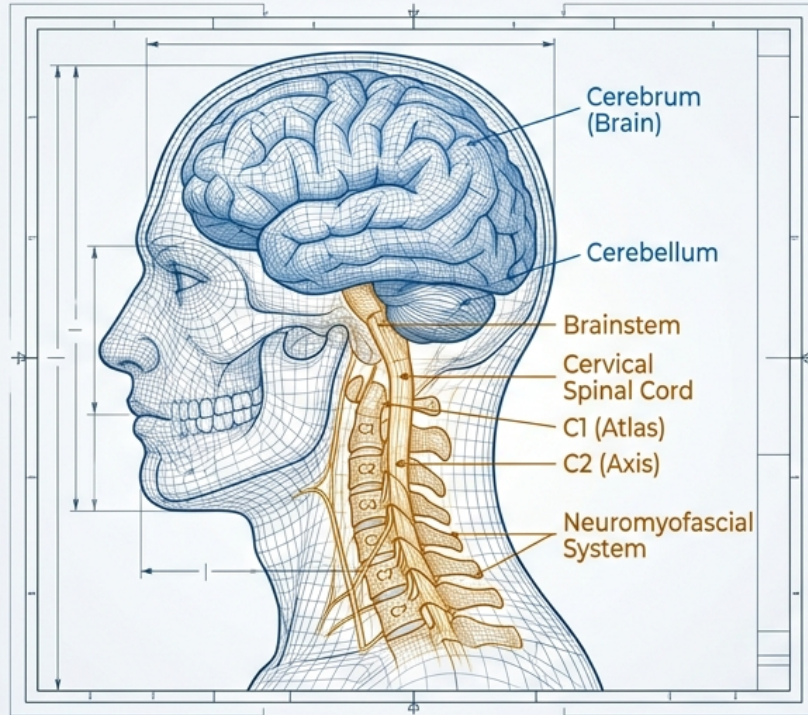


BEYOND THE BRAIN

Are persistent concussion-like symptoms always brain-based?



An interpretive overview of Dr. G. Blair Lamb's Neuromyofascial Science (NMFS) framework.

Exploring the whole-injury model of persistent post-concussion symptoms.

THE CLINICAL REALITY CONTRADICTS THE STANDARD DEFINITION OF PERSISTENT POST-CONCUSSION SYNDROME

THE CONVENTIONAL DEFINITION

PCS is widely classified as a lingering consequence of mild traumatic brain injury (mTBI).

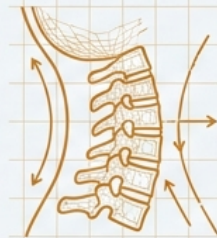


Diagnostic Locus: Brain

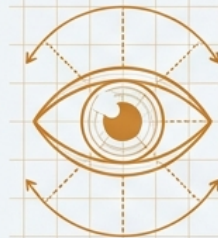


THE CLINICAL REALITY

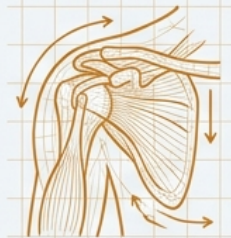
PCS rehabilitation programs heavily target non-brain structures:



Cervical spine and neck posture



Vestibular function and eye tracking



Musculoskeletal mechanics

Rehabilitation Locus: Spine & Systems

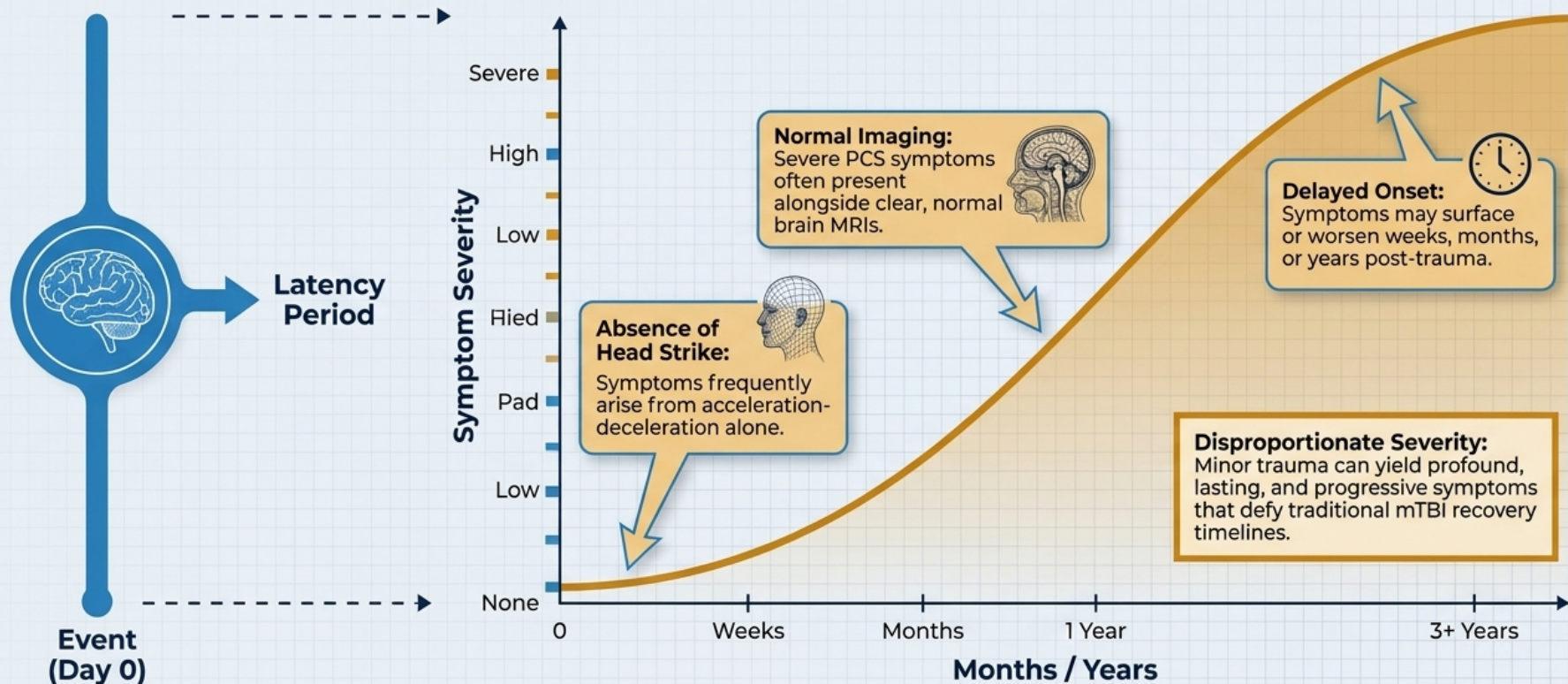
THE DISCONNECT: If PCS is exclusively a brain disorder, why is the rehabilitation system treating the spine?

Dr. Lamb proposes Spinal Concussion Syndrome as an anatomically grounded alternative that re-evaluates the origin of persistent symptoms.

Feature	Traditional PCS	Spinal Concussion Syndrome (SCS)
Primary Locus	Brain (mTBI)	Cervical/Upper Thoracic Spine, Fascia, Cord
Injury Driver	Neurological/Cellular trauma	Neuromyofascial scarring, nerve entrapment, tethering
Symptom Origin	Brain center dysfunction	Whole-injury referral, dynamic cord tension
Patient Profile	Assumed localized brain trauma	Symptoms may mimic brain injury despite normal imaging

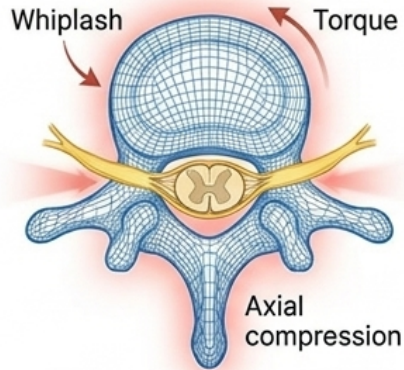
VARIABLE AND DELAYED SYMPTOMS CHALLENGE THE BRAIN-ONLY MODEL

THE DELAYED RESPONSE ARCHITECTURE



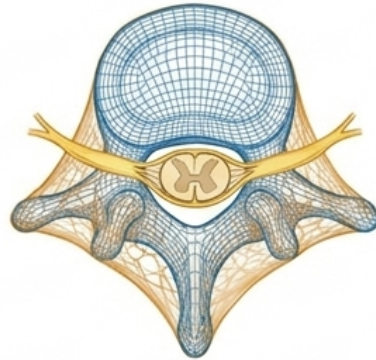
The evolutionary injury response creates a pathological pathological internal cast

