

The

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Overlooked Cause of Muscle Imbalances

Elite Upper Cervical | NUCCA

Dr. Corey Burt



Do you or your clients struggle with **chronic muscle imbalances**?

Are they holding you back in the gym?

Do you find yourself modifying your workout due to **muscle or joint pain**?

Do you **struggle** to perfect your lifting/training form?

Have you always been told **overtraining** is the cause of your muscle imbalances?

We understand your frustration.

We can almost guarantee no doctor or therapist has shared the following information with you.

We hope you find value in this guide, enjoy!

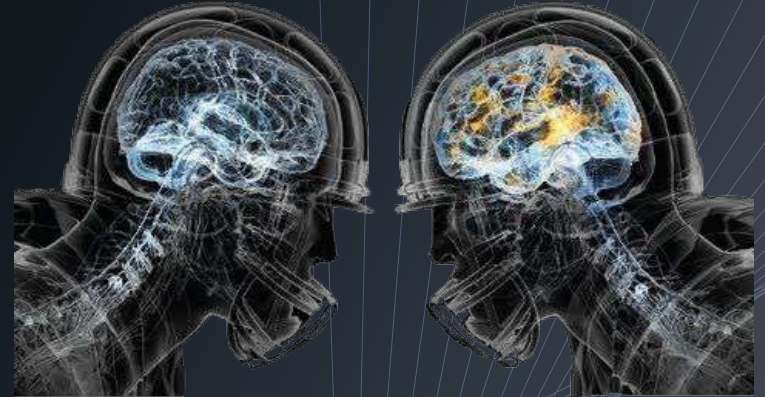
Most **OVERLOOKED** Cause

The most overlooked cause of muscle imbalances is suffering from a **head and neck injury**.

Most commonly from sports growing up:

- A football player getting a concussion
- A soccer player heading the ball
- A wrestler thrown to the ground
- A gymnast falling on their head
- A fighter taking a blow to their head
- Falling off a bike

Anything that jolts the head and neck



Neurological Feedback Loop

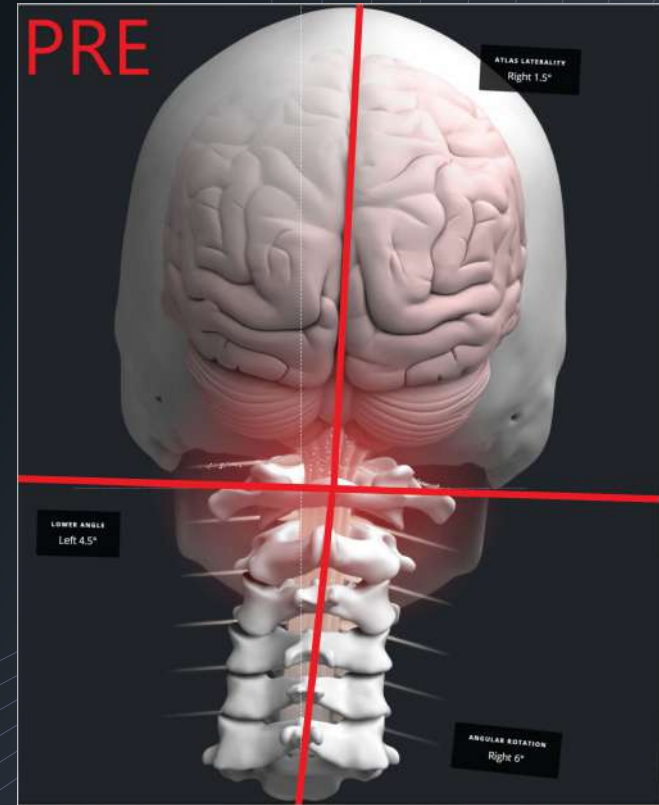
Head & Neck Injury

Upper Cervical Misalignment

The first thing that needs to happen is some form of **head and neck injury**.

