

Fascial Injuries

By Emma Gilmore

Fascia is the biological fabric that holds us together, the connective tissue network.... 70 trillion cells – neurons, muscle cells, epithelia – all humming in relative harmony; fascia is the 3D spider web of fibrous, gluey, and fascia wet proteins that binds them together in their proper placement.¹

Figure 1:
Superficial fascial
restrictions, visible
to the naked eye.



This wet, gluey abundant connective tissue network functions as our body's shock absorber, it literally absorbs every impact that we encounter throughout our life – from our embryological beginnings through to today. Every single stumble, trip or fall impacts our fascial system, causing the fascia to lose its physiologically adaptive structure. This is commonly referred to as “binding down”.

As our shock absorber, very minor accidents such as stumbling over a curb or jolting when a train stops - so small they are often not considered injurious – will affect the fascial system. These small impacts are cumulative. As fascia absorbs these shocks it changes in structure, it starts to dehydrate, bind down and densify. Superficial fascial

restrictions are visible to the naked eye and can be readily palpated; restrictions deep in the system (beyond the original injury or impact) can be palpated by a trained therapist.

These fascial restrictions – initially perhaps – seem as though they have made little or no impact upon us, they do not cause immediate pain or seem to restrict movement or impede function. However, restrictions in any part of the three dimensional network that is fascia, can impose negative stress on adjacent, as well as distant structures. This can lead to compensations throughout the whole system.

Most of us, as well as sustaining a multitude of stumbles have had bigger impact injuries, falls for example - off ladders, out of trees, off horses, during

sport, tripping upstairs etc. Our fascial system will have absorbed all of these - perhaps again without any obvious issues apparent at the time of impact. However, all of these injuries cause the ground substance to dehydrate, drawing collagen fibres closer together, creating density in the fascia & causing compensations throughout the fascial system – which is why clients will frequently say things like “I was just picking up a piece of paper from the floor and my back went.” What has actually happened here? Finally the fascial system which has taken countless minor trauma impacts (as well as some bigger impacts), has compensated & compensated and is now too bound down, and unable to respond to the demands made upon it. The bound down fascia has lost its contractibility, and is now compromising other areas and structures, perhaps causing nerve impingement. It may seem as though the symptoms have appeared suddenly, however the fascial system has been progressively compromised over the years, in fact over our entire life.

More severe injuries, such as whiplash, will also impact the fascial system in the same way as above. Impact sports such as rugby, American football, even running (especially on tarmac), will have a high impact on the fascial system: think about the repercussions of pounding on a pavement on the shock absorbing fascia, and think about the ricochet of sensations that pass through the body with each step. Patients who have engaged in impact sport over a long period present with systemic damage to their fascial system, and may require a course of treatment to improve the condition of the fascia and therefore its function.

Other impacts or injuries that are frequently overlooked are those sustained in utero, during labour and delivery, (think of the pressures imposed on the baby during a vaginal birth, as it descends the birth canal and is eventually ejected into this world and born). These pressures all impact the fascial system causing restrictions and therefore compensations.

Let us now look at other factors that will negatively affect or compromise the fascial system.

Lack of movement – quickly fosters the development of additional cross-links in fascial tissues. The fibres lose their elasticity and do not glide against one another, become stuck together and form

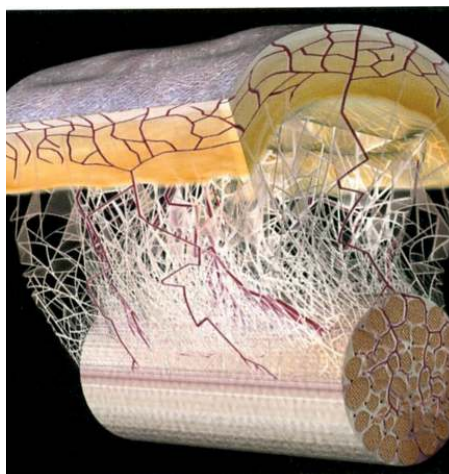


Figure 2: Photo credit: *Born to Walk* by James Earls

tissue adhesions. An immobilized joint – for example - after a few weeks will have limited mobility as chaotic growth of collagen fibres form in all directions.

Repetitive movements – impact the fascial system, as chronic mechanical stress (caused by repetitive movements) results in increased laying down of collagen fibres - as protection - and decreased hydration of the ECM's ground substance. Before the popularisation of fascial techniques, we would have addressed specific muscles in cases of repetitive strain injuries, now we would address the fascial restrictions found in the related area, as well as beyond.

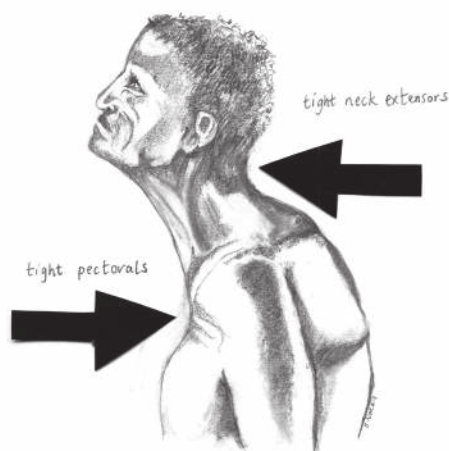


Figure 3: Pectoral muscles & neck extensors “locked short”, upper trapezius, rhomboids & neck flexors “locked long”. Image Sam Norris, 2018, pencil on paper

Habitually poor posture – can have its roots in either physical or emotional experiences, and will impact the fascial system. Fascia is a bio-tensegrity system, which adapts to the demands placed upon it, therefore habitually poor posture, which continually overloads the system, will damage fascia and cause dysfunction along the lines of the tension imposed. When body segments are pulled out of alignment and muscles are required to maintain static positions – either stretched/contracted (“locked long”) or shortened/contracted (“locked short”) – we see increased fascial bonding and thixotropy (thickening) of the surrounding extracellular matrix (ECM). In cases like this we will always need to lengthen the fibrotic shortened tissues first, to allow the other structures to rearrange and support the body in its “new” original position.

