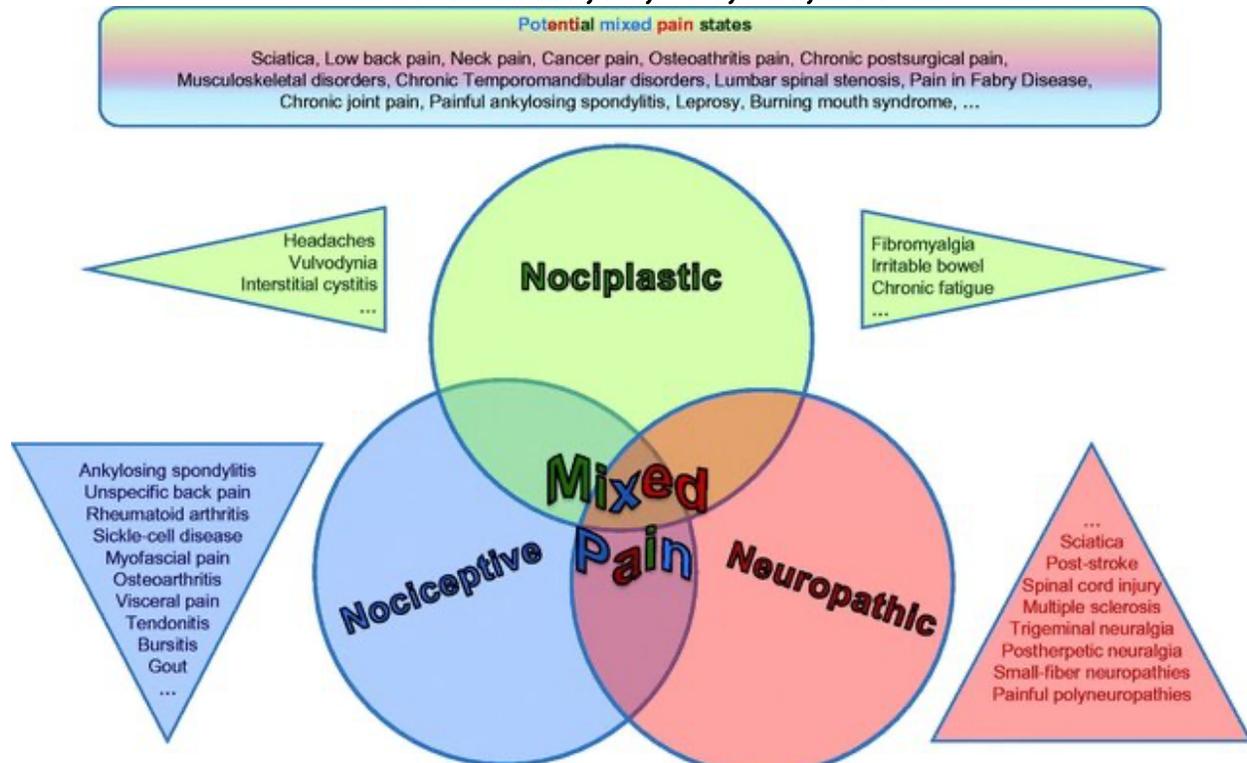


Using the Curable App to Manage Chronic Pain

Leslie Russek, PT, DPT, Phd, OCS



(Diagram from Franck Aby. Serotonergic neurons of the nucleus raphe Magnus in the control of nociceptive transmission in the dorsal horn of the spinal cord : an optogenetic study in different pathophysiological contexts. *Neurons and Cognition [q-bio.NC]*. Université de Bordeaux, 2019. English. NNT : 2019BORD0354. tel-02491370)

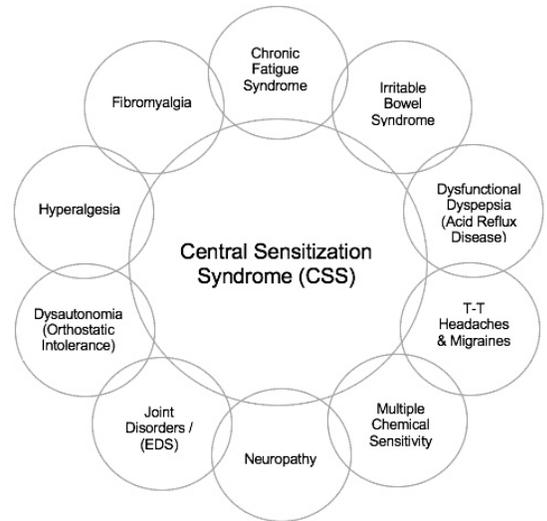
Pain is a signal from your brain that it perceives danger. There are 3 types of pain: nociceptive, neuropathic, and nociplastic. The root ‘noc’ refers to pain, ‘neuro’ refers to nerves, and ‘plastic’ refers to adaptability. People with chronic pain may have any or all of these types of pain.