Phase 1: Trauma



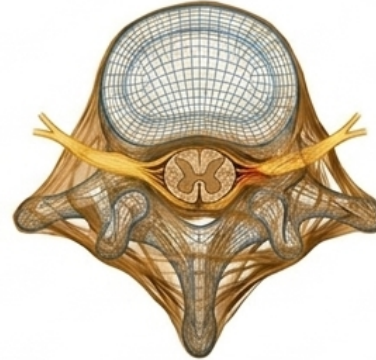
- Subtle forces initiate injury response

Phase 2: Stabilization Attempt



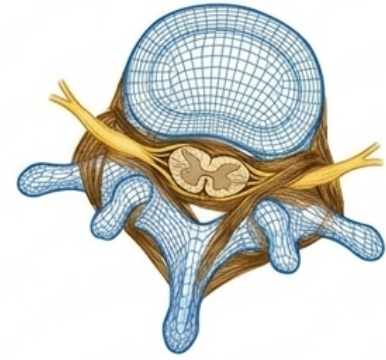
- Body creates dense, scar-like neuromyofascial tissue—an "internal cast"

Phase 3: Pathological Accumulation



- Scarring becomes disorganized, restricting normal glide

Phase 4: Chronic Dysfunction

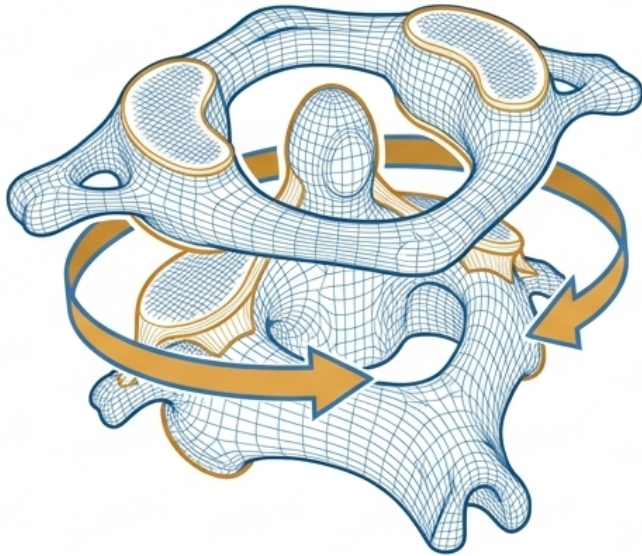


- Vertebral malrotation, nerve root entrapment, cord tethering

Note: This biological response often becomes more aggressive and disorganized as patients age.

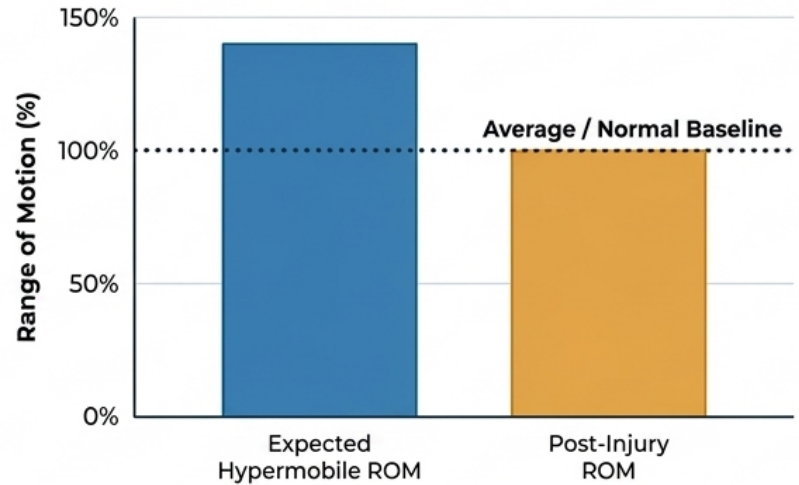
BASELINE HYPERMOBILITY MASKS SEVERE CRANIAL-CERVICAL RESTRICTION

THE ATLAS-AXIS (C1-C2) VULNERABILITY



- Critical junction for head position, rotation, and proprioception.
- Frequent contributor to headache, vestibular issues, and cranial-cervical pain.