Then, the connective tissue that holds the head center over the neck will **tear loose and stretch**. Mainly, the upper cervical ligaments will be damaged and the top bone in the neck will most likely shift out of its normal position.

As a result, **the head will tilt and cause the lower neck to angle underneath it**. This is called an upper cervical misalignment.



Neurological Feedback Loop

Head & Neck Injury

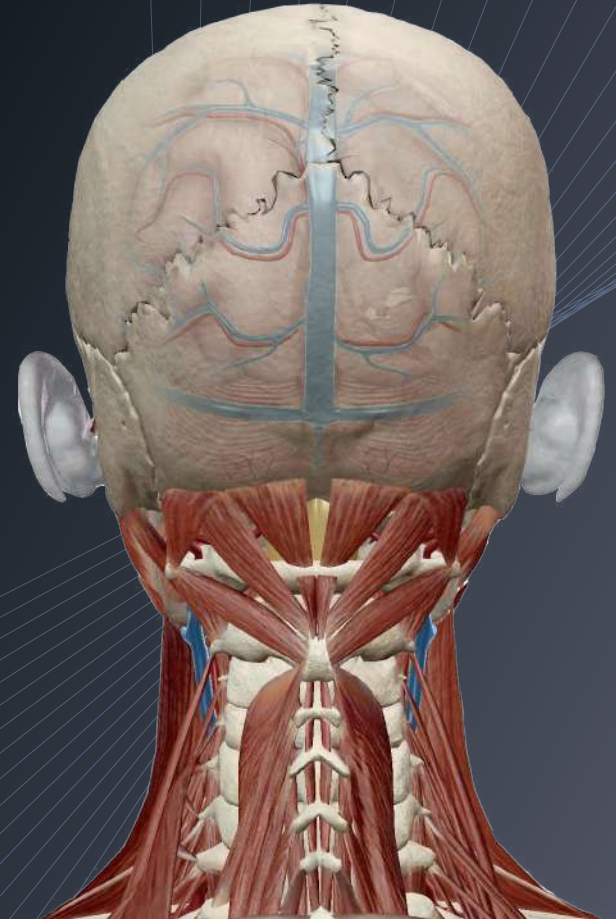
Upper Cervical Misalignment

Suboccipital Muscles Stretch

The suboccipital muscles, at the base of your skull, are stretched as a result of an upper cervical misalignment. This is significant because **the suboccipital muscles are the most sensitive muscles located in your body.**

How do we know this? Muscle spindle density.

Every single muscle in your body has a certain number of muscle spindle fibers that will send information to the brain. **The suboccipital muscles have the highest density of muscle spindles compared to any other muscle group in the body.**



