

Chronic Pain: It's Not all in Your Head

Have you ever wondered why you can injure one part of your body and have another one hurt? Or maybe your pain tolerance isn't what it used to be. It isn't in your head. In the last 10 years much has been learned about the basic science of pain.

When you twist or injure a local part of your body (we will use an ankle for an example) two things happen; you get pain and swelling. This happens because there are little naked nerve endings in all your connective tissue. That connective tissue (soft tissue) wraps around every muscle, nerve, bone, organ, and vessel. Those microscopic nerve fibers are everywhere in the body.

When you overstretch or crush soft tissue two things happen, you get (1) pain and (2) swelling.

Naked nerve endings are called Nocioceptors or pain fibers. They get triggered when the soft tissue they live in are overstretched or crushed. Overstretching or pinching the connective tissue stimulates the nerve to send a pain message to your brain that it HURTS and to release pro-inflammatory proteins which bring fluid to the area to make it SWELL. The body creates pain and swelling to stabilize your ankle and to prevent you from using it, so it won't get further damaged.

In the best case scenario, the swelling goes away over the next 72 hours and healing begins. Simple sprains and strains heal in 2 weeks. In cases of partial tears it can take 6 to 12 weeks, depending on the complexity.

Now just moving it hurts

If the area was previously injured, or you have an underlying medical condition or you keep reinjuring the area, you are set up for trouble. There is a special type of naked nerve ending that normally sleeps, it just quietly sits there. This pain fiber can spend its whole life living in connective tissue and may never be used. These are called silent naked nerve endings or Silent Nocioceptors. They just sleep in the connective tissue until they are awakened by constant inflammation or reinjury. Now there are more pain nerve endings, nocioceptors and silent nocioceptors, than you had before the injury. Now you get pain

and swelling from overstretching, crushing or, even *just moving* the injured area.

The longer the injury is there, the more the nerve sends messages up to the spinal cord and brain that something hurts. Because of these constant messages, there are chemical changes that take place at the spinal cord that now allow the pain fibers to fire more times per second. This lowers the threshold for pain. That means you don't have to injure yourself as badly and you hurt more than seems reasonable for that type of injury. It's not that you have become a wimp; it is that your body has physically changed. Now it hurts more intensely with simple range of motion, or re-injury.

I hit my thumb and my ankle hurts

Have you ever wondered why when you have a new injury in your body you feel pain at an old injury site? Each time one of these pain fibers fires, a message is sent up the spinal cord. Over time, the part of the spinal cord related to the original injury gets overwhelmed. That segment of the spinal cord "lights up" and is more sensitive and stimulates more easily. Now any stimulation into your body, even far away (like your thumb), can trigger the original area of the cord (the part that is in charge of the ankle). For example, if you hit your thumb with a hammer, your ankle will hurt. Illness or emotional stress will also stimulate the spinal cord to make the original injury hurt. So now my ankle hurts if I get the flu, injure myself or have someone close to me die.

So is it in my head?

As this situation continues, messages go up the pain tracts in the spinal cord into the brain. This can actually change the job of cells that keep getting bombarded by pain messages. These cells can be changed back to a pre-injured state, if they are treated before the cells change their job permanently. The changes in the brain decrease the amount of chemical neurotransmitters serotonin and norepinephrine that are produced. This causes a chemical depression and/or anxiety. This is in addition to situational reasons someone with chronic pain may have depression or anxiety. Those might include: you can't work, take care of the house or kids, exercise, or join in family activities.

Why am I so jumpy when I use to be so calm?

There are other parts of the brain that get activated that control the flight or fight system. Now your body is ready to run from lions, tigers

and bears. The problem is it turns on and remains "on" all the time. Now someone comes up behind you and startles you. Not only are you more sensitive to loud noises but each time you get startled your ankle hurts. Sometimes the original injury can heal and no longer hurt but, the brain and spinal cord levels can still be activated. This presents in you as many other areas of your body hurt, you are more sensitive to pain and you may feel anxious or depressed and be very jumpy.

So now what?

You are no longer the same person. Even if you use to have a high pain tolerance your body has physiologically changed. You no longer respond to pain, illness, stress or your environment in the same way.

You need to be treated on all 4 levels: local, spinal cord, brain, and flight or fight system. With this understanding of pain, there is hope that you can get better. Using a mix of medications, natural substances and gentle Osteopathic Manipulation to calm the nervous system at each of these levels, has helped many people who were living a non-life on narcotics and in terrible pain.

Through a detailed history and traditional medical and Osteopathic examination, the Osteopathic physician specializing in Neuromusculoskeletal Medicine, has a better understanding of what has happened to your body. The doctor can feel with their hands, how the forces from trauma affect all the tissues of your body. Some of the traumas that can be treated include: low and high speed car accidents, falls, sprains, strains, fractures, surgeries, and old scars, childhood physical and sexual abuse. Osteopathic Manipulation takes the original vector of force out of the tissues. Osteopathic Manipulation approaches the body on 5 different levels: bone, soft tissue, fluids, nervous system and the energetic level. Having the full range of traditional western medicine integrated into an Osteopathic approach and an understanding of eastern, alternative and energy medicine gives these doctors the ability to see what is the best approach to your personal situation.

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