

Yoga Therapy Techniques for Chronic Pain: Tools for Exercise Professionals

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Do you have a
pain story?

What are your
beliefs about
pain?





The lived experience of pain

“Pain is a biopsychosocial, consciously lived experience that is influenced by, and in turn influences, every aspect of our lives.”

- Yoga and Science in Pain Care(Pearson, et al)

Pain is subjective, contextual and always real.
Each person's experience is going to be true for them!

Pain changes lives -- Depression, sleep, respiration, activity...

What helps and what doesn't?

Chronic or Persistent Pain

>3 months duration

Pain $\neq$ damage

Affects ~20% of adults

Shaped by nervous system (safety) + psychosocial factors

Central sensitization (amplified pain signals)unreliable sensory information

Fear-avoidance cycles

Stress & autonomic dysregulation

Role of neuroplasticity (the system can change)

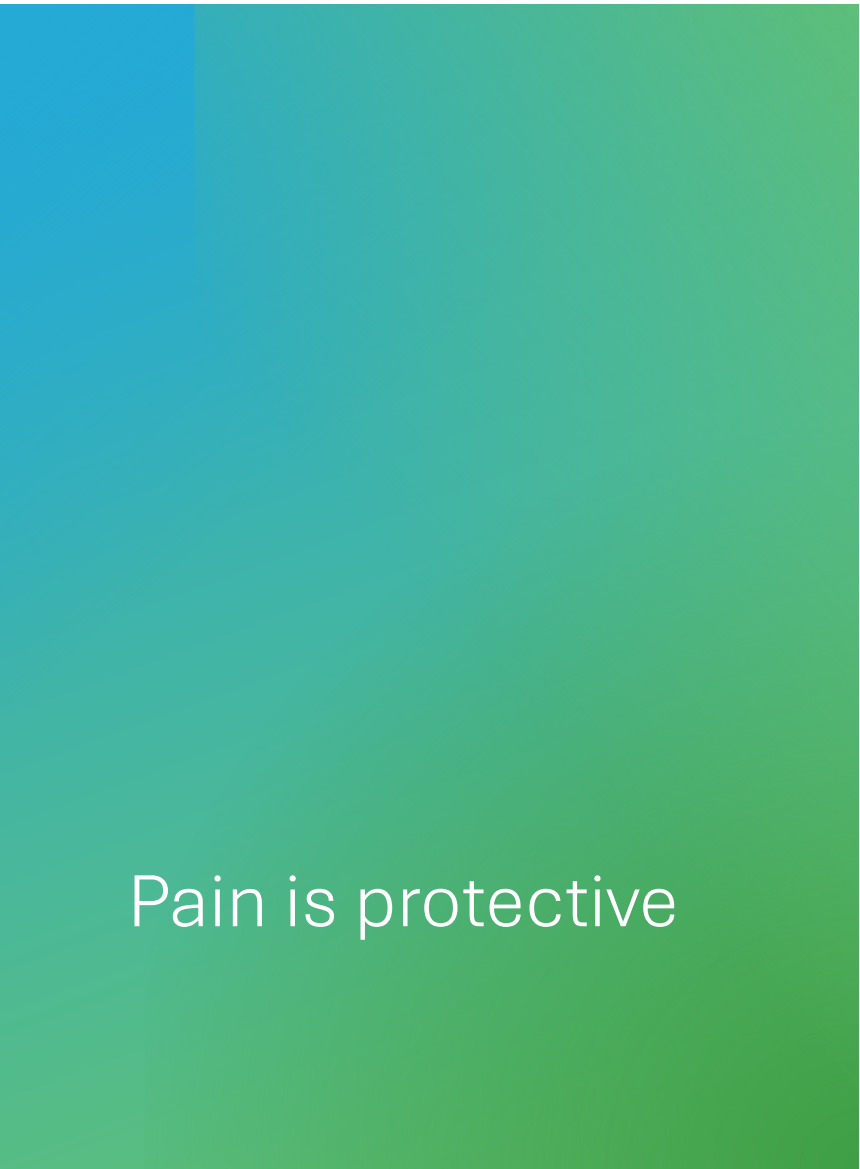
More Americans suffer from Chronic Pain than diabetes, cancer and heart disease combined (similar in Canada and Australia)