Suboccipital Muscles

Obliquus Capitis Inferior

242 Muscle Spindles Per Gram of Tissue
**The MOST sensitive muscle in the entire body*

Obliquus Capitis Superior

190 Muscle Spindles Per Gram of Tissue

Rectus Capitis Posterior Major

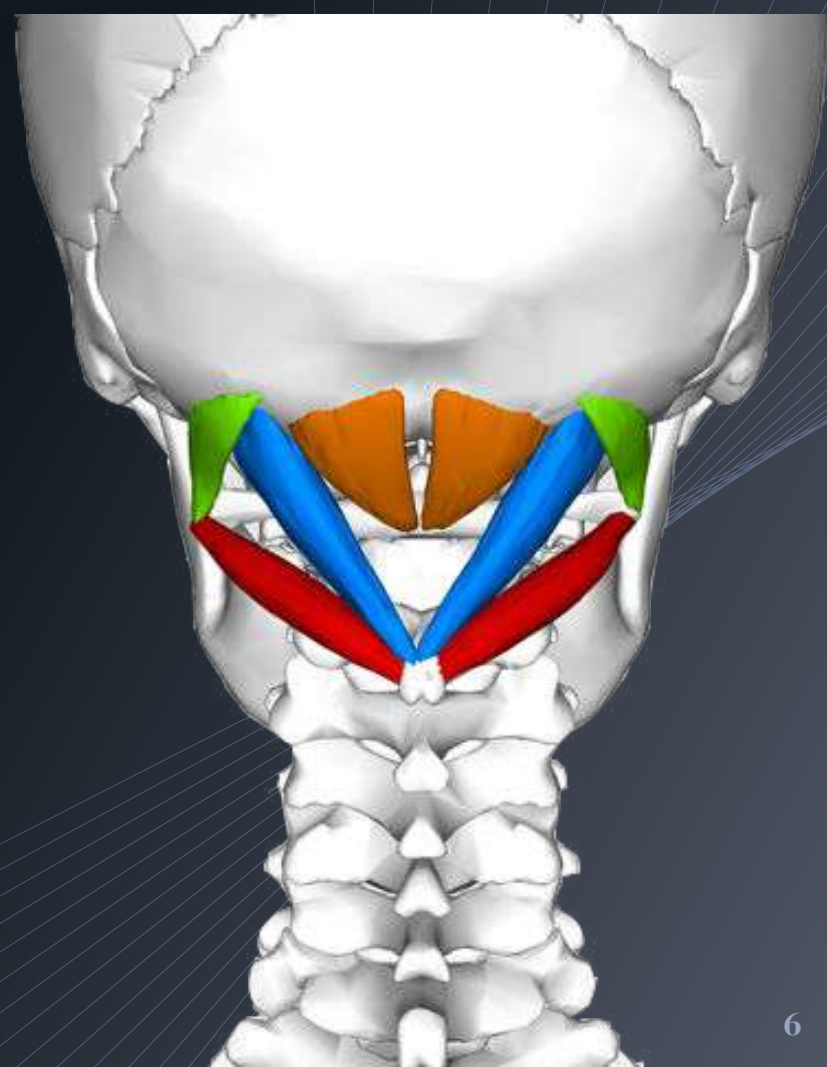
98 Muscle Spindles Per Gram of Tissue

Rectus Capitis Posterior Minor

98 Muscle Spindles Per Gram of Tissue

Biceps Brachii

97 TOTAL Muscle Spindles
**Larger than all suboccipitals combined*



Neurological Feedback Loop