THE HYPERMOBILITY TRAP



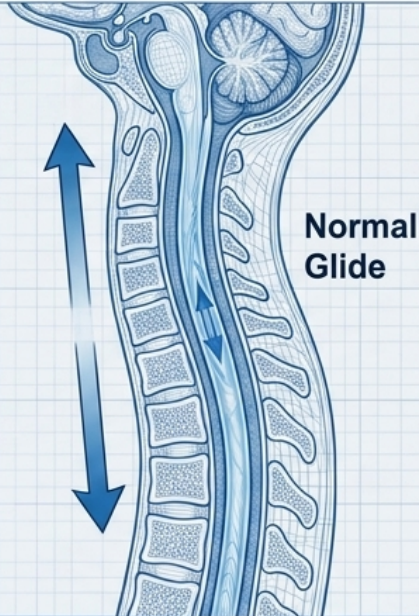
DIAGNOSTIC ERROR: Clinicians often equate an “average” range of motion with spinal health.

THE REALITY: For a hypermobile patient, dropping to an “average” ROM indicates severe restriction, malalignment, and scar tissue stabilization.

Dynamic movement creates pathological tension in a tethered spinal cord

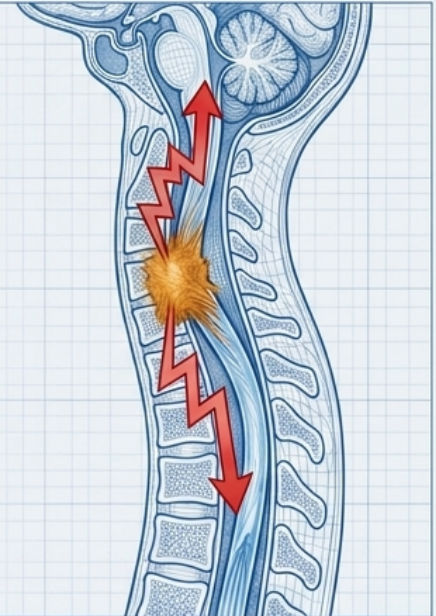
Normal Function

- The spinal cord glides freely within the canal during flexion, extension, and rotation.



The Tethered Pathology

- Scar-like neuromyofascial tissue creates localized restriction.
- Movement generates pathological tension rather than glide.



High Tether (Cervical): Tension projects upward (headaches, visual/vestibular symptoms, brain fog).

Low Tether (Lumbar/Thoracic): Tension projects downward (leg heaviness, balance, gait issues).