Region/Measure	Prevalence Estimate
U.S. Adults (2023)	24.3% chronic pain; 8.5% high-impact chronic pain
U.S. Trend (2019 → 2023)	Rose from ~20–21% to 24.3%; HICP rose from ~7–7.5% to 8.5%
Global Adult Population	~20% report chronic pain
52-Country Survey	Avg. ~27.5%, range ~10–50%
Country-Based Estimates	U.S. ~20%, Developing ~18%, Worldwide ~33%
Low Back Pain	9–12% currently affected; 40% lifetime prevalence; up to 80% in developed areas
Widespread/General Chronic Pain	8–11% (varies); U.S. may be up to ~35% based on less strict definitions
Fibromyalgia	2–4% prevalence
Neuropathic Pain	7–8% in Europe; ~5% severe cases

OPIOIDS

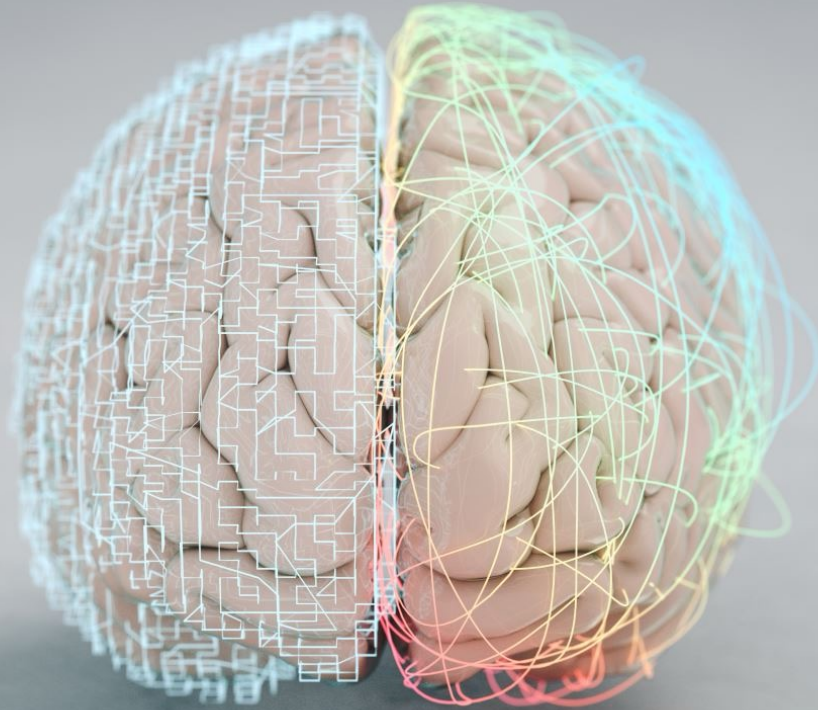
Studies show patients who receive narcotics for chronic pain are less likely to recover function and are less likely to go back to work. After 6 months on opioids people tend to become more sensitive to pain.

- As of **2019 in the U.S.**, about **22.1 %** of adults with chronic pain (defined as pain on most days or every day for at least 3 months) used a prescription opioid in the past 3 months. [American Psychiatric Association+15CDC+15NCBI+15](#)
- Opioid therapy for chronic pain carries well-documented risks: increased potential for **misuse, addiction, mental health issues, overdose**, and other harms. [mn.gov // Minnesota's State Portal](#)
- A more recent figure estimates that **3–12 %** of patients treated with opioids for chronic pain may develop addiction or abuse issues. [Verywell Health+11American Psychiatric Association+11ScienceDirect+11](#)
- One review places the risk of death from high-dose opioid treatment (above 100 morphine milligram equivalents per day) at approximately **0.25 % per year**, while opioid use disorder among prescription users is likely under 3 %.



