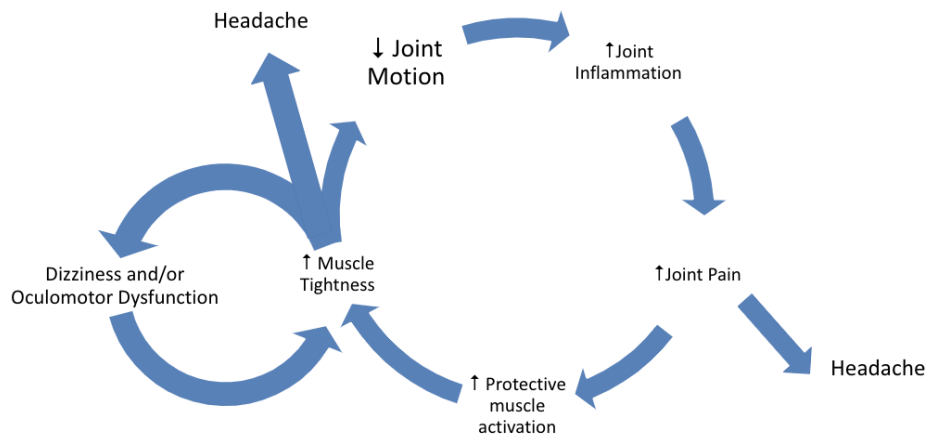


Neck Function and Proper Treatment - December 1, 2022

In this seminar Dr. Marshall goes over:

- Macro anatomy
 - Nerves, pinched nerves, cervical spine, joint function, deep muscles that affect the neck,
- Joint & Muscle Function/Dysfunction
 - Pain types include sharp, dull aching, and burning/tingling pain.
 - Diagram below shows joint and muscle dysfunction cycle
- Inhibitions
 - Reciprocal inhibition
 - Arthrogenic inhibition
 - Anatomy trains/fascial lines
- Neuro Anatomy
- Pathology Alignment
 - Disc bulge/herniation
 - Structural instability - ligament damage
 - Functional instability - hypermobility/spasm reactions

Joint & Muscle Dysfunction



*The
Concussion
Fix*

How it works:

"Afferents from the upper cervical spine provide somatosensory information for head and neck position, and multilevel integration of cervical somatosensory information occurs in the central nervous system. Cervical afferents have a complex neurophysiologic interaction with the sensory and motor nuclei of the brainstem (Figure 1). In addition, cervical somatosensory information is integrated with visual and vestibular information in the cerebellum for adaptive postural and oculomotor regulation. Cervical afferents also project through the dorsal column/medial lemniscus to the thalamus and the primary somatosensory cortex for perception of head and body position and contribute to **anticipatory ocular and postural adjustments during voluntary functional movements**. Direct interactions of cervical afferents with the vestibular nuclei, superior colliculi, and central cervical nuclei help coordinate important reflexes required for **gaze stabilization and postural stability**. The cervicocollic reflex is mediated through the central cervical nuclei and works dynamically with the vestibulocollic reflexes to maintain head and body-position alignment during functional movements. Cervical afferents interact with the superior colliculi to produce the cervico-ocular reflex (COR) and can supplement the vestibulo-ocular reflex (VOR) to help **stabilize gaze (eye stability)** during head and neck movements. The COR and VOR also work in conjunction with visual responses: **smooth pursuit and saccadic control during visual tracking and scanning activities** while the head and body are moving. In addition, cervicospinal and vestibulospinal reflexes use head and neck-position information to contribute to postural tone regulation. Most cervicogenic symptoms have been attributed to injury or impairment of the upper cervical spine (C1–C3). Researchers have suggested that abnormal somatosensory afferents arising from the muscle spindles, joint and pain receptors, or nerve roots of the cervical spine contribute to cervicogenic headache and vertigo or dizziness. Convergence of the C1–C3 cervical afferents with the trigeminal sensory afferents of the head and face in the trigeminal nuclei leads to **referred hemicranial pain** associated with cervicogenic headache. **Aberrant cervical somatosensory information may directly affect the cervical reflexes (cervicocollic reflex, COR, and cervicospinal reflex)**. The direct cervical inputs to the vestibular nuclei and superior colliculi may alter vestibular reflexes (VOR and vestibulospinal reflex) and ocular responses when abnormal cervical information is mismatched with normal vestibular and visual information. The sensory-information mismatch is thought to contribute to the symptoms of dizziness, disorientation, and balance disturbances associated with cervicogenic dizziness."

Cheever et al., 2016

The
Concussion
Fix