.

The structure of fascia is determined by its use. The collagen fibres orient themselves to the stress and structural loading imposed by standing, walking sitting etc. In the baby, as it goes from crawling to standing, you can see the differing stress patterns that will be placed upon the myo-fascial system as this happens. These early movements of the baby are crucial in the development of the fascia and particularly for our work, the orientation of the collagen fibres.

One particularly important band of fascia that determines our posture is the ilio-tibial band up the sides of the leg. This is easy to palpate. If you feel around the seam of the trouser on the side of the leg you will feel a tough fibrous band. The patterns of stress imposed on this band is primarily vertical in a standing position so most collagen fibres within it lie in a superior/inferior orientation.

Effects on Fascia

The health of fascia is affected by several factors. Firstly hydration is crucial to its effectiveness. Gentle stretching, such yoga or Pilates, is excellent as it helps orient the collagen fibres within the fascia and also creates space for fluids around and within the cells.

Stretching fascia can be likened to applying force to metal – if one were to bend a metal bar too strongly or too fast it makes it brittle. If one bends it slowly then it encourages it to become more fluid and flexible. Stretching too forcefully can also create inflammation in the tissues which is also counter-productive to recovery.

One of the problems with people who go to the gym, particularly if they are competitive in nature (this probably applies to men more than women), is that it is so easy for them to damage themselves through inappropriate exercise.

Individual muscle fibres are surrounded by fascia and when people do compressive exercise such as weights it is easy for them to tear. This is what gives the impression that muscles are being built up. In reality, often the extra muscle bulk derives from a tearing and bunching up of the muscle fibres. This creates adhesions through the tissues, and a lack of ability for the body to get rid of toxins.

On the other extreme, the average couch potato who does very little exercise (say who walks less than 20 minutes a day) will have a lot of congestion in their connective tissues. The lymphatic system depends on movement to do its job. Likewise, the orientation of the collagen fibres depends on use, and this orientation is crucial to the effectiveness of our work.

Scars and operations will also affect fascia and can create 'breaks' in the fascial tracts. This can cause adhesions around a particular area and often several layers of fascia at once. For example if one has a scar around the kidney area it will tend to restrict the free movement of the fascia surrounding the latissimus dorsi muscle. Because this muscle attaches on to the arm it will affect the ability to raise the arm.

There are many other examples like this – a caesarean scar may pull through the linea alba up towards the umbilicus, through to the pericardium around the heart and then through the pre-tracheal fascia in the front of the neck. If one looks at the various fascial 'trains' as described in Thomas Myer's book, 'Anatomy Trains' it is easy to see how restrictions in any of these fascial relationships will affect the whole.

I remember a few years ago treating a woman with extreme tightness through her hamstrings. She was a professional athlete and hurdling was one of her specialities. Over a few sessions, we proceeded address the most obvious areas – working around the hamstrings, the sacrum and the knees, to no avail. She then told me that she had broken bones in both her feet at different times. Although the bones had repaired well, on examination, the plantar fascia in her feet were very tight.

I decided to do the 'hammer toes' procedure which involves a few moves over the plantar fascia. She had a very strong reaction on the couch and had to lie there for around 20 minutes. When she got up off the couch she instinctively wanted to test her range of movement by trying to touch her toes. She could easily get both palms flat on the ground without discomfort. Previously she had only been able to get her fingertips around 3 inches from the ground.

I was astounded by this result (as was she delighted) and I began to consider how this might be possible. It is clear that there is a direct fascial connection between the plantar fascia in the foot, through the gastrocnemius to the hamstrings, but how did such a small release allow for such a massive increase in range of motion? I began to look more at the nature of fascia and new research into how it can hold patterns and communicate impulses.

The Secrets of Fascia

An important pioneer in research into the nature of connective tissue is Dr Mae Wan Ho. A scientist working in London, she has been an outspoken opponent of GM engineering of food. Her book 'The Rainbow and the Worm' and research papers are available from her website at www.s-i-s.org.uk.

Impulses

Impulses are created in the collagen fibres by very light pressure. Research in the USA has shown that stressing collagen fibres by applying gentle pressure creates a small electrical charge which has strong healing properties. As Dan Amato has pointed out, it has been shown that crosswise stretching as is used in Bowenwork creates a stronger piezoelectric current than just pressing on it (such as might be used in Rofling) or going along the length of it (as might be used in massage). The fact that impulses can also be affected by heat might give a clue as to why we ask clients to avoid exposing themselves to extremes of hot or cold after a session.

Conductivity

The conductivity of collagen increases strongly depending on how hydrated it is. This means that the impulses we create during a treatment will travel much more effectively if the fascia is hydrated. This is probably why

some people respond better to the treatment than others – babies, animals and those who practice yoga all will tend to have a much more hydrated and fluid system

Amplification

Impulses created by Bowen moves will be amplified via the action of proteins in liquid crystals. Mae Wan Ho describes fascia as essentially liquid crystaline in nature i.e. highly responsive to electrical charge and able to carry electrical impulses very fast (much faster than the central nervous system). It is highly responsive as a single system – a bit like a liquid crystal display that is used televisions. In other words, the fascia will respond AS A WHOLE to a Bowen move, not just locally, and it will respond directionally, determined by how the impulses travel through it. This in turn is determined by the orientation of the collagen fibres, which in turn is determined by use.