Pain is protective

We will experience pain when our credible evidence of danger related to our body is greater than our credible evidence of safety related to our body. Equally we won't have pain when our credible evidence of safety is greater than our credible evidence of danger (Moseley and Butler 2015).



Pain is an output of the brain

Persistent pain is...

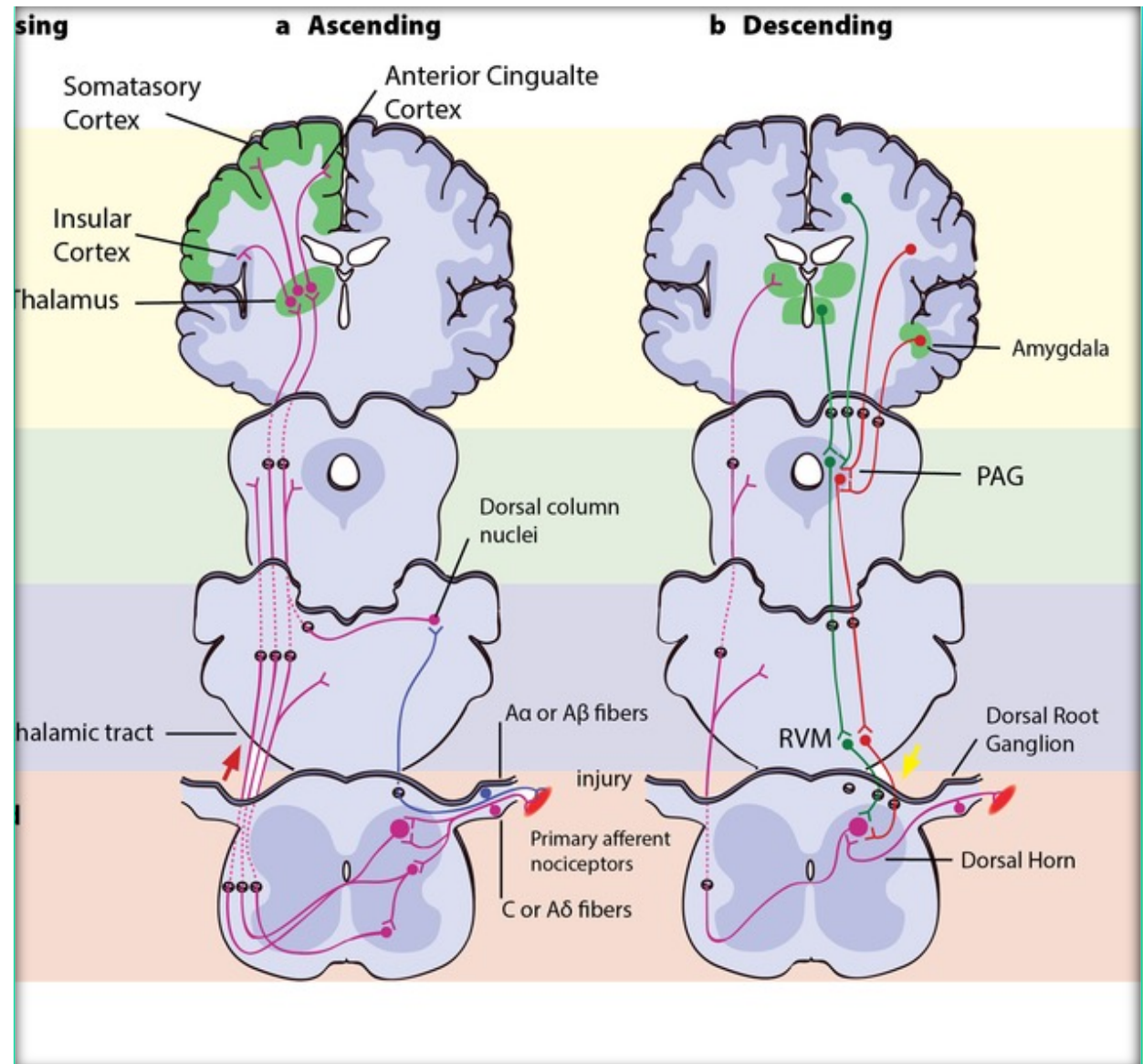
NOT an indicator of tissue damage – instead...danger!

