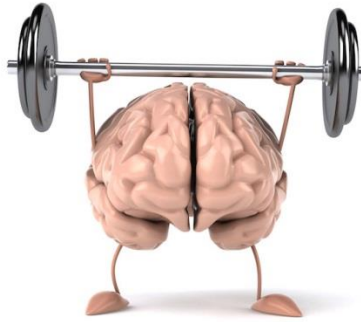


What is Neuroplasticity?



Your nervous system coordinates your mind and body: it learns, adapts and responds to everyday experiences, allowing you to grow, adapt and function well.

The nervous system is dynamic and plastic. It is **NOT** hard-wired! This adaptability is known as neuroplasticity, or the brain's ability to reorganize itself by forming new neural connections throughout life. Neuroplasticity allows the nerve cells in the brain to compensate for injury and disease and to adjust their activities in response to new situations or to changes in their environment.

Neuroplasticity is important to survival and functioning in our daily lives.

Everyday habits you develop are an example of “neuroplasticity.”

- You can drive home without having to remember all the steps, streets or dirt roads along the way
- Neuroplasticity means that you can travel to a good friend’s house almost on ‘autopilot’, without having to think about every turn you make
- You can learn phone numbers by frequent use.

The two sides of the plasticity coin:

- There can be downsides to neuroplasticity too and chronic pain is a good example. Here, neuroplasticity results in parts of the nervous system becoming over excitable and this means that normal everyday tasks can cause pain when they shouldn't.

What does this mean as a person with persistent pain?

- In cases of persistent pain, the nervous system becomes very excitable. This super excitable nervous system behavior is called central sensitization. Central sensitization is a key factor in persistent pain. Here are some of the common aspects of persistent pain:

- Very easy to trigger a lot of pain from normal everyday activities (bending, lifting, sitting, running, playing sport, working)
- Painful inputs that would normally hurt, are exaggerated (if you over-stretch an already sensitive low back pain, it can REALLY hurt)

Negative health effects of central sensitization include moving away from valued activities, poor sleep, low energy, low mood, negative and unhelpful thoughts, loss of control, exaggerated stress responses, and being less able to care for yourself or your family and friends.

All these changes can result in the experience of more pain sensations even though the initial tissue injury has long resolved. It's almost like pain has a mind of its own. In acute pain, the brain initially uses pain as an alarm signal to protect and warn us of a potential threat. We are very sensitive to things that might threaten our survival and this is good biologic design! However, chronic pain signals are like a car alarm that goes off all the time rather than serving as a signal for danger.

Pain itself can soon become a major and unwelcome focus of our attention. The more concerned and distressed we are about pain, especially if we interpret the pain as harmful, the more pain dominates our thinking. It is almost as if the more we don't want pain, the more the brain calls our attention to pain.

What can you do?

1. Learning ways to manage the stress response and reduce the focus on pain helps you manage and function better.
2. Movement, exercise, activity done in a sensibly paced way can also help to normalize this heightened pain sensitivity.
3. Non-opioid pain medicines may also help to decrease sensitization in your system.
4. New creative hobbies or practices (like photography or meditation) help to use the positive aspects of neuroplasticity to calm and 're-wire' NON painful nervous system connections.
5. Learning to reduce this distress response and reduce the focus on pain, especially with persistent pain, is vital to improving your function and returning to normal activities at work and with family.
6. In persistent pain, improving your function may require you to re-train the way in which your mind and body interpret and respond to pain.