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OCCUPATION, HABITUAL BEHAVIOR, AND THE LUMBAR VERTEBRAL COLUMN

ChristiAna N. Dunham

Abstract

Lumbar lordosis is a nonpathological condition of the lumbar vertebral column that describes the curvature, that evolved to minimize loading damage associated with bipedal locomotion. Hyperlordosis is a term used to describe an exaggerated curvature of the lumbar spine. While hyperlordosis can be caused by obesity, poor posture, and pathological and congenital disorders, there is still confusion surrounding why such a large amount of variation exists in the curvature of the lumbar column, especially if it is expected to be under strong evolutionary selection. This study investigates possible correlations between occupation and habitual behavior and variation in lumbar curvature. If present, such a correlation may be useful to the field of forensic anthropology. I measured the lumbar vertebrae of 132 individuals from the skeletal collections at University of Tennessee - Knoxville and Texas State University - San Marcos to calculate wedging angle, lumbar combined index, and lordotic angle of the lumbar column. Individuals were then grouped into two categories based upon the assumed amount of daily activity associated with their occupation and/or habitual activity. Additionally, various methods for calculating lumbar curvature were also compared to one another to determine their reliability. No significant difference was found between the curvature of the lumbar column of individuals who participated in little to no activity and those who participated in a fair to large amount of activity, except between activity levels in females for the sum of articular inferior facet angle (∑AF) method. Regarding method reliability, when compared to the ∑AF method, the wedging angle (WA) and lumbar combined index (LCI) methods were most reliable with moderate correlations of $r = 0.4258$ and 0.4432, respectively.