Head & Neck Injury

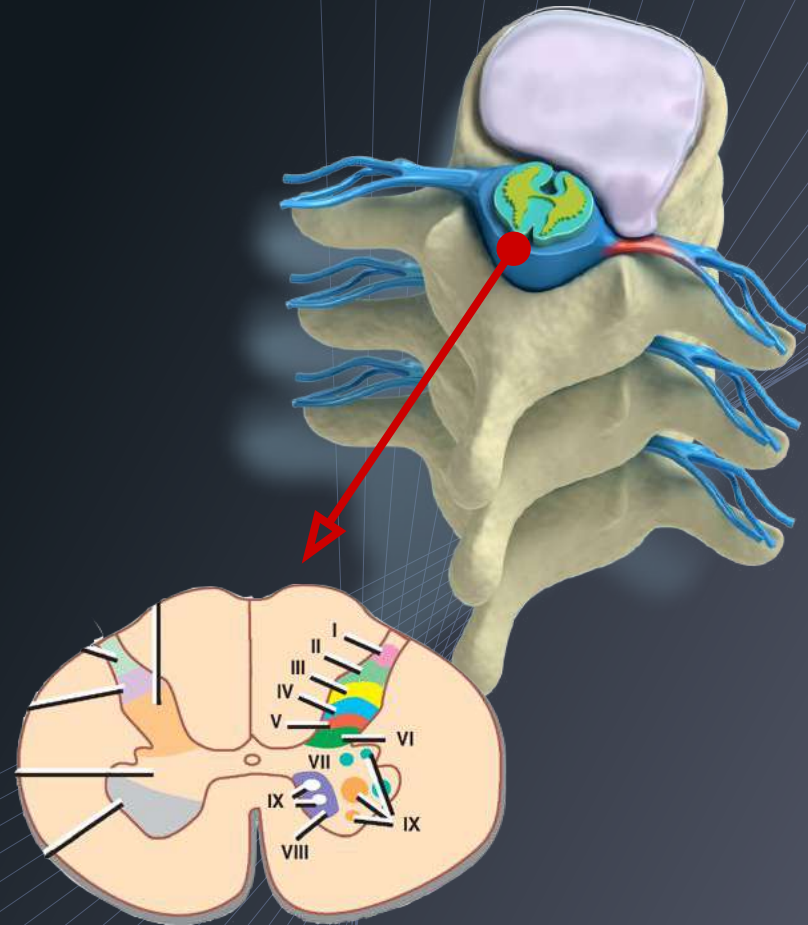
Upper Cervical Misalignment

Suboccipital Muscles Stretch

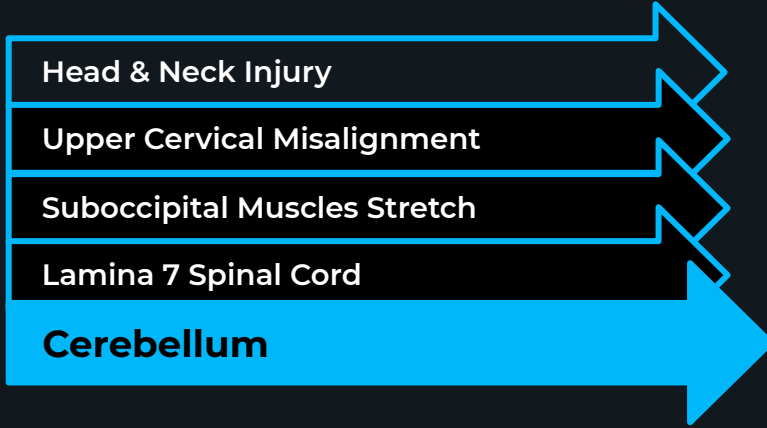
Lamina 7 Spinal Cord

Mechanoreceptors inside the suboccipitals will send a neurological signal up lamina 7 of the spinal cord.

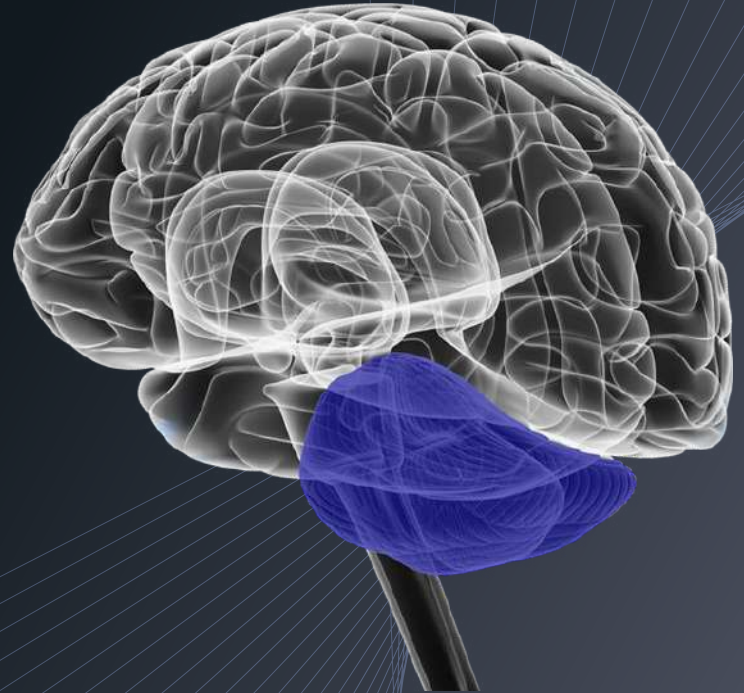
Mechanoreceptors are known as the sensors that detect when the muscles have stretched and will communicate that to the brain. Lamina 7 is responsible for motor transmission.