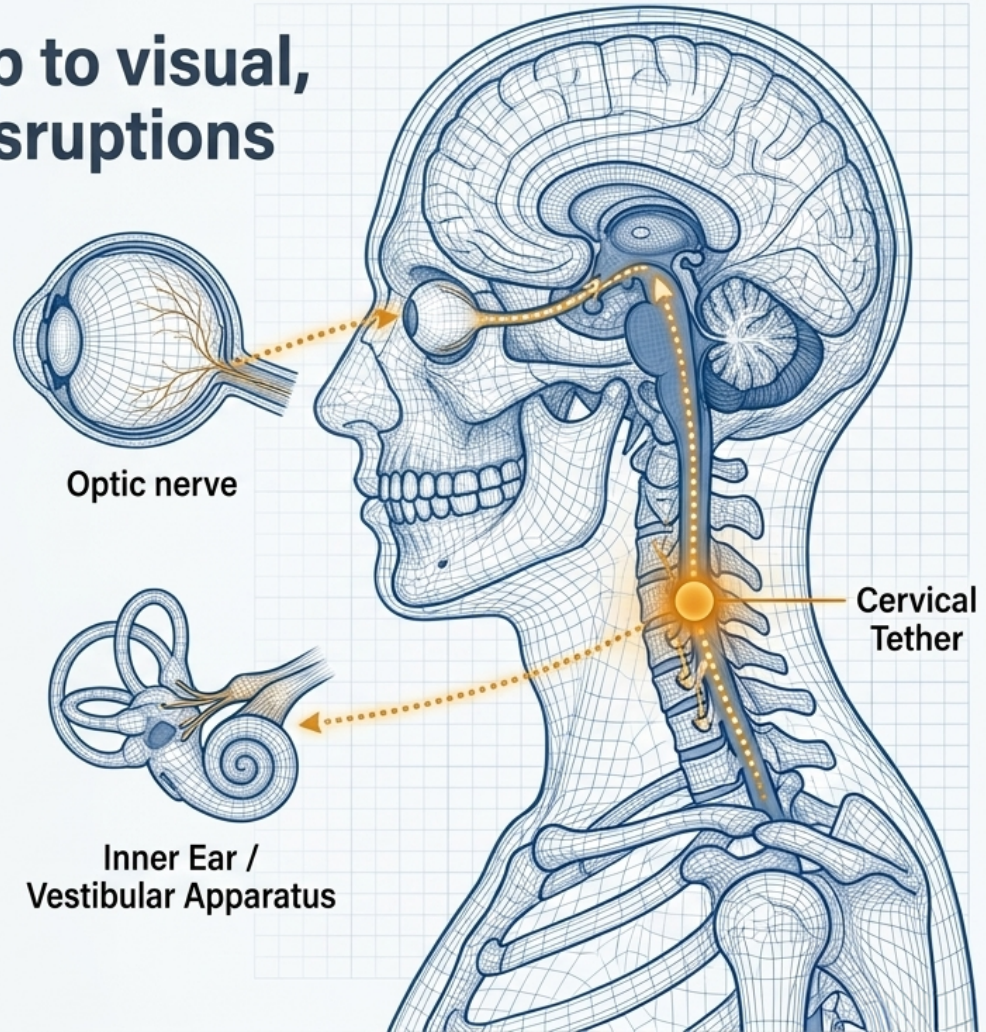
Spinal tension vectors map to visual, vestibular, and auditory disruptions

Visual / Optic Pathways

- Cervical tethering creates optic nerve tension and retinal stress.
- Aligns with observed retinal thinning in chronic pain patients.
- Clinical Observation: Patients report rapid visual clarity immediately following specific spinal treatments.

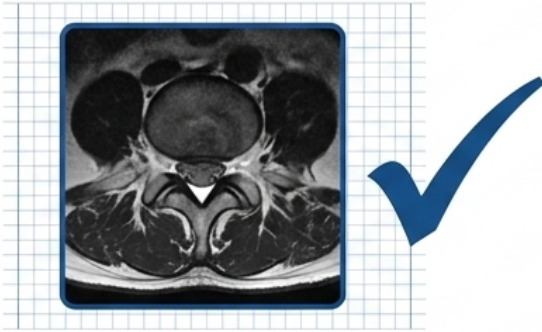
Vestibular / Auditory Pathways

- Tinnitus and vertigo are rarely isolated ear/brain disorders.
- They act as multifactorial clues pointing back to cervical tethering, myofascial referral, and cranial-cervical mechanics.



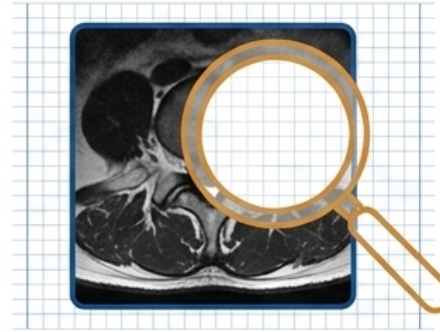
Standard structural imaging is blind to neuromyofascial pathology

What Standard MRI / CT Detects



- Fractures
- Disc herniations
- Severe compression
- Gross structural lesions

What Standard Imaging Misses (The Invisible Injury)



- Fascial contracture and tissue density changes
- Dynamic instability and functional compression under load
- Subtle vertebral malrotation and nerve glide restriction

The Future Diagnostic Need: Fat-water indexing, gravity-loaded MRI, Dynamic Motion X-ray (DMX), and future molecular markers specifically designed to illuminate scar pathology.

The historical audit reconstructs the progressive injury timeline

Clinical Blueprint Flowchart

Standard PCS History

Audit: Focuses on acute head strikes.