Scar Tissue – surgeries compromise the fascial system in several ways, multiple layers of fascia are cut during surgery and the naturally hydrated tissues dehydrate. As the eminent plastic surgeon Jean-Claude Guimberteau has shown; during surgery the structures quickly dry up when exposed to the atmosphere or to the heat emitted by the lights in the operating theatre. These dehydrated fibres adhere to each other as well as the surgical instruments.

During post-surgical healing collagenous fibres (one of the main components of fascia) are laid down in a haphazard fashion, to provide strength to the weakened, compromised incision site and beyond. These fibres form a large portion of the visible and palpable scar tissue.

Unfortunately “Scar-tissue formation is a non-specific process, nature does not repair and re-shape living matter exactly as it was before injury, the results are often disappointing”². However myofascial release techniques can help to restore tissue structure which is compromised during the formation of the scar.

The external appearance of a scar can be misleading, because it does not always indicate the extent of the tissue destruction beyond. This is where our skill as manual bodywork therapists comes into its own; with patience and practice we can learn to feel beyond our hands, deep into the fascial system. With



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Figure 4: Scar tissue, visible to the naked eye. It is possible to see that superficial & deep layers have adhered together

sensitive, experienced hands we can palpate initially the restrictions and then the release in the tissues as they “let go” and rehydrate, returning to health.

To be clear, Guimberteau states that adhesions are often referred to as scar tissue, but in reality adhesions are a complication of scar tissue, which is the result of a wound, such as a surgical incision. Adhesions are also amenable to change, by manual therapy.

Burns and scalds – have a very negative impact on the fascial system, burnt areas are visibly bound down as well as palpable. The external force of the heat dehydrates many tissue layers, strands of collagen fibres are drawn closer together, creating a dense adhered tissue mass, which loses its dynamic and adaptable structure.

Radiotherapy and chemicals also cause burn injuries; all burns can be effectively treated with great patience and sustained myofascial techniques. For those of you familiar with MFR, transverse holds or flat hand compressions are effective when maintained for several minutes or more.

Inflammation – part of the immune response occurs as a result of exposure of tissues and organs to harmful stimuli

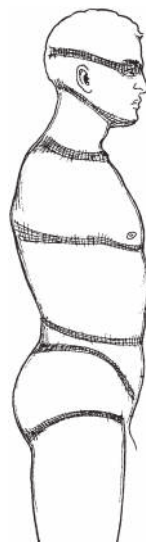


Figure 5: Photo credit: Diana Salles, 1994, *The Endless Web*.

such as microbial pathogens, irritants, or toxic cellular components. The Inflammatory process compromises the fascial system; this can be in response to injury (as above), where the inflammatory response is part of the body's natural healing process, disease or as side effects to medication. Adhesions may form in the presence of inflammatory disease, (such as Crohns, Endometriosis, Rheumatoid or Psoriatic Vasculitis, Celiac disease) or conditions such as complex regional pain syndrome.³

The inflammatory response creates imbalance in the cellular fluids resulting in fascial adhesions in scar tissue; fibrils thicken... this creates stiffness and loss of mobility and interferes with the ability of the fibril to slide over each other and adhesions are formed.⁴

Trauma – a very brief definition of trauma, is that it is an occurrence or series of occurrences that overwhelm the body, this can be either physical, emotional or both and will impact the fascial system.

To understand how trauma is stored in the physiology of the body: Just pause for a moment, sit comfortably and think about a deeply upsetting incident that has occurred to you (take your time over this). As you recall this incident notice what happens in your body, what bodily sensations arise? The sensations

you are feeling are impacting the physiology of the body, impacting the fascial system and creating fascial restrictions. Are the areas you notice familiar to you? Are you aware of your own holding patterns?

My experience as a bodywork therapist shows me that emotional trauma is frequently held in the diaphragms of the body (sometimes referred to as transverse slings or body straps).

At all these junctures there are fascial rich structures, creating transverse bands through the body, these frequently hold the emotional component of injury. To an advanced MFR therapist, these fascia restrictions can be palpated beyond the hands and with the correct touch and holding can be released, enabling the emotion to be processed slowly and safely. I will discuss this further in another article.

To conclude, the fascial network binds down, caused by the various factors and pathologies mentioned above; restrictions are created in the area of injury, as well as further into the fascial network. Restrictions and compensations throughout the entire system affect function, as the whole dynamic 3D system is impeded. Bound down fascia can cause pain and decrease mobility, it can also compromise all body systems, for example; restrict cardio-vascular flow, lymph flow, compromise the free flow of interstitial fluid and interrupt the transmission of nerve impulses.

Fortunately all the fascial restrictions mentioned above can be palpated and treated by the trained therapist, relieving symptoms, improving function, restoring homeostasis and therefore health.

“Understanding fascia is essential to the dance between stability and movement – crucial in high performance, central in recovery from injury and disability, and ever-present in our daily life from our embryological beginnings to the last breath we take.”⁵



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5. Tom Myers; <https://www.anatomytrains.com/fascia/>