

Public Abstract

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MA

Anthropology

Lumbosacral Transitional Vertebrae: Classification of Variation and Association with Low Back Pain

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ABSTRACT

Low back pain (LBP) is a common ailment affecting over two-thirds of all adults in America. The association of lumbosacral transitional vertebrae (LSTV) and LBP, commonly referred to as Bertolotti's syndrome (Bertolotti, 1917), has a controversial history. Lumbosacral transitional vertebrae have the combined characteristics of both a normal lumbar vertebrae and a first sacral segment, caused by the overlap or shift of developmental fields. In order to accurately assess the connection between LSTV and LBP I present a classification system, derived from the specimens in the Hamann-Todd osteological collection, to identify different morphological types of LSTV. I also conducted an analysis of the variation in specific metric measurements. Then I applied that system to a sample obtained from a local clinic to identify those types associated with LBP. Analysis shows that LSTV have a definite affect on vertebral dimensions ($p < 0.0001$), even after the data was separated by sex. However, there was no consistent effect on the measurements, reflecting the idiosyncratic nature of LSTV. In the clinical setting, LSTV did not cause more intense back pain, but the prevalence was almost twice as common as in the skeletal sample. Lumbosacral transitional vertebrae with a unilateral morphology were the most common type observed in the clinical sample.