Neuro Ocular Release (NOR)
The Discovery of a new Neuro-activating Force for the Treatment of Somatic Dysfunction

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Neuro Ocular Release (NOR)

• Is an INDIRECT METHOD of OMT using the visual system and it’s various neurological reflexes as an activating force to amplify the treatment effect

• NOR uses the tenderpoint associated with nociceptor output in the form of for pain reduction to monitor treatment effectiveness
Indications - Reasons to use NOR

• Pain Relief
• Neural, myofascial, and arthrodiyal dysfunctions are most responsive
• Any somatic dysfunction associated with a tender point
• Acute, subacute, and chronic dysfunctions
• Especially effective for entrained (resistant) dysfunctions
Contraindications for NOR

Relative
  No Somatic dysfunction
  No Tender point

Absolute
  Fracture
  Medical emergency
  Uncooperative patient
NOR Benefits

• More efficient patient treatment
  – Less time consuming (setup +2 seconds)
  – Pain relief (100%)
  – Long lasting treatment results
  – Treating the CNS component/memory of Somatic Dysfunction
NOR Methodology

• NOR works with any indirect method
  – Balanced ligamentous tension
  – Balanced membranous tension
  – Counterstrain
  – Facilitated positional release (omitting the compressive or torsional force)
  – Functional technique

**Indirect method** - *a manipulative technique where the restrictive barrier is disengaged and the dysfunctional body part is moved away from the restrictive barrier until tissue tension is equal in one or all planes and directions.*

Location of the tenderpoint
How is Neuro Ocular Release (NOR) done?

1. The patient is positioned for the chosen method of **indirect technique**.

2. The physician places their finger over the most tender/painful **point** (coracoid-acromial lig.).

3. The physician then asks the patient to turn their head (standard counterstrain position) and then move their eyes (cephalad, caudad, left or right or toward the direction their nose is pointed) until maximum relief of the tenderpoint is achieved.

4. The patient is asked to focus their eyes upon an spot that results in maximum tenderpoint reduction. The **D.O. feels an increase in ease/tissue give**.
How is Neuro Ocular Release done?

1. A sudden ease is felt when the eye and body is exactly aligned for a summation of release.
2. A release is felt within 2-3 seconds, sometimes accompanied by a slight pulse.
3. The physician has the patient close their eyes and returns the patient to a neutral position.
4. The physician has the patient open their eyes and rechecks the tenderpoint.
Key Points for Success

✓ Identify the **precise tender point** associated with the Somatic Dysfunction.

✓ Place the patient in **exactly** the **position** that the strain/reflex is maintained, using 3 axes of motion, **balancing the x,y,z vectors**.

✓ The goal is to achieve maximum balanced membranous tension over the tender point by arranging the patient’s body to **relieve ALL point tenderness** by Indirect positioning.
Neurophysiology

Somatic dysfunction is identified and reflected in the soma but learned and maintained in the central and peripheral nervous systems.

Muscle spindle fibers, tendon and joint mechanoreceptors, proprioceptors as well as nociceptors interact with the CNS, reinforcing responses both afferent and efferent responses.
The vestibulo-ocular reflex works to stabilize gaze during head movement.
The oculocervical reflex connects the vestibular system with the proprioceptive afferent and efferent communication through the spinal tract.
NOR resets the neuro-vascular-somatic system to neurological normal, by using the optical tract, to the descending motor tracts, returning the cerebellum and cerebrum to normalized or optimized function (i.e. pre somatic dysfunction state).

Sensory Stimulation

Proprioception / Nociception / Mechanoreceptors / Muscle spindles-gamma gain

Posterior Horn
Lamina I, II, III, IV, V, VI

Spinal Ganglion
Posterior Horn Gray Mater

Dorsal Column
Anterior Spinocerebellar Tract

Central Gray Matter
Anterior pretectal nucleus

Mendulla Oblongata

Cuneiform Nucleus

Transmits PAIN inputs to Medial Thalamus → Posterior Central Gyrus, Hypothalamus & Limbic System

Lateral Spinothalamic Tract

Intra Lamina & Medial N. Thalamus

Central N. Thalamus

Cortex Emotional Pain

Somatosensory Cortex Posterior central gyrus
NS=
Noxious stimuli
WDR=wide dynamic range-response to innocuous and noxious stimuli
LT= low threshold receptive fields that respond to innocuous sensations
Probable Neuro Ocular Release neuro-pathway

• NOR is resetting the neurological system to normal THRU visual, to cerebral to spinal cord and back to the cerebral level.

• Resetting this neuro pathway is done by using the ocular, visual cortex, ocular reflexes and descending motor tracts (corticospinal tracts, and tectospinal tract-[superior colliculus]) to reset proprioception, joint mechanoreceptors muscle spindle fibers and nociceptor structures.
Brodmann’s Areas of the brain.

Brodmann's area 17, which receives information from nucleus of the thalamus that is connected to the retina, turns out to correspond precisely to the primary visual cortex. And Brodmann's area 4, from which the axons of the large pyramidal cells project to the motor neurons of the spinal cord, corresponds broadly to the motor cortex.
Optic Nerve-Chiasm-Tract-Lateral Geniculate Nucleus V1[Primary visual cortex] V2 [2\textsuperscript{nd} visual cortex] V4- Temporal cortex
Ventral vs Dorsal Visual pathways

[Diagram showing the ventral and dorsal visual pathways with labels for temporal and parietal visual areas, V1, V3, V4, V5, V3A, and V2.]
Optic Nerve Projections- Thalamus

- The optic nerve projects primarily to the thalamus, which is the necessary relay to the occipital cortex for conscious visual perception.
Figure 15.6 Nuclei of Subconscious Motor Pathways

Motor cortex

Caudate nucleus

Putamen

Globus pallidus

Basal nuclei

Red nucleus

Tectum

Reticular formation

Pons

Vestibular nucleus

Medulla oblongata

Thalamus

Superior colliculus

Inferior colliculus

Cerebellar nuclei

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Optic Nerve Projections-Hypothalamus

• The hypothalamus then uses this visual system input to drive the pupillary reflexes. If the retina is activated by high levels of light, the hypothalamus stimulates the parasympathetic response. If the optic nerve message shows that low levels of light are falling on the retina, the hypothalamus activates the sympathetic response. Output from the hypothalamus follows two main tracts, the dorsal longitudinal fasciculus and the medial forebrain bundle. Along these two tracts, the hypothalamus can influence the Eddinger–Westphal nucleus of the oculomotor complex or the lateral horns of the thoracic spinal cord.
Pathway

• 10% of the axons emerging from the retina project to the Superior Colliculus (150,000 axons!).

• These neurons trigger movements of eyes, head, via motor neurons in the brainstem—bring the image on to the fovea thus orienting the eye toward a stimulus/object.

• Superior Colliculus and Lateral Geniculate nucleus project their axons to subcortical structures: reticular formation, inferior colliculus and spinal cord.
The motor pathway descending

- **CORTICOSPINAL TRACT**: Conscious control of skeletal muscles
  - **Corticobulbar tracts**: conscious control over **EYE**, jaw, and face muscles
  - Lateral Corticospinal tract conscious control over skeletal muscles
  - Anterior Corticospinal tracts conscious control over skeletal muscles
- **SUBCONSCIOUS TRACT**: Subconscious control and regulation of balance, muscle tone, **eye**, hand and upper limb.
  - Vestibular Tracts
  - **Tectospinal Tracts**
    - **Superior Colliculi receives visual information**
    - Inferior Colliculi- receives auditory info
  - Reticulospinal Tracts
  - Rubrospinal Tracts
References


Thank YOU!