

# Investigation of the Effect of Spinal Defects on Spondylolysis and Stress Fracture of Vertebral Bodies

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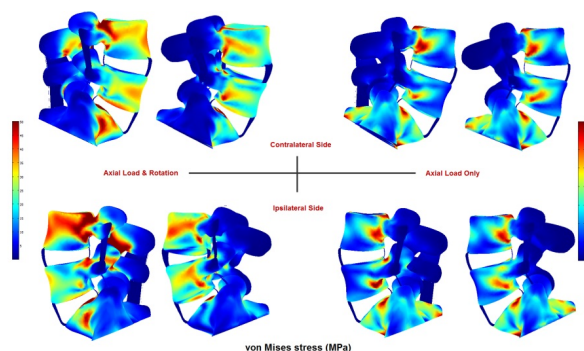
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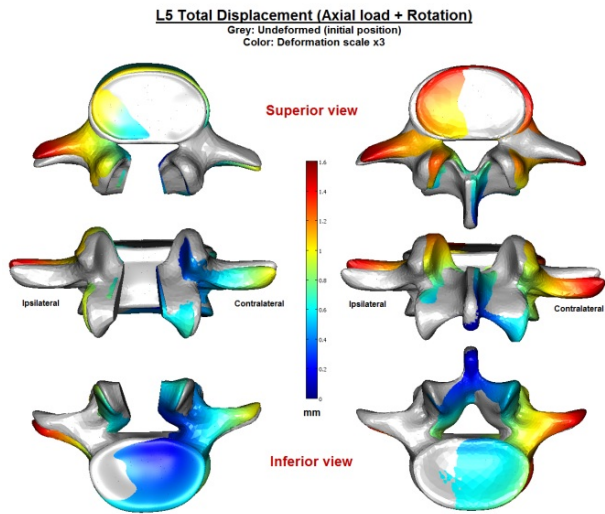
## Abstract

Spondylolysis (SL) is a defect of the spinal vertebra, and is typically caused by stress fracture of the pars interarticularis bone of the vertebral arch. It is especially common in adolescents who over train in sporting activities. Spina bifida occulta (SBO) is a malformation of the spine where the protruding vertebral bodies are not fully formed. In this study we demonstrate the predisposition of SL associated with SBO, by showing that fatigue failure limits in the pars interarticularis bone of the vertebral arch are reached in the case of Spina bifida occulta (SBO) patients subjected to complex loading conditions corresponding to normal sporting activities.

## Figures used in the abstract



**Figure 1:** von Mises Stress in vertebral bodies in both Natural & SBO spinal models.



**Figure 2:** Displacements (3x) of vertebral bodies relative to initial position in both Natural & SBO Models, under axial rotation.