

Plain Language Summary

Understanding Nociceptive Pain: Why Pain Is Not Always Explained by Injury

Overview

Dr. Clauw explains that pain is not always a direct reflection of tissue damage. While injuries and inflammation can certainly cause pain, many people continue to experience pain long after tissues have healed, or experience severe pain despite little evidence of damage on imaging. The lecture introduces nociceptive pain—a third pain mechanism alongside nociceptive and neuropathic pain—and describes how changes within the brain and nervous system can amplify pain and other sensory experiences. Rather than suggesting that pain is 'all in someone's head,' this framework recognizes nociceptive pain as a real biological condition involving altered nervous system processing.

Why pain and imaging often do not match

Dr. Clauw emphasizes that X-rays, MRI scans, and other imaging tests frequently do not explain why someone hurts. Many people have significant arthritis, disc degeneration, or other structural changes without pain, while others experience debilitating pain despite relatively normal imaging. Because of this, clinicians should avoid relying on imaging alone to understand a person's symptoms. Instead, pain should be evaluated in the context of the whole individual, including symptoms, function, sleep, mood, and overall health.

Three ways pain develops

The lecture describes three major pain mechanisms. Nociceptive pain results from ongoing tissue injury or inflammation. Neuropathic pain arises from injury or disease affecting the nervous system itself. Nociceptive pain occurs when the nervous system becomes unusually sensitive and amplifies normal sensory signals, producing pain that is out of proportion to tissue damage or persists after healing.

More than pain alone

Nociceptive pain often affects much more than pain intensity. Many people also experience fatigue, poor sleep, memory or concentration problems ('brain fog'), heightened sensitivity to touch, light, sound, odors, or temperature, and overlapping chronic conditions. These symptoms are not separate problems—they reflect widespread changes in how the nervous system processes sensory information.

Why this matters for treatment

Understanding which pain mechanism is most responsible helps guide treatment. When nociceptive pain is present, simply targeting the painful body part may not be enough. Effective care often combines education, exercise tailored to the individual, sleep improvement, stress management, psychological therapies when appropriate, and carefully selected medications that

act on the central nervous system. The goal is to reduce nervous system sensitivity while improving daily function and quality of life.

Take-home message

The central message is that chronic pain is not always explained by visible injury. Nociceptive pain is a legitimate biological mechanism that helps explain why many people continue to experience pain even when imaging appears normal or tissues have healed. Recognizing this mechanism allows clinicians and patients to move beyond searching endlessly for structural damage and instead focus on treatments that address the nervous system as well as the whole person.