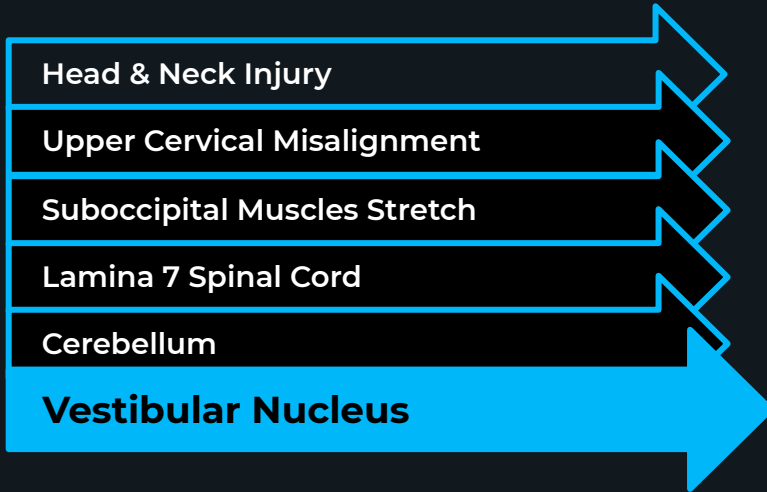
Neurological Feedback Loop



The signal continues to the cerebellum, the posterior lobe of your brain that is mainly responsible for controlling **equilibrium and balance**.



Neurological Feedback Loop

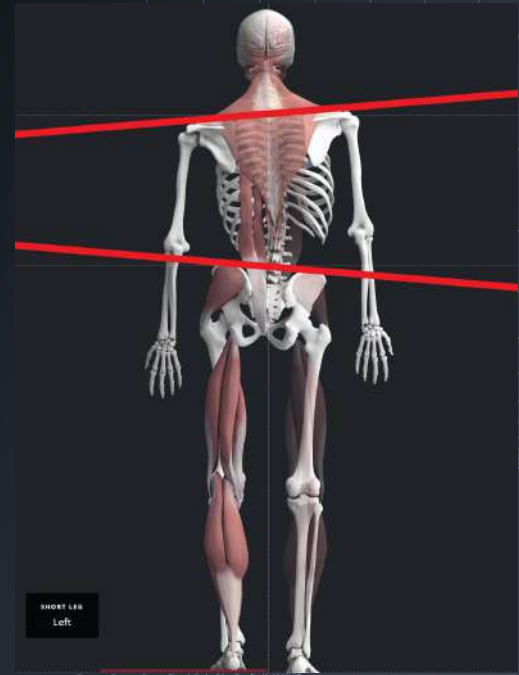
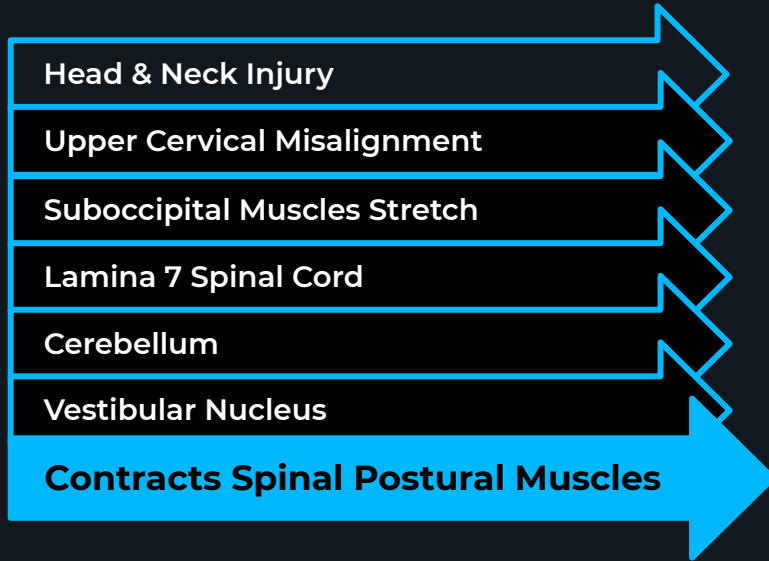


The signal continues to the vestibular nucleus located in the medulla of the brain stem, directly in front of the cerebellum.

