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Chiropractic BioPhysics
CBP—The Science of Spinal Health

June 26, 2024

Module 12. CBP® Advanced--Full Spine Analysis & Techniques

Course Title: CBP Advanced--Full Spine Analysis & Techniques

Instructors: Dr. Deed Harrison, Dr. Joe Ferrantelli

Course Objective: This course provides an integrated education for the Doctor of Chiropractic in the science and art of full spine disorders. Detailed literature reviews covering the sagittal plane of the spine during pediatric development through age related change occurring in senior populations will be presented. Statistical correlations between each spinal region will be detailed so the Chiropractor understands how alterations in one region of the spine can influence regions above or below. A primary objective is to introduce the attendee to the anatomic variable of pelvic morphology (geometric alignment of the sacrum inside the ilia) and how variations and anomalies of pelvic morphology alter the sagittal plane alignment of the spine. Further, it will be explained how common anomalies such as how 4 lumbar vertebra, 6 lumbar vertebra, and transitional segments affect the sagittal plane alignment of the spine. In the end, details of case management using these topics will be covered using a variety of case studies for a comprehensive picture of clinical application of this course material. A survey of research material will be reviewed supporting the utilization and efficacy of CBP technique treatment methods across a population of patients with abnormal spine conditions.

Total Hours: **10**

<u>Wednesday</u>

9am – 11am **Review of Sagittal Plane Spinal Model Correlations and Basic Statistical Analysis**

- Biomechanics of posture: Rotations and Translations of the head, thorax, and pelvis.
- Harrison sagittal plane model of the cervical lordosis, thoracic kyphosis, and lumbar lordosis
- Pediatric, adult, and geriatric alignment for the sagittal spine curvatures
- Statistical correlations using scatter plots and linear regression models will be detailed so the relationship between sacral angle, lumbar lordosis, thoracic kyphosis, cervical lordosis, and sagittal balance can be understood
- Variables that influence/alter sagittal plane spine/posture alignment will be introduced: posture, age, vertebral shape, pelvic morphology, sacral morphology, 6 lumbars, 4 lumbars, and transitional vertebra.

11am – 1pm **Pelvic Morphology Defined:**

- Pelvic morphology is explained and defined: sacral geometry and connection of the sacrum to the ilia relative to the hip axis

- Pelvic morphology measurement methods: Angle of pelvic incidence (API), Pelvi-sacral angle, PR-S1 pelvic radius method, and Posterior Tangent Pelvic Incidence Angle (PTPIA)
- Pelvic morphology and aging and normative data sets will be detailed.

1pm – 3pm **Cervical-Thoracic Inlet Morphology Defined**

- Thoracic Inlet angle and correlation to T1 Slope
- Thoracic inlet angle measurement methods
- Cervical lordosis and thoracic inlet angles

3pm – 6pm **Pelvic Morphology Influence on Sagittal Plane Spine Alignment and Geometry**

- Pelvic Morphology influence and correlation to sacral base angle
- Pelvic Morphology influence and correlation to lumbar lordosis
- Pelvic Morphology influence and correlation to sagittal translation/balance
- Pelvic Morphology influence and correlation to thoracic kyphosis
- Pelvic Morphology influence and correlation to cervical lordosis
- Linear regression equations to use pelvic morphology to predict sagittal spine alignment in anomalies situations
- Mock patient cases to assess pelvic morphology's influence on the spine/posture alignment.

6pm – 7pm **Lumbar Spinal Anomalies and Clinical Case Management**

- 6-Lumbar vertebra: Normative lordosis values and global vertical axis line (VAL) at S1 for sagittal balance and postural alignment
- 4-Lumbar vertebra: Normative lordosis values and global vertical axis line (VAL) at S1 for sagittal balance and postural alignment
- Transitional vertebra: Normative lordosis values and global vertical axis line (VAL) at S1 for sagittal balance and postural alignment
- How to Choose which spinal region to treat/correct first for optimal spinal rehabilitation in simple and full spine subluxation conditions
- Pelvic Morphology (API = angle of pelvic incidence) examples applied to sagittal plane posture/spine treatment methods and outcomes in a variety of patient conditions