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Understanding Neuroplastic Pain & Symptoms

*An Introduction for People Living With Chronic Symptoms
(and the Clinicians Who Work With Them)*

What Are Neuroplastic Symptoms?

Neuroplastic symptoms are real, physical symptoms that the brain and nervous system generate or amplify. Neuroplasticity can cause pain or symptoms to continue after an injury or illness has passed, or may arise in the absence of any injury or disease. The pain, fatigue, dizziness, rash, or other symptoms are genuinely perceived by the brain: they are not imagined, exaggerated, or "all in your head."

How Does This Happen?

Pain and other protective sensations are generated by the brain as part of its job of keeping us safe. When they occur in the absence of an injury or disease, they are a false alarm, due to perceived physical or emotional danger. When they continue after an injury or illness has passed, it is due to the continued fear associated with the sensations, which results in avoiding activities that trigger the symptom.

It becomes a cycle of danger signal → symptom → fear → increased symptom. Once learned, this pattern can persist and even intensify long after the original cause has passed, due to neuroplasticity. The alarm system has become sensitized, similar to a smoke detector that's too sensitive, and now goes off from steam in the shower.

This sensitization is more likely when a person's nervous system has been under significant stress. Stress can be due to a physical injury, an illness, trauma, or emotional or relational stress, especially when that stress is ongoing, unresolved, or occurred during a vulnerable period of life. It can also occur due to overfocus and fear associated with the symptom.

Common Neuroplastic Symptoms

Neuroplastic symptoms can affect almost any system in the body. Some of the most common include:

- Chronic back, neck, shoulder, hip, knee, and hand/wrist pain
- Migraines and tension headaches
- Irritable bowel syndrome (IBS), heartburn, and other digestive symptoms
- Fibromyalgia
- TMJ (jaw) pain

- Chronic dizziness, nausea, or vertigo
- Tinnitus (ringing in the ears)
- Interstitial cystitis and other pelvic or bladder symptoms
- Repetitive strain injuries and tendinitis that don't resolve as expected
- Skin conditions, such as eczema, chronic hives, or lichen planus

This list isn't exhaustive, and many people experience more than one of these symptoms over time.

What Makes a Symptom More Likely to Be Neuroplastic?

No single sign proves a symptom is neuroplastic, but certain patterns can suggest it's worth exploring this possibility, including:

- The symptom moves around the body, there are multiple symptoms, or new symptoms appear as old ones resolve
- Symptoms come and go unpredictably, or are inconsistent (for example, worse some days and absent on others, with no clear physical cause)
- Symptoms are triggered or worsened by stress, certain emotions, or specific situations
- The symptom began during, or shortly after, a stressful period of life
- Medical evaluations haven't found a clear structural cause, findings don't match the severity of the symptoms, or recommended treatments are not effective
- There's a personal or family history of stress-related symptoms, anxiety, or depression

A thorough medical evaluation is an essential first step, and neuroplastic symptoms can also coexist with structural or medical conditions. This handout is educational and isn't a substitute for individualized medical or mental health care.

What Helps?

There are several treatment approaches that have been validated by clinical studies as effective in addressing neuroplastic symptoms by helping the brain and nervous system learn that the body is safe. Two of the most researched are:

- **Pain Reprocessing Therapy (PRT):** helps people relate to pain and other symptoms differently, through practices like somatic tracking, to send the brain accurate "safety" signals and reduce the threat response driving the symptom.
- **Emotional Awareness and Expression Therapy (EAET):** helps people identify, feel, and express emotions that may have been avoided or suppressed, which can be connected to the development or maintenance of symptoms.

Many people find that a combination of PRT and EAET is the most effective approach.

The Evidence Base

Research on these approaches has grown substantially in recent years. Studies have found that PRT can lead to significant and lasting reductions in chronic back pain for many participants (Ashar et al., 2022, 2025).

Similarly, research on EAET has found it can be very effective for some people with conditions like fibromyalgia (Lumley et al., 2017) and chronic back pain (Yarns et al., 2024).

A Note for Clinicians New to This Work

If you're a therapist or other clinician encountering this framework for the first time, you're not alone: many of us came to this work through our own experiences with chronic symptoms, or through clients whose presentations didn't fit neatly into existing treatment models.

Organizations like the Association for the Treatment of Neuroplastic Symptoms (ATNS) offer trainings, consultation groups, and a community of clinicians working in this space. Trainings in PRT (through the Pain Psychology Center), EAET, or Freedom From Chronic Pain are a good starting point for clinicians wanting to build skills in this area.

Further Reading & Resources

- The Way Out by Alan Gordon, LCSW
- Unlearn Your Pain by Howard Schubiner, M.D.
- Association for the Treatment of Neuroplastic Symptoms (ATNS): www.symptomatic.me
- Pain Psychology Center: www.painpsychologycenter.com

References

- Ashar, Y. K., et al. (2022). Effect of pain reprocessing therapy vs placebo and usual care for patients with chronic back pain: A randomized clinical trial. *JAMA Psychiatry*, 79(1), 13–23.
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