A **LEARNED** protective mind-body response that results in changes to the physical body and the nervous system.

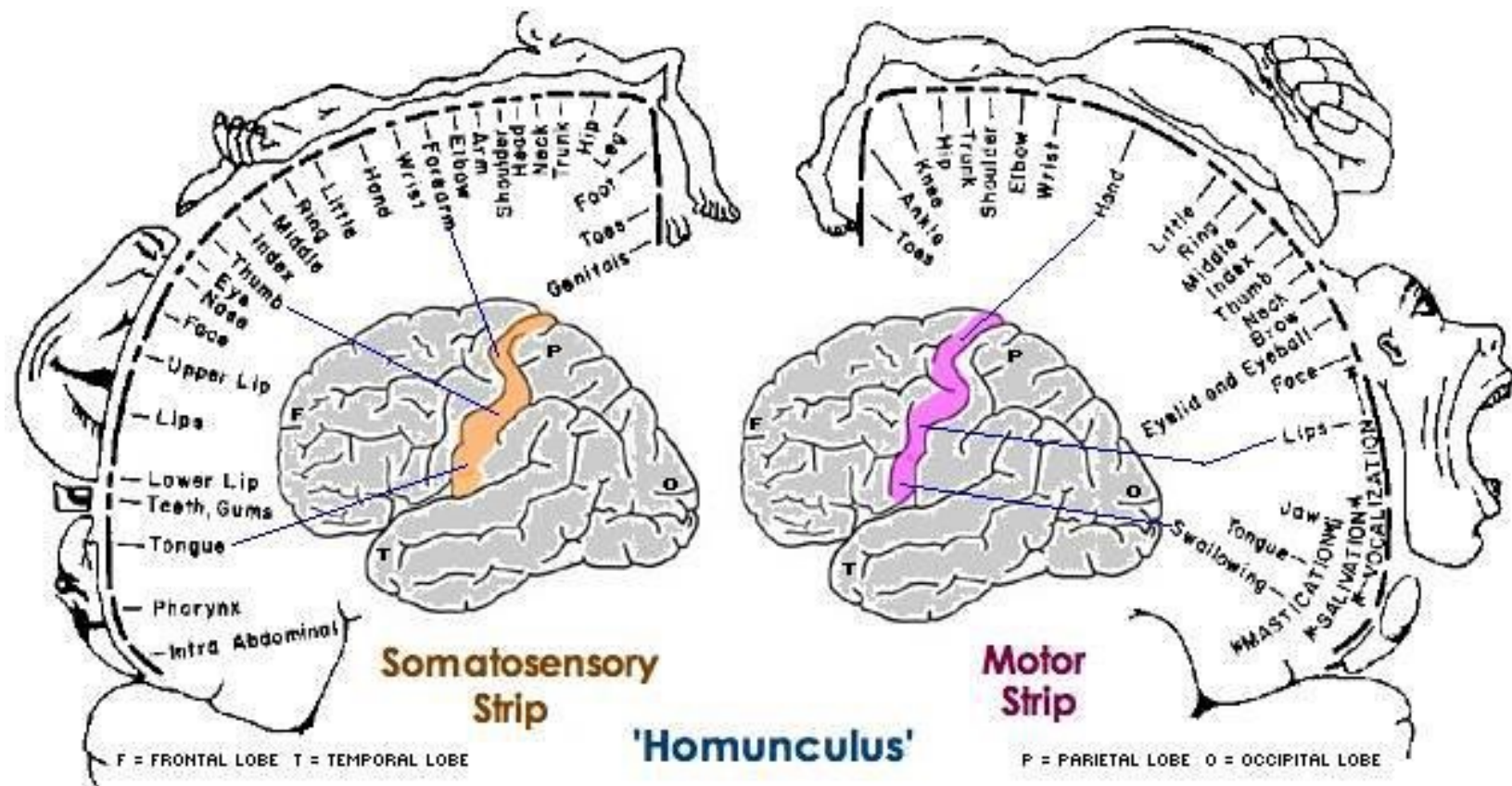
Pain is contextual

Pain Pathways

- Nociceptive signals are transmitted to many areas of the brain
 - Nociceptive signals from ascending pathways excite cells and networks in the brain.
 - Each area of the brain interprets and responds considering all other inputs and network activity, including past experience, current priorities and predictions of the future.
 - Sometimes pain is produced along with other autonomic biopsychosocial responses.
