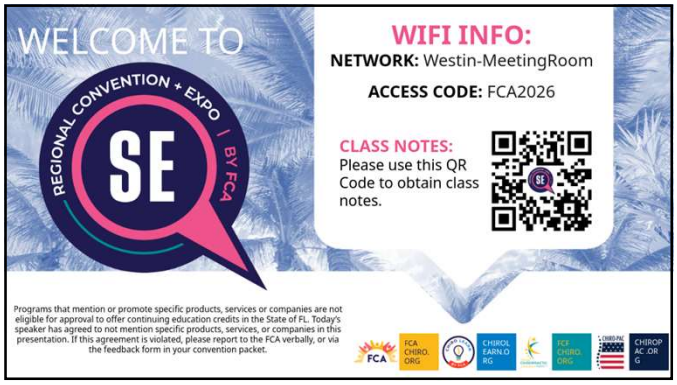

1

The Adjusting Grind: Precision, Power & Performance

Dr. David Bynum, DC & Dr. Maurice Isuo, DC

Vestibular Neurology, Postural Tone & Precision Adjusting

Florida Chiropractic Association • Fort Lauderdale

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Vestibular Influence on Posture & Tone

Key Concepts

- Utricular input affects perception of vertical orientation
- Whole-body tilt alters postural interpretation
- Vestibular asymmetry changes extensor tone
- The nervous system recalibrates "neutral"

The vestibular system plays a critical role in maintaining postural balance, spatial orientation, and muscular tone. Altered vestibular input may influence extensor muscle activity and postural adaptation, contributing to compensatory movement patterns throughout the body.

Citation

Kheradmand A, Winnick A, Zee DS.
"The Effect of Whole-Body Roll Tilt on the Perception of Gravity."
Experimental Brain Research. circa 2013.

3

Neurological Adaptation to Head Tilt

Key Concepts

- Chronic head tilt becomes neurologically normalized
- Vestibulospinal pathways alter postural tone
- Ocular torsion affects spatial orientation
- Cervical compensation develops below vestibular distortion
- Tone distortion occurs neurologically before structurally

Chronic head tilt and altered vestibular signaling may gradually become neurologically normalized by the central nervous system. Over time, adaptive postural compensations can influence muscle tone, cervical mechanics, and whole-body spatial orientation.

Citation

Kheradmand A, Winnick A, Perdomo C, Zee DS.
"Spatial Orientation Memory in Ocular Torsion."
Journal of Neurophysiology. 2012.

4

Ocular Tilt & Functional Neurology

Key Concepts

- Eye position reflects central integration
- Vestibular dysfunction alters visual orientation
- Head, eye, and body position are neurologically linked
- Ocular torsion influences postural stability
- Visual asymmetry affects postural tone

Visual and vestibular integration play an important role in postural control and neurological balance. Altered ocular positioning may contribute to changes in spatial awareness, muscle tone, and functional movement patterns.

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Cortical Activation & Blind Spot Changes

Key Concepts

- Blind spot size changes with altered cortical activation
- Sensory input alters perceptual processing
- Central integration can be measured neurologically
- Spinal manipulation influences cortical function

Changes in cortical activation may influence sensory integration and neurological processing. Functional neurological assessment, including blind spot evaluation, may provide insight into altered cortical activity and sensory-motor integration.

Citation

Carrick FR.
"Changes in Brain Function After Manipulation of the Cervical Spine."
J Manipulative Physiol Ther. 1997;20(8):529–545.

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Clinical Analysis Through the Skull-on-Spine Model

Topics Covered

- Vestibular-based postural analysis
- Ocular and cervical integration
- Neurological tone assessment
- Functional asymmetry patterns
- Precision vector-based adjusting
- Neurological recalibration through mechanoreception

Dr. David Bynum
Vestibular Assessment

7

Suboccipital Integration & Proprioception

Key Concepts

- High spindle density within the suboccipital musculature
- Critical region for proprioceptive signaling
- Influences vestibular and cerebellar integration
- Plays a major role in head-on-neck orientation
- Altered input affects postural tone and balance

8

What Is Neurological Tone?

Key Concepts

- Gamma motor neurons regulate baseline contraction
- Tone is neurologically generated
- Altered afferentation alters motor output
- Tone distortion precedes structural breakdown
- Muscle tone reflects central integration

"Tone is the normal degree of nerve tension."

