What is IIS and how does it relate to Fascial Counterstrain.

What is IIS?

IIS stands for interstitial inflammatory stasis. IIS is a model for why chronic pain and chronic disease persist in our bodies.

What is interstitial?

The term "interstitial" refers to the space or region between structures. In biology and medicine, it is commonly used to describe the space between cells or within tissues and organs. For example, interstitial fluid is the fluid found in the spaces between cells in tissues. It provides a medium for the exchange of nutrients, waste products, and signaling molecules between cells and the circulatory system. When you think of interstitial fluid you can picture that fluid that fills a blister.

A nociceptor is a nerve cell that detects tissue damage or potential threats to tissue. In order to monitor the environment and detect noxious (tissue-threatening) material, nociceptor nerve endings are found in the interstitial space and are widely distributed throughout the body.

What is inflammation?

Inflammation is the body's natural response to injury, infection, or irritation. It is a protective mechanism that involves the immune system, blood vessels, and various signaling molecules. When tissue is damaged or infected, the body responds by releasing pro-inflammatory signaling molecules (like cytokines and chemokines). Acute inflammation causes an increased blood flow to the affected area, leading to redness and warmth. Additionally, the blood vessels become more permeable, allowing immune cells to move into the tissue and aid in the healing process. Inflammation can be either acute or chronic. Acute inflammation is a rapid and short-lived response, while chronic inflammation is a prolonged and sustained response. While acute inflammation is essential for healing, chronic inflammation can alter circulation to the area, eventually increasing the waste products and chemical irritants and limiting good healing blood flow. Chronic inflammation can contribute to pain, tension, and degeneration leading tovarious diseases such as arthritis, atherosclerosis, and certain types of cancer.

How does IIS start and how does it cause chronic pain and other chronic issues?

IIS can start with anything that the body perceives as a threat- and this can come in many forms. Here are a few of the major categories:

Injury- As in falling and breaking your leg, or having a surgery.

Illness- Especially systemic infections like Covid, Sepsis, Lyme disease etc

Chronic Stress - Generally short term stress is something that the body can quickly recover from and in some cases is actually good for our system. However, stress over a long period of time, or stress so intense that your body can not return to a normal healthy state would fall into this category.

Chemical- This can include dietary or environmental threats

Any of these triggers will cause a release of pro-inflammatory cytokines (specifically TNF-Alpha, IL–6, IL–1B, TGFB1) and Norepinephrine (a neurotransmitter released when your Sympathetic Nervous System, (SNS), also known as your fight or flight system, is activated.

The combination of these chemicals causes a change in the way your body functions:

1. The pro-inflammatory cytokines activate our nociceptors (nerve that sense danger or damage). This nerve signal can get passed on to nerves that activate areas of your sensory cortex in your brain and that is why you feel pain.
2. These nerves go from the periphery into our spinal cord. Inflammation in our tissues will travel through these nerves and into the spinal cord (retrograde inflammation). This inflammation can cause activation of the SNS. Sympathetic Nerve Activation (SNA) causes constriction of arteries and veins in order to get blood where it needs to go (usually to muscles), and decrease blood flow other areas (like your digestive system). If the SNS is active too long it will end up decreasing blood flow to the muscles and joints too. (This is equivalent to shrinking the diameter of a hose). In addition, muscle guarding reflexes activate around the injury area and in the spinal muscles which causes you to lose range of motion, feel tight, and develop changes in your joint mobility/alignment. The muscle guarding can also compress the vessels further restricting blood flow (as if a car drove on your garden hose)

3. If quantities of inflammatory chemicals in the spinal cord are significant enough, they will also travel up the cord into the the brain creating Central Sensitization. This leads to your whole central nervous system to make changes to protect you, which can cause you to experience symptoms that seemingly have nothing to do with the initial issue. Examples of this can include significantly increased pain levels, pain to something that should not normally be painful (eg. light touch), pain can also spread far from the initially traumatized area, or you may become hyper responsive to non-threatening stimulus.
4. The presence of pro-inflammatory cytokines causes changes in your cells themselves. Fibroblasts (the main cell in our fascia) convert to myofibroblasts (which contract) and they cause contraction in all kinds fascial structures (myofascia, arterial, venous and lymphatic fascia, bone tissue, nerve fascia, etc.) These contractions will sustain as long as the chemicals are present, and will signal to those structures that the danger is still present even if it may not be.
5. Finally, these same pro-inflammatory cytokines cause the lymphatic pump to cease. Normally the lymphatic system cleans large waste products out of an area, including metabolic waste, bacteria, cancer cells and foreign substances. The body's reason for stopping the pump is to isolate an infection so it does not become systemic, and then the local macrophages can take care of it. But, say the irritation came from an injury or chronic stress- then stopping the lymphatic pump causes waste products to build up and increase the nociceptive firing of the nearby nerve cells.

It is important to understand that all of this is normal and healthy- to a point. We have all these mechanisms to protect us from infections, allow cuts to heal etc. The problem comes when there is one trigger after another (i.e. repetitive injury), or multiple traumas at once (for example seeing a traumatic event, while you injure your back). When that happens, all these same processes cause such a large amount of pro-inflammatory cytokines to be released that the inflammatory cytokines get trapped in the interstitial space and create a cycle that continues to irritate the nerves. This can literally last for decades until the feed back cycle is broken. It is the

combination of shrinking the vessel diameter, adding compression onto that vessel, *and* stopping the pump that would normally clean out the area which causes the chemicals (inflammation) in the space between the cells (interstitium) to get stuck (stasis) - IIS.

Now, what can Fascial Counterstrain do about it?

The Fascial Counterstrain diagnostic tools (cranial scan, spinal restriction, and local tender points) are used to find the specific location of the IIS. Once we find the restriction, the treatment is to move the tissues in a way that allows the inflammation to drain out. This will decrease that nociceptive message to the spinal cord and central nervous system. By draining the specific inflammation that was triggering the nervous system, we are able to interrupt this cycle and the body will recognize that there is no longer danger present.

How can something so gentle and subtle be so powerful?

The basic problem here is that blood carries all nutrients needed for life and health - and it is not getting to these areas that are stuck in IIS. Plus the waste products are stuck in the area and not able to drain out and leave the body creating an even more unhealthy environment. Imagine a stagnant pond with algae growing on the surface- not something you would want to drink out of. Now imagine that was caused because of a beaver dam that was built up above. When you remove the dam and the water is able to flow through, the area will get cleaned out and restored to health. In your body when that happens the negative effects of the trapped inflammation will be resolved, and you will notice:

1. Decreased Pain
2. Decreased muscle guarding
3. Decreased Sympathetic Over-activation (which in turn decreases inflammation throughout the body not just in the area)
4. Healing in the area can really begin.

People often comment that the feeling of release with treatment is like magic. That is the feeling of transition in your body from a dysfunctional/unhealthy state to a sage and healthy state. This treatment allows us to experience the marvel of what our bodies can do when they are in a healthy state. Healing and regeneration are possible again. The effects of Fascial Counterstrain are astonishing - often immediate during the session (from normalizing these reflexes), and within a couple days of the session (as your body is able to start recovering from the chronic trauma and strain). However, the effects grow over time as your body continues to heal and the greatest effects of treatment are often experienced months after the initial changes occur.