 - The person can analyze the pain as it becomes another input



Somatosensory and motor Cortex



Inputs to Body-self Neuromatrix from:

COGNITIVE-RELATED BRAIN AREAS

Memories of past experience,
attention, meaning and anxiety

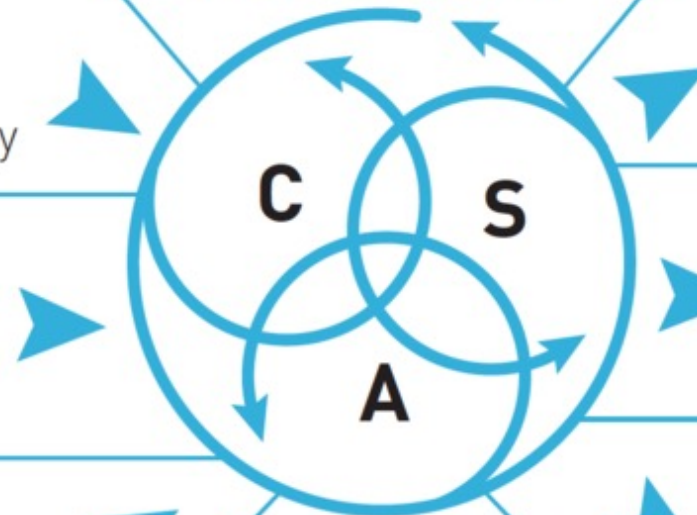
SENSORY SIGNALLING SYSTEMS

Cutaneous, visceral and
musculoskeletal inputs

EMOTION-RELATED BRAIN AREAS

Limbic system and associated
homeostatic/stress mechanisms

BODY-SELF NEUROMATRIX



C=Cognitive
S=Sensory
A=Affective

Outputs to Brain Areas that produce:

PAIN RECEPTION

Sensory, affective and
cognitive dimensions

ACTION PROGRAMS

Involuntary and
voluntary
action patterns

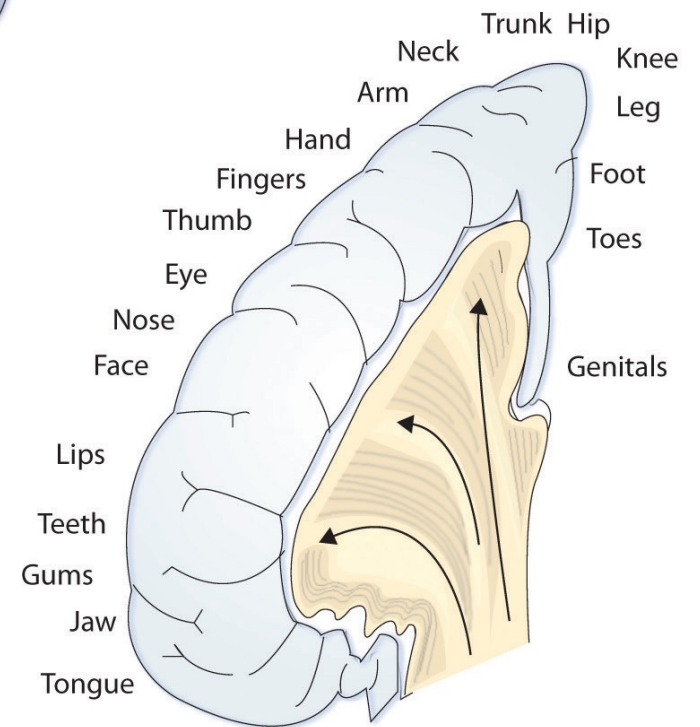
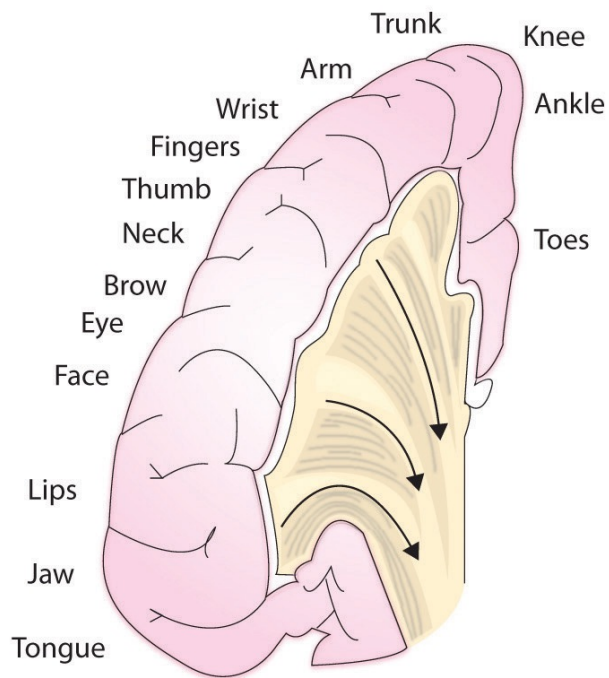
STRESS-REGULATION PROGRAMS

Cortisol, noradrenalin
and endorphin levels.
Immune system activity

TIME

Output: Motor cortex
(left hemisphere section
controls the body's right side)

Input: Sensory cortex
(left hemisphere section receives
input from the body's right side)



The danger signal
from the body
motivates behavior to
maintain or restore
system balance



Reflex action
(fastest)



Functional
Nociceptive Pain
(stops us from doing
something to further
damage): first step in
normal healing
process.



Stress Response
HPA Axis
Motor Reactions: the
limbic system
connects to the
basal ganglia and
cerebellum for the
translation into
behavioral response.
Our state of mind
and emotions
influence every
nuance of our motor
behavior.

Is Yoga Effective for Chronic Pain?

Type of Pain Condition

Yoga's Effectiveness

Chronic Low Back Pain

Safe, modest-to-moderate benefit; comparable to conventional exercise; short-term effects more consistent

Neck Pain & Headaches

Short-term improvements possible; yoga (especially with adjunct therapies) may reduce pain and disability

Somatoform Pain Disorders

Notable improvements in pain, mood, somatic symptoms, QoL when added to standard treatment

Virtual/Medical Formats

Effective and accessible alternatives; virtual yoga and structured MYT show measurable benefits

Accessibility Variants

Chair/adaptive/somatic yoga offer inclusive, low-impact options with mind-body benefits

Why Yoga and Yoga Therapy

- Regulates autonomic nervous system
 - Encourages safe, non-threatening movement
 - Supports neuroplasticity & self-efficacy
- "The professional application of the principles and practices of yoga to promote health and well-being within a therapeutic relationship that includes personalized assessment, goal setting, lifestyle management, and yoga practices for individuals or small groups."
 - International association of yoga Therapists (IAYT)

What is Yoga Therapy?