The cerebellum and the vestibular nucleus work hand in hand to keep the body upright and posturally balanced.



Neurological Feedback Loop



Now that the signal has reached the vestibular nucleus, the **postural muscles on one side of the spine will contract and tighten**. These include the extensor posture muscles - erectors, rotatores, multifidi and your quadratus lumborum (QL).

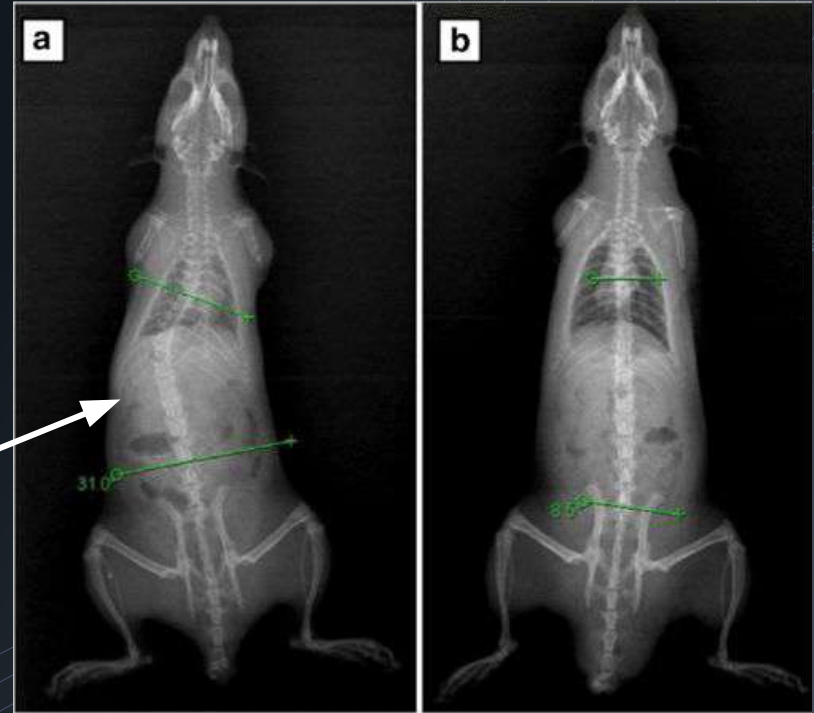
These muscles will remain contracted until the neurological loop is stopped. The longer the loop is active, **the worse the imbalances will get**.