- **Nociceptive:** pain in response to tissue stimulation causing actual or potential tissue damage. Nerve sensors in the tissue trigger this type of pain. Nociceptive pain can be triggered by mechanical stresses (e.g., subluxing a joint or tearing a ligament) or chemical stresses (e.g., inflammation from tissue injury, chemical changes from muscle spasm, or inflammation from systemic conditions such as Mast Cell Activation Disorder). In people with Hypermobility/hypermobility Ehlers-Danlos Syndrome, we often refer to nociceptive pain as “issues with the tissues” because there is tissue damage or stress. Other examples are listed in the diagram, above.
- **Neuropathic:** pain caused by actual damage or disease in nerves or neural tissue. The diagram lists many types of neuropathic pain. Neuropathic pain is also a form of “issues with the tissues” because neural tissue is damaged or stressed.
- **Nociplastic:** pain due to increased sensitivity in the nervous system, making the system more likely to activate in response to non-painful stimuli (i.e., sensations that would not activate the nociceptive system described above), or without any stimulus at all. You can think of sensitization like a burglar alarm system that fires even when a leaf blows by: the nervous system reacts when it doesn’t really have a good reason. This type of pain is called ‘nociplastic’ pain, because the nervous system actually changes (it is ‘plastic’) to make the neural connections that signal pain stronger and have a lower threshold. It is due to as ‘sensitization’ pain because the nervous system has become more sensitive. Nociplastic pain is not an “issue with the tissues,” but is actually a malfunction of the nervous system. The pain is just as severe and real as nociceptive, and neuropathic pain. Again, the diagram lists examples of conditions that are nociplastic-dominant (though people often have mixed pain types).

Many painful conditions start out as nociceptive and/or neuropathic but, if the pain persists for a long time, the nervous system becomes sensitive and nociplastic pain can develop. This nociplastic pain amplifies any nociceptive or neuropathic pain, like a volume knob that increases pain intensity, duration, and decreases the stimulus needed to trigger the pain. That means, movements that are normally not painful can become painful. The brain is now registering movements that are actually safe to do as unsafe. Nociplastic pain can be caused or aggravated by psychological as well as physical stressors. Stress, anxiety, trauma, anger and negative thinking all increase sensitivity of the nervous system.

When the central nervous system is sensitive (Central Sensitization), it can actually make sensory nerves fire backwards, releasing inflammatory chemicals in the tissues. This means that Central Sensitization can actually cause nociceptive pain by releasing inflammatory chemicals in the tissues; when this occurs, it is important to manage the Central Sensitization and not just the irritated tissues. People with Central Sensitization may have a wide variety of symptoms affecting many organ systems; this is called Central Sensitization Syndrome, and includes the conditions shown in the diagram below.

People with Hypermobility/hypermobility Ehlers-Danlos Syndrome often have both nociceptive and nociplastic pain, and may have neuropathic pain as well. To effectively manage these different types of pain, we need to take different approaches. Nociceptive (and neuropathic pain due to mechanical stresses on peripheral nerves) are managed by decreasing the tissue stresses and/or inflammation and facilitating tissue healing.



Based on Yunus MB. Fibromyalgia and overlapping disorders: the unifying concept of central sensitivity syndromes. *Semin Arthritis Rheum.* 2007;36(6):339-356.

Nociplastic pain needs to be managed by addressing the malfunction of the nervous system. We do this by calming the nervous system. Calming can be achieved by both physical and psychological approaches; using both is often most effective. Physical strategies include slow diaphragmatic breathing, aerobic exercise, biofeedback, and some forms of manual therapy.

Psychological approaches to calming the nervous system include mindfulness meditation, relaxation, calming music, gratitude, and avoiding negative thinking. These psychological approaches change how the brain processes information, and can help reverse the maladaptive function in the brain. Over time, these approaches can reverse the 'nociplastic' changes so that the nervous system can return to a more normal state. Controlling the volume knob of central sensitization can help decrease the intensity, duration, and body distribution of nociceptive and neuropathic pain (though you should still be doing things to address the physical contributing factors, as well).

The Curable app is based on extensive scientific research showing that psychological approaches can help people manage pain, even pain due to "issues with the tissues." Think of Curable as giving you control over your pain volume knob, so you can turn the volume down. Turning this volume down can help make physical approaches to managing "issues with your tissues" more effective by allowing you to move and exercise without triggering your brain's danger alarm. Managing Central Sensitization also helps you and your provider better identify "issues with the tissues" because those symptoms are not lost among the widespread and diffuse symptoms of Central Sensitization.

More information about Curable can be found on their website: <https://www.curablehealth>. Curable offers 6 weeks of free access to their program if a registered clinician signs you up for it. If you would like to try Curable, let your provider know.