Professional application →

Yoga therapy is distinct from general yoga classes; it requires specialized training and ethical standards.

IAYT accredited programs = minimum 800 hours



Therapeutic relationship → It's collaborative, client-centered, and involves a supportive, safe relationship similar to other healthcare modalities.



Personalized approach → Practices are adapted based on assessment, goals, and the individual's context (physical, mental, emotional, and spiritual).

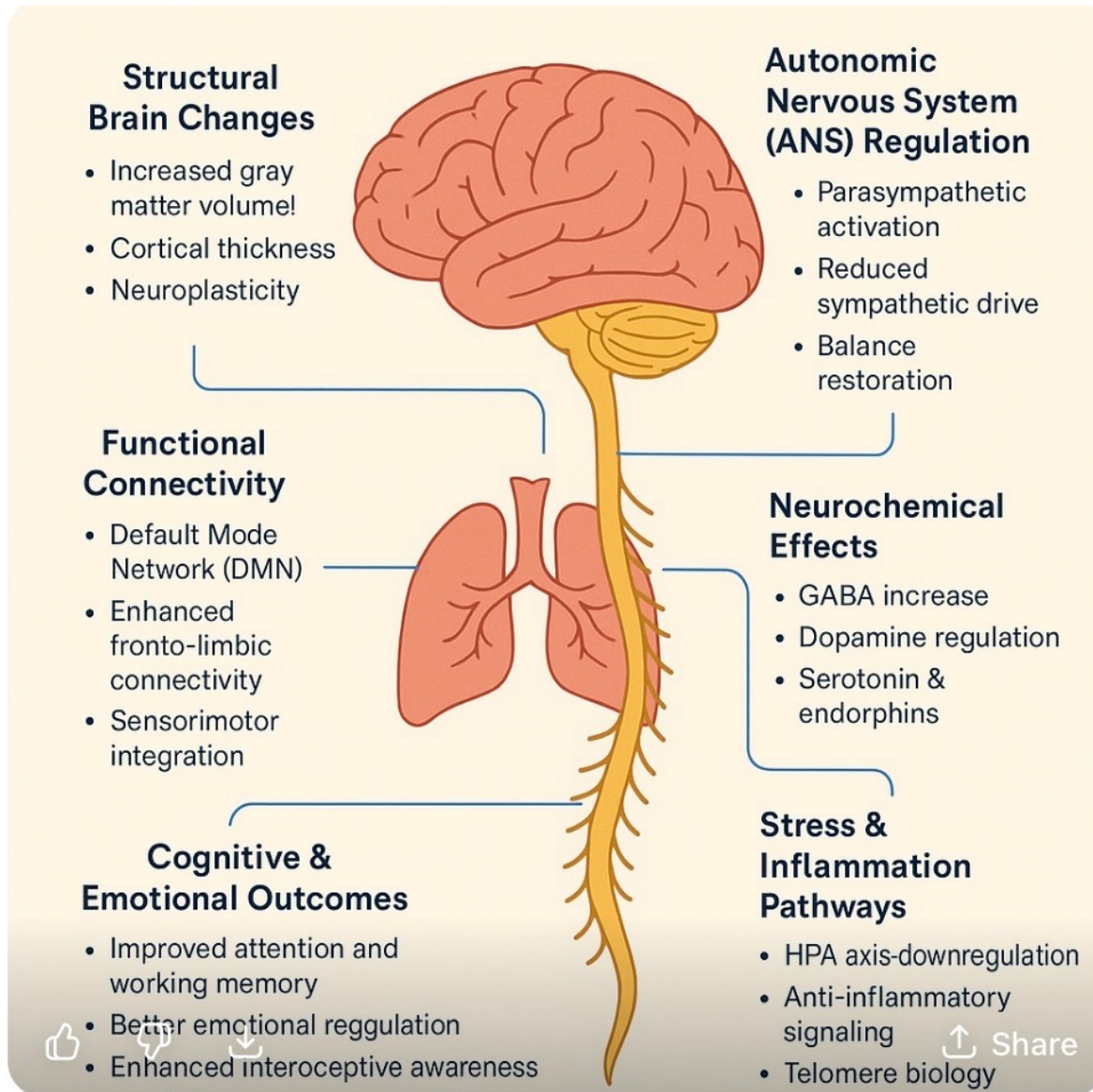


Holistic scope → Yoga therapy uses tools such as breathwork, movement, meditation, relaxation, and lifestyle strategies to support well-being across the whole person.

Yoga cultivates Body Awareness

- **Interoception:** The perception of sensations from inside the body, including physical sensations such as heartbeat, respiration, satiety, and the autonomic nervous system.
- **Proprioception:** perception of joint angles, muscle tensions, movement, posture, and balance.
- **Exteroception:** The perception of stimuli outside of the body and the subsequent awareness of our body in relation to space amid movement.
- When what is unconscious becomes conscious it enters proprioceptive and interoceptive awareness which involves higher mental process such as emotions, memories, attitudes, beliefs and behaviors. A higher interoceptive awareness is associated with increased empathy and compassion.

Yoga Impact on Brain and Nervous System



Yoga and Meditation impact on the brain

- Insula (brings sensations into conscious awareness)
- Primary Somatosensory Cortex (pain processing)
- Anterior Cingulate Cortex (emotional response)
- Prefrontal Cortex (complex response of thoughts and action)
- Meditation (yoga) has the opposite effect on the brain as chronic pain
- **Meditation alters the above areas of the brain resulting in decreasing pain perception and increased emotional regulation.**





Pain Education

- 30 minutes of pain education resulted in lowered level of chronic pain levels
- Pain does not necessarily mean tissue damage.