Scoliosis Rat Study

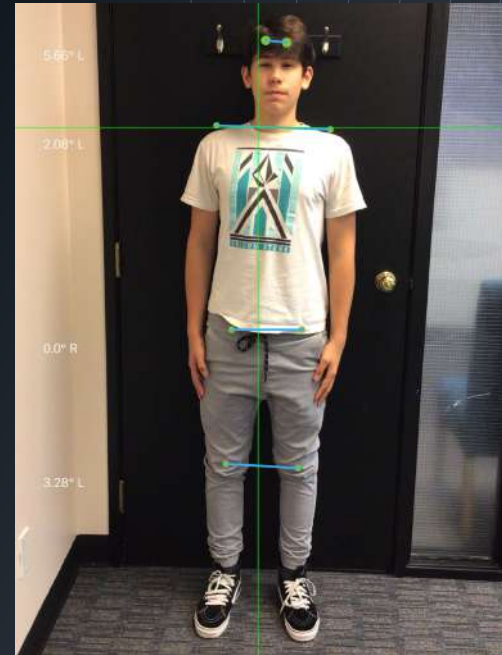
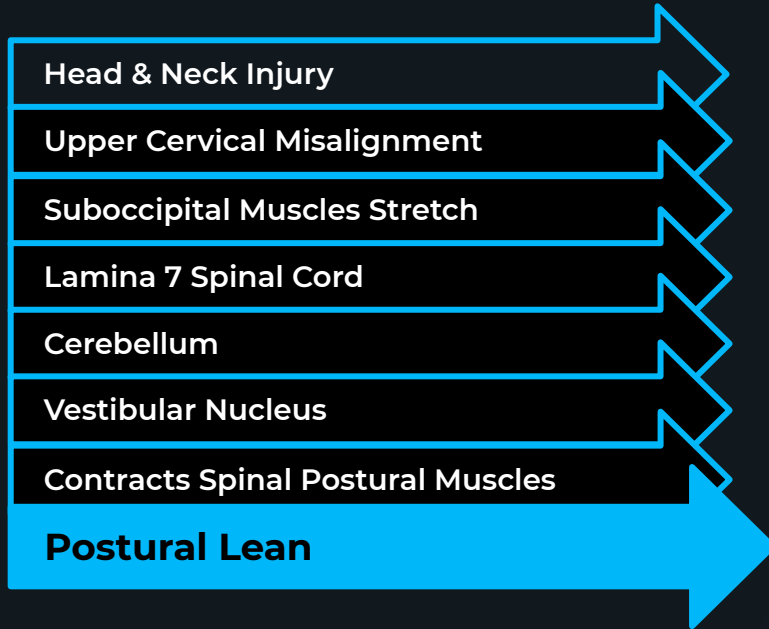
There was a study done where researchers took several rats, and *purposely damaged* their vestibular nucleus.

The rats were then monitored on an EMG, a machine that specifically monitors muscle tone.

By the end of the study, the rats were imaged and *25% of them had developed a significant spinal scoliosis*. On the convex side of the scoliosis, every rat had *hypertonic, spastic musculature*.

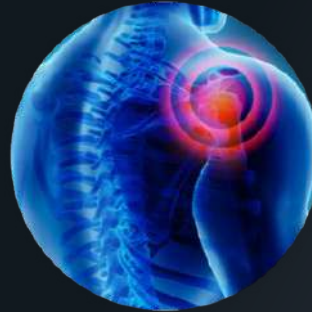
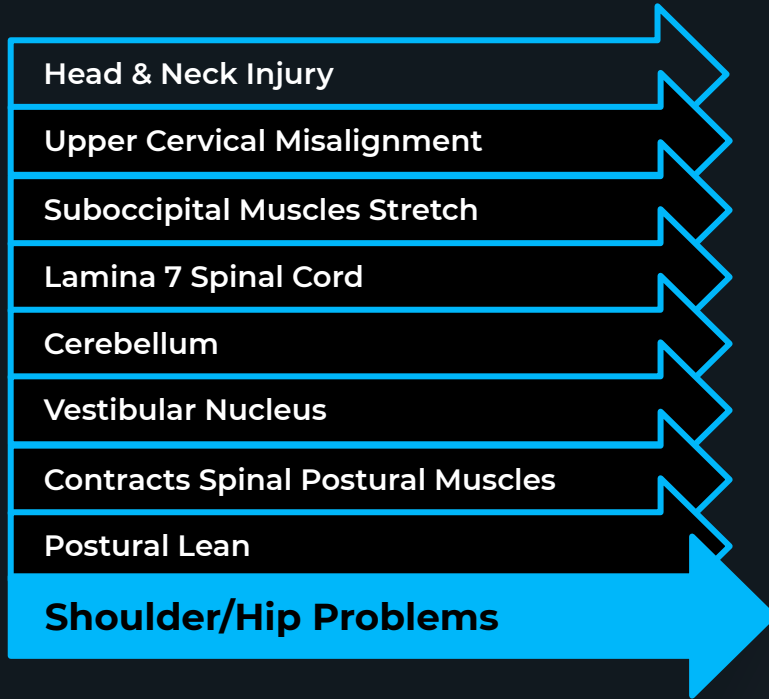


Neurological Feedback Loop



When the posture muscles contract unilaterally along the spine, the **body will compensate by leaning to one side or the other**. Notice the **green** line passing through the center of the feet in the photo. Ideally, the line should pass through the episternal notch (center of the top of the sternum) and nose. Clearly it's not, as the majority of his weight has shifted onto his left leg.