Neurological tone represents the baseline level of muscular activation regulated by central and peripheral nervous system input. Altered afferentation and sensory signaling may influence muscular tone before structural dysfunction becomes apparent.

Dr. David Bynum
Upper Cervical Demo

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Atlas Biomechanics & Proprioception

Key Concepts

- Upper cervical spine contains high spindle density
- Small positional changes alter afferent signaling
- Mechanoreceptors influence vestibular nuclei and cerebellum
- Altered input changes postural output
- Upper cervical dysfunction alters balance and stabilization

Small biomechanical changes in the upper cervical spine may influence afferent signaling, postural control, and neurological balance. Optimizing proprioceptive input may improve stability and functional movement patterns.

Dr. Maurice Isuo
Cervical Adjustment

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Cervical Curve & Neurological Efficiency

Key Concepts

- Normal cervical lordosis averages approximately 35–45°
- Cervical alignment affects cord tension and biomechanics
- Forward head posture increases neural stress
- Loss of lordosis alters loading mechanics
- Curve restoration improves biomechanical efficiency

Cervical alignment plays an important role in biomechanical efficiency, neurological tension, and postural loading. Loss of normal lordosis may contribute to altered mechanics and compensatory neuromuscular stress.

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Vestibular & Postural Reflex Systems

Key Concepts

- Vestibulo-ocular reflex stabilizes gaze during movement
- Cervico-ocular reflex integrates cervical proprioception
- Vestibulocollic reflex stabilizes head posture
- Vestibular nuclei regulate postural tone
- Reticular formation influences gamma motor activity
- Alpha motor output determines muscular expression

These integrated neurological reflex systems help coordinate gaze stabilization, head positioning, muscular tone, and postural balance. Dysfunction within vestibular and postural pathways may contribute to altered movement patterns, compensation, and decreased neurological efficiency.

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Chronic Threat Physiology & Distorted Output

Key Concepts

- Vestibular asymmetry alters autonomic regulation
- Reticular activation increases protective tone
- Amygdala amplifies threat physiology
- Hypothalamus regulates stress responses
- Nucleus tractus solitarius integrates visceral input
- Chronic dysfunction affects breathing, digestion, sleep, and recovery

Chronic neurological stress may influence autonomic regulation, protective muscular tone, and physiological adaptability. Persistent vestibular or postural dysfunction may contribute to compensatory movement patterns and distorted neurological output over time.

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The Neurology of the Adjustment

Key Concepts

- HVLA input activates Type I & II mechanoreceptors
- Increased afferentation alters gamma gain
- Improved proprioception enhances stability
- Alpha motor recruitment improves
- Tone becomes more balanced and efficient
- The adjustment acts as a neurological stimulus

Chiropractic adjustment may provide meaningful mechanoreceptive input to the nervous system, influencing proprioception, motor control, and neurological integration. Improved afferent signaling may support more efficient movement patterns, postural balance, and functional stability.

Mechanoreception → Gamma Recalibration → Improved Alpha Motor Output

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Strategic Regions of Neurological Influence

Key Regions

- Occiput
- Atlas
- C2
- Temporomandibular Joint (TMJ)
- C7
- T1
- T4
- Sacrum
- Extremities

Why They Matter

- High mechanoreceptor density
- Vestibular integration
- Sympathetic relationships
- Postural chain influence
- Neurological stabilization

These anatomical regions are commonly evaluated due to their relationship with proprioception, vestibular integration, autonomic influence, and postural stabilization throughout the kinetic chain. Precise assessment and adjustment may help optimize neurological communication and functional balance.

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Precision Adjusting as Neurological Rehabilitation

Key Concepts

- Compensation patterns are adaptive
- Precise input changes central output
- Neurological balance improves structural stability
- Restoring afferent symmetry improves function
- The adjustment is a neurological event

Precision adjusting may help improve neurological efficiency through targeted mechanoreceptive stimulation and restoration of afferent balance. Optimizing neurological input may contribute to improved structural stability, movement quality, and functional performance.

"The spine is not merely structural. It is a continuous neurological feedback system informing the brain where the body exists in space."

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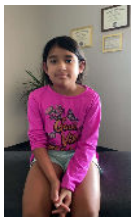
Dr. Maurice Isuo – Pediatric Jaw/TMJ Case Videos



Pediatric Jaw/TMJ Video 1

Pediatric Jaw/TMJ Video 2

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