Exam: Basic neurological screening & static ROM.

Result: Assumes brain injury; misses dynamic pathology.

NMFS Historical Audit

Reconstruct Timeline:

- Track acceleration/deceleration events (whiplash without head strike).
- Map delayed onset and progressive worsening over years.
- Identify emergence of psychiatric symptoms AFTER pain onset.

Targeted Physical Assessment:

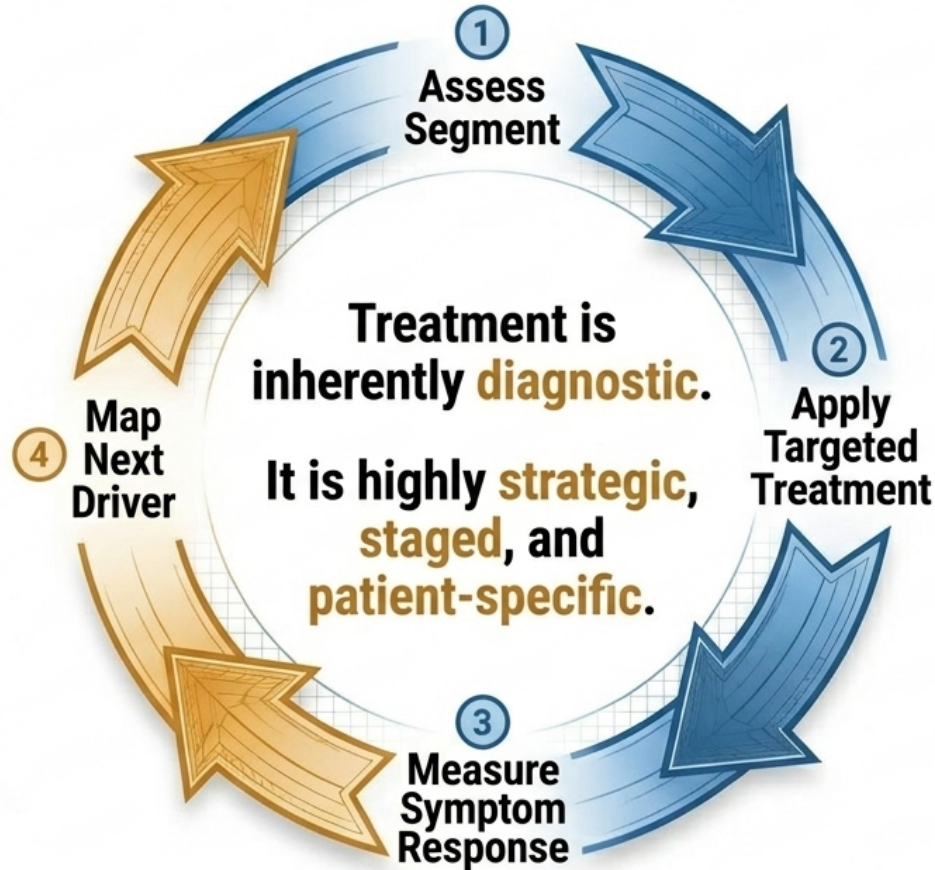
- Assess segmental tenderness and fascial restriction.
- Establish baseline hypermobility metrics.
- Map dermatomal symptoms to trace nerve root entrapments.

Result: Isolates precise structural neuromyofascial drivers.

Treatment acts as an investigative diagnostic feedback loop

Multi-Disciplinary Approaches:

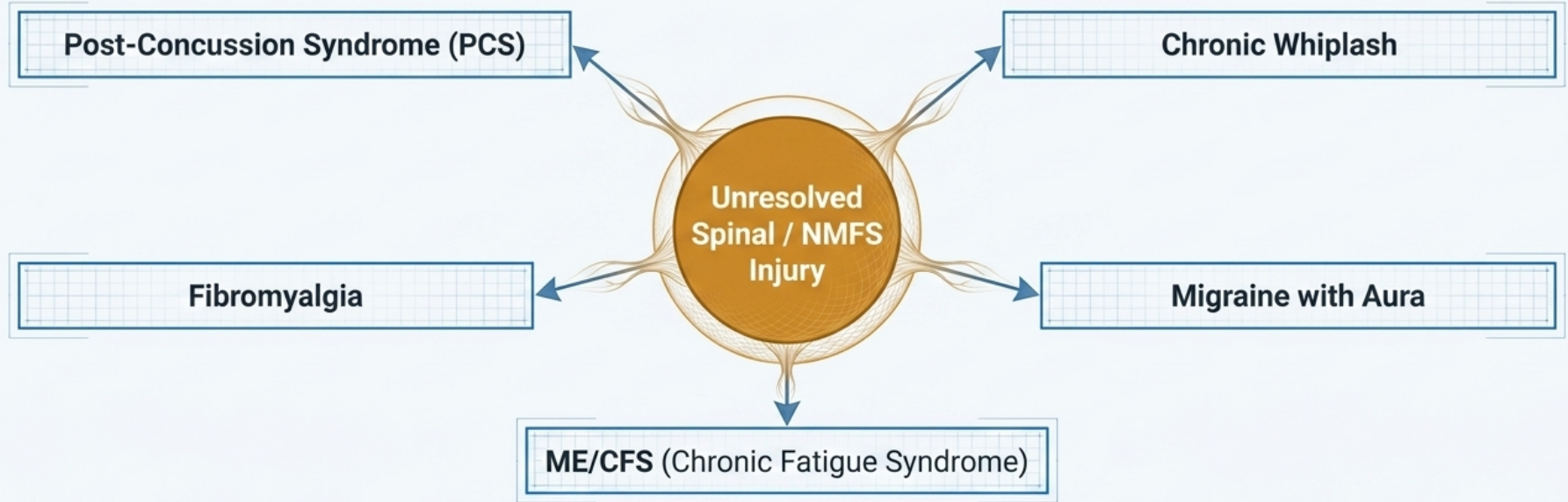
- Targeted neuromyofascial procedures
- Osteopathic manipulation
- Advanced chiropractic
- Neuro-optometry



The Feedback Loop in Action:

If treating C2 improves headaches but not vertigo, the headache driver is anatomically identified. The search for the independent vertigo driver continues.

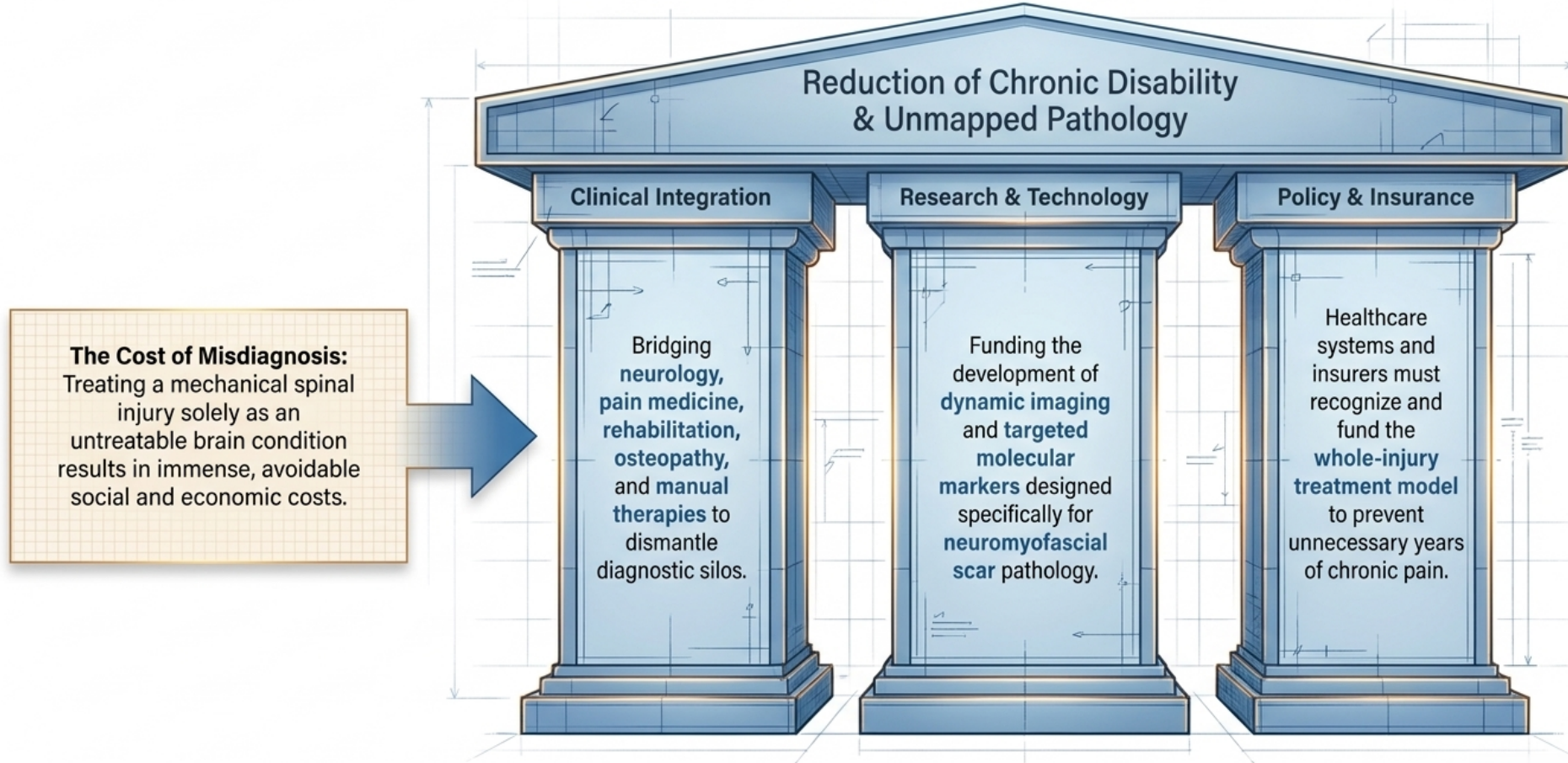
Neurological side effects connect a broader family of chronic disorders



