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Biomechanical study of different fixation techniques for the treatment of sacroiliac joint injuries using finite element analyses and biomechanical tests

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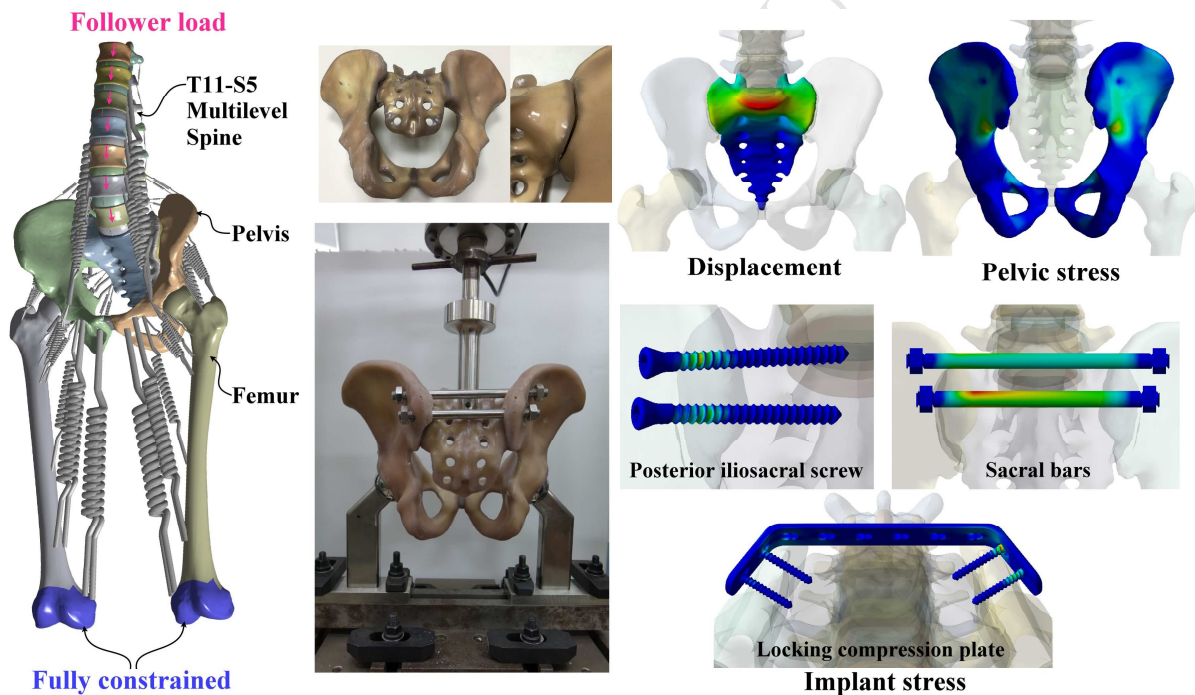
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Three-dimensional finite element models of the spine-pelvis-femur complex with and without muscles and ligaments were developed. The intact pelvis, the pelvis with sacroiliac joint injury, and three types of pelvic fixation techniques were analyzed. Concurrently, biomechanical tests were conducted to validate the numerical outcomes using artificial pelvises. Posterior iliosacral screw fixation showed relatively better fixation stability and lower risks of implant failure and pelvic breakage than sacral bar fixation and a locking compression plate fixation.



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