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## SPINE AND SPINAL DISORDERS

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**Cervical and lumbar spine: Analysis and relationship of biomechanical alterations/dysfunctions**Maria Elizabeth Herrera Lopez<sup>1</sup>, Montiel F E<sup>1</sup>, Carpio B L A, Saldaña M J J<sup>1</sup>, Bandala R C<sup>1,2</sup> and Gómez L M<sup>1,2</sup><sup>1</sup>Universidad Estatal del Valle de Ecatepec, Mexico<sup>2</sup>Superior School of Medicine at Polytechnic National Institute, Mexico

**Introduction:** Several researches have been conducted to correlate and analyze cervical, thoracic and lumbar spine by sections in a sagittal plane. Many cervical pain etiologies has been described with an incidence increase of 15% and divers biomechanical factors and cervical and lumbar spine curves alterations has been pointed out.

**Objective:** To analyze and correlate cervical and lumbar spine biomechanical alterations of asymptomatic college runners.

**Materials & Methods:** A group of 65 asymptomatic college runners with cervical and lumbar spine biomechanical alterations. Biomechanics deficiencies or alterations were measured and diagnosed by radiography using specialized software.

**Results:** Significant changes ( $p < 0.05$ ) with Pearson correlation and positive slopes were observed for some cervical and lumbar spine radiological measures: Cervical Spine Angle, Deep Measurement, Atlas Angle, Lumbar Lordotic Angle and Ferguson Line ( $p < 0.00$ ). A positive relationship was observed among the following radiological measures: Hypolordotic Cervical Angle and Atlas Extension Angle 87.8% ( $p < 0.00$ ), Hypolordotic Cervical Angle and Hypolordotic Deep Measurement 83.7% ( $p < 0.00$ ), no relationship was observed between Hypolordotic Cervical Angle and Hypolordotic Lumbar Angle but 81.6% was obtained.

**Conclusion:** Biomechanical alterations of Hypolordotic Cervical Angle were related with Atlas Extension Angle and Hypolordotic Deep Measurement. The studied sample had a biomechanical alteration of C1 and Cervical Lordotic Angle. In the lumbar area only a relationship between Lumbar Lordotic Angle and Ferguson Line was observed.

**Biography**

Maria Elizabeth Herrera Lopez has completed the degree of Doctor in Chiropractic from State University of Ecatepec Valley (UNEVE), Mexico. She has a Master's degree in Sport Science Medicine from Puebla University, Mexico and Pablo de Olavide University, Spain. She is pursuing PhD in Sports High Performance at Polytechnic Nacional Institute, Mexico. She is the Director of Chiropractic program at UNEVE and she is part of the Academic Body in Health Research.

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