

Course Title: ICA DCCJP Clinical Neurology
Instructor: Robert Kessinger, DC, DABCI, DACBN

Course Objective: The clinically relevant neurological impacts of an upper cervical subluxation as well as developing a skill set in performing a neurological exam. Building on this foundation we will take a more in-depth look at neuroanatomy and brain physiology relative to the upper cervical subluxation and what is generally observed in the upper cervical chiropractic care clinic. Four specific brain regions/systems will be highlighted, which include the cerebellum, Cranial Nerves, autonomic nervous system, and the cerebellar/basal ganglia/frontal lobe networks. The attendee will learn how to perform an examination that addresses each of these 4 brain regions/systems.

Dates: April 20-21, 2024

Location: Hyatt Buckhead 3301 Lenox Square Parkway NE Atlanta, Georgia 30326

Total Hours: 12

Saturday; April 20

9-10AM Neuroanatomy overview as it relates to the upper cervical spine

There will be a review of neuroanatomy as it relates to the Craniocervical junction (CCJ). Particular attention will be paid to embryology and the connections that remain throughout life. Important nuclei within the segments of the brain stem, including the midbrain, pons and medulla will be discussed.

1. Anatomy
2. Embryology
 - a. Tissues that wire together fire together
3. Brainstem
 - a. Mesencephalon, pons, medulla & cerebellum

(1 Hr. CE; Lecture)

10-12PM How the brain works

1. 6 stages of brain development
 - a. The role of the cranio-cervical junction
2. Clinical applications

There are six stages to brain development, beginning in the womb. Each of these steps are integral to normal and timely brain development. In this discussion we will highlight the relevance of the CCJ and brain development.
3. The sensory system
 - a. 5 senses
 - b. Proprioception
 - i. Muscle spindle
 1. Craniocervical junction
 2. Core muscles

The purpose of the brain is to move, whether that is motor or non-motor movement. The brain has to know where we are in space and time as well as how we are reacting to the environment. In this session we will discuss how the sensory system plays an essential role in this process.

4. Movement defined.
 - a. Motor movement
 - b. Cognition
 - c. Emotions

There is motor and non-motor movement. In this session we will review networks in the brain responsible for motor movement. We will as well define non-motor movement and discuss the brain networks involved.

(2 Hrs. CE; Lecture)

12-1PM LUNCH NO CE

1-2PM What are Upright MRI and other diagnostics showing us about the Upper Cervical Spine?

1. CSF flow studies
2. Clinical support
3. Clinical application

There has been an explosion of information coming out in the upper cervical world regarding upright MRI and the CCJ. We will discuss relevant studies relating to CSF flow. We will discuss the relationship between misalignment in the CCJ and cranial hemodynamics.

(1 Hr. CE; Lecture)

2-4PM Autonomic nervous system and its relationship to the Upper Cervical Spine

1. The Polyvagal Theory;
 - a. 3 stages of development of the autonomic nervous system
 - b. Nucleus ambiguus, dorsal motor nucleus and the RVLM
 - c. Clinical application

In this session we will review the Polyvagal theory that was developed by Stephen Porges. Results achieved through upper cervical care can be attributed to improvement in autonomic function. We will review clinical applications.

1. HRV and its clinical application
2. Review of the literature, including blood pressure & pulse pressure studies
 - a. The ANS correlation

Heart rate variability is a method of assessing autonomic function. There are other clinical measures, such as blood pressure and pulse pressure, that are clinically relevant. We will review the literature.

(2 Hrs. CE; Lecture)

4-6PM Upper Cervical Neuro Examination

1. The cerebellar/basal ganglia/ frontal lobe connection
2. Cerebellum physiology 101
3. Cerebellum history & physical exam

The cerebellum/basal ganglia/frontal lobe connection is what directs all movement. The cerebellum coordinates motor and non-motor movement. We will review history and examination that is relevant to this system.

4. Basal ganglia neurophysiology 101
5. Basal ganglia history & physical exam
6. Early detection Parkinson's
7. Assessing OCD, ADHD through the basal ganglia window

The basal ganglia are the on/off switch for movement. We will review basal ganglia physiology.

(2 Hrs. CE; Lecture)

Sunday; April 21

8-9AM Upper Cervical Neuro Examination continued

1. Frontal lobe neurophysiology 101
2. Frontal lobe history & physical exam
3. Early detection dementia
4. Assessing ADHD & ASD through the frontal lobe window

The frontal lobe has many functions. In this section we will discuss those functions as they relate to movement. We will review history and physical examination commiserate with frontal lobe function.

(1 Hr. CE; Lecture)

9-10AM Cranial nerves

1. The autonomic connection
2. Cranial nerve exam review
3. Polyvagal assessment

Success in improved Cranial Nerve (CN) function has been recorded for many decades in upper cervical chiropractic care. We will review an examination for each of the Cranial Nerves. We will also draw clinical applications with CN assessments.

(1 Hr. CE; Lecture)

10-11AM Brain axis

1. The brain axis and the Craniocervical junction
2. Gut inflammation and brain inflammation
 - a. The microglial system
3. Clinical pearls for assessment and care

The Brain axis is an important modulator of immune, endocrine and neurological function. An inflamed brain generally is associated with an inflamed gut. We will review the clinical significance of an upregulated microglial system.

(1 Hr. CE; Lecture)

11AM-12PM Putting it all together

1. Review the entire UC Neuro exam – hands on
2. Review of the literature
3. Question and answers session

There will be a hands-on walk through of the entire UC Neuro exam. A review of the literature in regard to the CCJ and examination findings. This session will conclude with a question/answer period.

(1 Hr. CE; Lecture)