Re-evaluating Psychiatric Labels:

Anxiety, depression, and PTSD-like symptoms frequently follow trauma. Within this model, they may represent neurological side effects of unresolved neuropathic signaling and chronic pain, rather than purely psychological states.

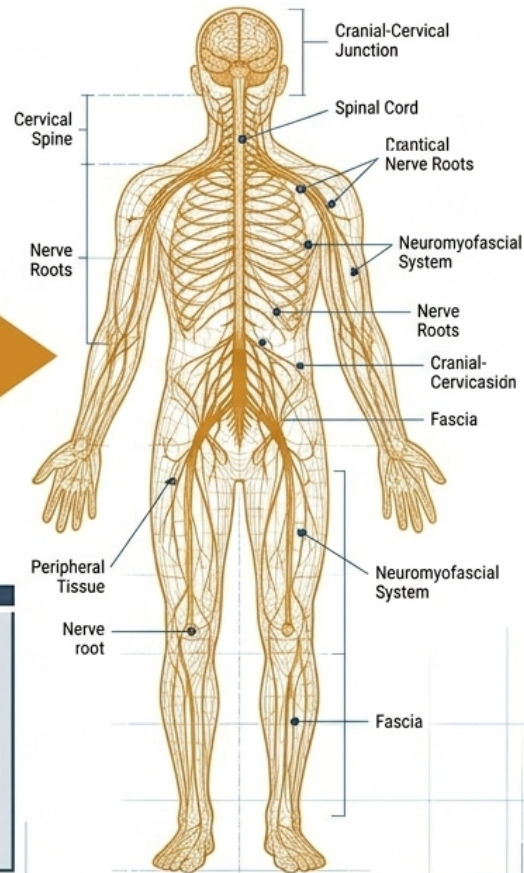
Integration across disciplines is required to reduce chronic disability



Persistent concussion symptoms do not automatically equal persistent brain injury



THE CORE PARADIGM SHIFT



The **spine, cranial-cervical junction**, and **fascial system** absorb massive trauma, initiating a pathological evolutionary injury response.

Normal MRI findings do not rule out severe, dynamically restrictive neuromyofascial injury or cord tethering.

Recovery requires moving from treating generalized cognitive symptoms to resolving mapped, structural anatomical drivers.

The Neuromyofascial Science Perspective Beyond the Brain: Post-Concussion Syndrome & Spinal Concussion Syndrome