Neurological Feedback Loop

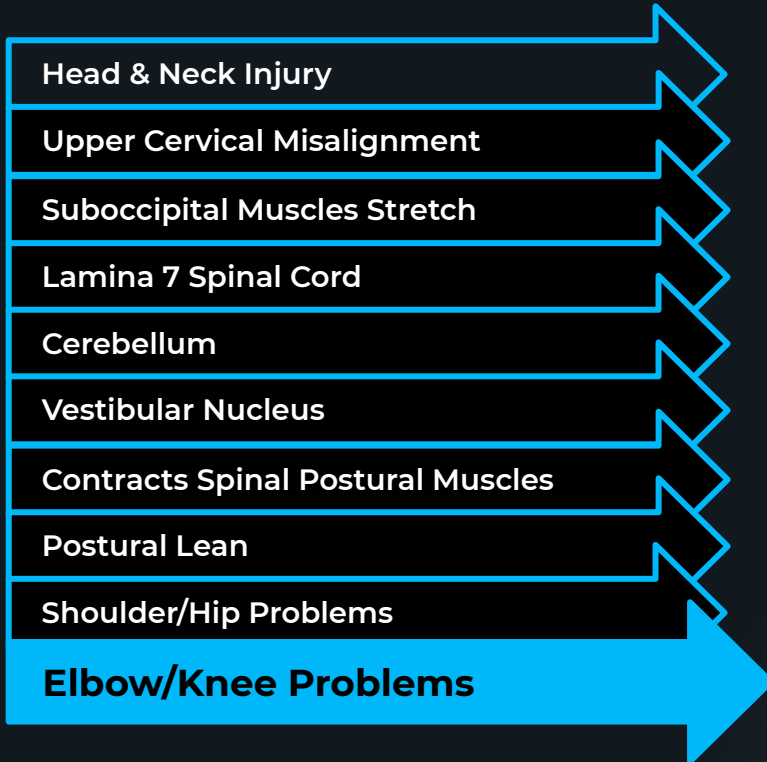


This is a common reason why athletes develop a shoulder that is higher on one side compared to the other. Once this happens, the shoulder muscles will tighten to adapt, increasing the risk of **rotator cuff injuries, labral tears and other shoulder injuries.**

This is also a common reason why athletes develop a hip that is higher on one side compared to the other. The hip flexors, quadriceps and hamstrings will all tighten to adapt.



Neurological Feedback Loop



Because the elbow has more stress on it, it is common for athletes to develop **tennis elbow**, **golfer's elbow**, **tendonitis** and other repetitive motion injuries.

Similar to the elbow, the knee also endures more stress. It is common for athletes, especially runners and jumpers, to develop **significant knee pain**. Not only is the knee being pulled on from tight hip/quad/hamstring muscles, but it is also taking on more weight because the entire posture has shifted off center.



NUCCA, an upper cervical chiropractic specialty, has [helped several athletes overcome muscle imbalances](#) by tracing them back to the neck.

Once the neck is corrected and properly aligned, the muscles throughout the rest of the body have the best chance to relax and [recover](#).

The NUCCA assessment is the best place to start when evaluating muscle imbalances.

If you would like to schedule a NUCCA assessment to see if your muscle imbalances are stemming from your neck, we would love to speak with you.

Please visit EliteUC.com to schedule your **FREE** phone consultation.

We look forward to hearing from you!

Stay strong,
Dr. Corey Burt