What is actually going on when you’re in pain? What differs in acute vs chronic pain and what happens when acute turns into chronic pain?

*Hi, I’m Dmitro, a manual osteopathy student at the Canadian Academy of Osteopathy, and would love to share what I know through the point of view of functional anatomy and physiology, to help you understand your body a little better. The mechanisms we have in place all have their purpose and it’s important to understand the process to better understand how to deal with pain.*

When we injure our bodies, from over-exertion or a traumatic accident, for example, we go through a phase of *acute pain* that is very local to the site of injury, typically sharp pain making the area hot and/or swollen to the touch as blood is shuttled to the area. In addition, typical injuries include muscular contractures (prolonged spasms) that constrict the venous drainage out of the area. The swelling stage is a way for your body to compartmentalize and contain the troubled region and add stability to the area so that further damage can be minimized and the pain allows us to consciously be aware of it, so we can avoid it. This stage is extremely important because it is the beginning of the healing process. Swelling is your friend in this situation and not the culprit. With blood being sent to the area, swelling is commonly associated with, as a state that needs to be reduced by either putting ice or taking anti-inflammatory medication. Understanding that nutrient rich arterial blood going to the area to begin recovery, would tip off that delaying the process may not be the best strategy at the infancy stage of the injury.

By allowing the process to occur naturally, once the joint or area of injury is contained through inflammation and has healed enough, the swelling subsides As the body begins to heal the injured tissue, it while simultaneously lay down fibrous tissues to help stability while the healing is occurring. These tissues are tough and similar to ligaments, and begin to form around the area to aid in stability as the injured area cannot perform its proper function, and thus needs to change the structure around it to accommodate. One of the principles of osteopathic thinking, is that structure and function are inter-related. This means that the intended structure; its shape, orientation, and size, can help you determine its function. In other words, the fibrous tissues are there as a response to the function (or lack there of), being immobile and needing the structural support If the joint or structure is injured and cannot move, it is unstable and the ligamentous layers that are there to protect you from further damage.

Now, what does pain have to do with any of this? Why am I talking about blood, they’re too different things, right? Yes, they are different but their relationship could not be any closer. During swelling, let’s say from an ankle injury, the swelling adds pressure on the nerve endings at the site of injury, and sends sensory *efferent nerves* or nerves to the spinal cord and processes it as sharp pain as many of the nerve endings are under pressure from the swelling. Once the area swelling or edema has subsided and that layer of fibrous tissue is accumulated in the area, the nerves are now under less stress with only the deeper tissues tender and we are able to use the larger muscles with more mobility. As we begin to increase the movement, the fibrous structures are broken down and flushed away. The important thing to note is, once the acute stage has hit the chronic stage, it is very important to correct any misalignments that are preventing proper motion of the joint, or the chronic injury will begin to affect nearby structures in a chain reaction.

In addition, it is possible that the chronic injuries that are longstanding trigger acute dysfunctions or “flare-ups”. This occurs when abnormal stimulus occurs for a long period of time, affecting the deep muscles of the spine that hold the joint motion. These are intrinsic and are muscles that we cannot specifically control. When these muscles are in an already heightened state, something seemingly small can be just enough to have a traumatic effect. This restarts the loop of an acute injury, inflammation and further fibrotic build-up.

If we can intersect the abnormal loop of injury, with manual therapy, we can stop the cycle and encourage the proper nerve communication and unobstructed circulation in and out of the area.

*For any questions about the topic or regarding manual therapy I provide, feel free to contact me! djovnyruk@canadianostepathy.ca*