

PubMed

Display Settings: Abstract



[Eur Spine J.](#) 2004 May;13(3):199-205. Epub 2004 Feb 24.

Stabilization of the sacroiliac joint in vivo: verification of muscular contribution to force closure of the pelvis.

[van Wingerden JP](#), [Vleeming A](#), [Buyruk HM](#), [Raissadat K](#).

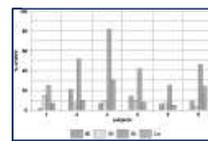
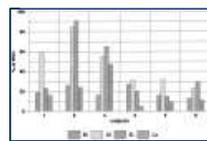
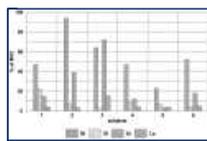
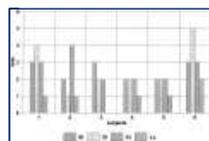
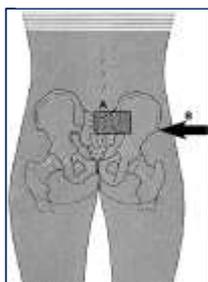
Author information

Abstract

A model of sacroiliac joint (SIJ) function postulates that SIJ shear is prevented by friction, dynamically influenced by muscle force and ligament tension. Thus, SIJ stability can be accommodated to specific loading situations. The purpose of this study was to examine, in vivo, whether muscles contribute to force closure of the SIJ. SIJ stiffness was measured using a verified method combining color Doppler imaging with induced oscillation of the ilium relative to the sacrum in six healthy women. SIJ stiffness was measured both in a relaxed situation and during isometric voluntary contractions (electromyographically recorded). The biceps femoris, gluteus maximus, erector spinae, and contralateral latissimus dorsi were included in this study. Results were statistically analyzed. The study showed that SIJ stiffness significantly increased when the individual muscles were activated. This held especially true for activation of the erector spinae, the biceps femoris and the gluteus maximus muscles. During some tests significant co-contraction of other muscles occurred. The finding that SIJ stiffness increased even with slight muscle activity supports the notion that effectiveness of load transfer from spine to legs is improved when muscle forces actively compress the SIJ, preventing shear. When joints are manually tested, the influence of muscle activation patterns must be considered, since both inter- and intra-tester reliability of the test can be affected by muscle activity. In this respect, the relation between emotional states, muscle activity and joint stiffness deserves further exploration.

PMID: 14986072 [PubMed - indexed for MEDLINE] PMCID: PMC3468133 [Free PMC Article](#)

Images from this publication. [See all images \(6\)](#) [Free text](#)



MeSH Terms

LinkOut - more resources



PubMed Commons

[PubMed Commons home](#)

0 comments