Tissue Memory

Liquid crystals hold 'memory' which is has the capacity to register new experience. In other words it holds patterns of experience but is also highly receptive to change initiated by directional electrical impulses.

Drugs

Conductivity along the lines of collagen fibres is adversely affected by certain substances, for example anaesthetics. Many Bowen practitioners will have noticed that it is much more difficult to get good results if a patient has had a cortisone injection for example or is taking muscle relaxants.

Pathways

Impulses will travel around 100 times more strongly along the orientation of the collagen fibres as opposed to other directions. Given that these fibres orient to lines of use and structural stress it is easy to see where impulses will travel in the body.

For example a move over the vastus lateralis tendon ('hit the lat') will travel up the ilio-tibial band over the gluteal fascia and up the erector spinae to the occiput. If there is no congestion, scar tissue, lack of fluidity or dehydration in the fascia then impulses will be amplified as they travel.

When one looks at the patterns of fascia in the body as described by Ida Rolf and Thomas Myers, one will see clearly defined 'trains' and layers which will determine how and where the impulses we create travel.

Fascia forms itself in layers that move one against another. This means that impulses (ie Bowen moves) created in areas where fascia overlap will affect all those layers. Otherwise they will only travel along one layer at a time.

In Bowen we sometimes perform moves where there is an overlap of layers of fascia. These moves tend to be very powerful because we affect several layers at once.

Take moves 3 & 4 in the neck for example. Not only do these moves go over two important lymph nodes, (the sub-occipital nodes) but they also affect 3 muscles and layers of fascia simultaneously – the trapezius, the semispinalis and the rectus capitis.

Moves 1 & 2 of BRM 1 are also interesting in this regard as they affect not only the ilio-lumbar fascia which has fibres which are quite diffuse, but also the erector spinae fascia which has a clear superior/inferior orientation.

There is a strong continuity of fascia throughout the body and it has a very clear differentiation front and back. Take for example the small moves that we do either side of the trachea in the upper respiratory procedure. These small moves may seem insignificant, but in fact they create an impulse that travels down the pre-tracheal fascia, continues to the pericardium which surrounds the heart, travels down the falciform ligament to the umbilicus and the linea alba to the pubis.

This of course will depend if we have put any ‘stoppers’ in beforehand. The lower respiratory moves on the front at the diaphragm can act as stoppers and inhibit the impulses travelling through the front fascia at this level. This can be very useful if we want to contain the work above or below the level of the diaphragm.

We use this principle when we do the thoracic procedure to address scoliosis. We can also use it to address the abdominal cavity if for example we wanted to encourage a baby who was posterior or breech to turn. Putting in these front moves of the lower respiratory procedure helps to contain the impulses created by performing the pelvic procedure and greatly amplifies its effect in that area.

It is significant that in Bowen we perform moves on the front and the back fascia separately as there is a clear delineation which probably has its origins in our amphibian ancestors.

In terms of evolution, we share with amphibians the separation of the viscero-cranium (the face, mouth, lungs and gut) and the neuro-cranium (the brain, spinal cord, and vertebrae). Fascia is therefore structured in a similar way as having a clear delineation between the front and back of our body. Also in the embryo, the fascia that envelopes organs arises from a different area of mesoderm to that of the structural bands of fascia.

Front and back fascia in humans have very different functions and dynamics.

The back fascia (identified as the superficial back line by Thomas Myers) has a basic dynamic of tethering the body in an upright posture – a bit like the rigging on a ship. Without this we would fall forward. If you can imagine the back fascia on a four-legged animal going from 4 legs to 2 you will get the idea of the stresses involved.

In an animal, the front fascia supports all the abdominal organs as they hang down below the spine. In the neck, tubes of fascia hang down from the base of the cranium, particularly the sphenoid bone. In a human, a similar dynamic is taking place except that now in an upright position the fascia hangs down vertically. If we look at how the collagen fibres orient in the front fascia we will see it is very different front and back because of the very different stress factors put upon them. Again this can be related to the rigging on a ship.

It also explains the effect of ‘holding points’ in our work which will inhibit impulses travelling along these lines of fascia and contain and amplify these impulses in certain areas of the body.

Dan Amato has postulated that the release created by a bowen move creates a type of wave through the body called a soliton, the most well known example being a tsunami.

Solitons have interesting properties in that they carry large amounts of energy through the medium of water over long distances without loss. Interestingly they also do not need a lot of pressure to set them off. The tsunami that devastated so many areas around the Indian Ocean on Boxing day 2005 was actually set off by two tectonic plates colliding at the speed that our fingernails grow. In other words, it does not necessarily need a strong bowen move to set up a strong response in the body. What is needed is enough pressure so that the body does not resist and therefore inhibit the response.

The effect of Bowenwork on the fluidic elements of our bodies is highly significant. After all, we are at least 75% fluid. Lorin Eisley, the American poet even described humans as being walking sacks of seawater – a not unscientific observation. In his book ‘Job’s Body’ Deane Juhan describes how easy it is for the fluid nature of our tissues, particularly what is called ground substance to become stuck (he calls it fixotrophic) in response to accidents, falls and operations. It is as though the fluids become ‘frozen’ or more crystalline in nature and lose their ability to be responsive and malleable.

Bowen moves seem to unfreeze areas of tissue that have become frozen - possibly as a result of the strong energetic effect that Dan Amato describes.