- Chronic pain changes the brain; yoga can reverse those changes. (bioplasticity &neuroplasticity)
- Pain relies on context and can be influenced by our beliefs, things we see, smell, taste, touch, and do; things we say and hear, the people around us and more.
- Pain is normal and real!

How Yoga Works at the physiological level

- Yoga practice regulates the nervous system and the release of neurotransmitters associated with the autonomic nervous system.
- Yoga Practices increase HRV. Those with CP have significantly lower HRV
- Increases in GABA, serotonin and dopamine along with increased tone of the Parasympathetic NS and the vagus nerve along with downregulation of the Sympathetic NS.
- Brain activity is also affected showing down regulation of the limbic brain and more blood flow to the frontal lobe along with increased gray matter.



Eight Limbs of Yoga

Yamas
Niyamas
Asana
Pranayama
Pratyahara
Dharana
Dhyana
Samadhi

1. Practicing Pratyahara and/or Interoception in a non-judgmental way can reduce pain.

Pratyahara is an ability to observe without reaction the information relayed via our senses. **Remember our senses are unreliable.**

Yoga Therapy Plan

- Begin with breathwork
 - Assess posture and functional movement
 - Add mindful movement: cue to focus on sensation in the moment.
 - Meditation (Yoga Nidra, imagery, somatic, metta)
 - Progress with re-education
 - Collaborate with healthcare team
- **Breath examples:**
 - Slow Diaphragmatic breathing
 - Box breathing (4-4-4-4 or 4-2-4-2)
 - Nadi Shodhana (alternate nostril)
 - Benefits: Calm, regulate, restore

Mindful Movement Principles - Asana

1. Important to start with pain free movement.
Important to **feel safe!**
2. Slowly begin to incorporate movement into pain (remember pain doesn't mean tissue damage, but instead a sensitization). Move with breath (Inhale open...Exhale close)
3. Encourage curiosity over performance & mobility over poses
4. Pain free range builds confidence

Let's Practice

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Thank you!

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