

# ABSTRACT

The differential diagnosis of back and leg pain should include sacroiliac joint disease as the prevalence of sacroiliac joint pain appears to range from 13%-30%, thus making the sacroiliac joint a significant source of pain in patients with chronic low back pain.

Sacroiliac syndrome is well-defined and usually presents with pain over the sacroiliac joint in the region of the posterior superior iliac spine, with possible referral to the buttock, groin, and leg.

Most patients with sacroiliac syndrome seem to present with spastic or hyperactive muscles which leads to increased pain and decreased range of motion. Because of the close proximity of the Piriformis muscle to the sacroiliac joint, it is likely to be one of these hyperactive muscles. Various studies on low back pain, including a study on sacroiliac syndrome, have shown a correlation between low back pain, hip rotation range of motion asymmetry, and decreased hip mobility.

In addition, the muscles responsible for movements of the hip have an overlapping innervation with the hip joint (L2 to S1) and sacroiliac joint (L2 to S3). It is assumed that the hypertonic muscles associated with sacroiliac syndrome decrease hip joint proprioception as the proprioceptors are facilitated erratically in a highly facilitated neuronal pool common to the innervation levels of the sacroiliac joint and the hip and associated with the level of the involved hypertonic muscle. This is thought to result in aberrant proprioceptive function at the identified levels, affecting the hip.

Thus the aim of this study was to investigate the effect which sacroiliac joint manipulation had on hip functional ability in patients suffering from sacroiliac syndrome by means of various measurement tools:

- Active hip joint ranges of motion were assessed using an Inclinator,
- Pressure threshold of the Piriformis muscle was measured by using an Algometer, and
- Hip joint proprioception was assessed by measuring joint position sense of the hip joint using an Inclinator.

Subjective data was obtained via the numerical pain rating scale-101 (NRS-101), and the Revised Oswestry Low Back Pain Disability Index questionnaire to see the effect of sacroiliac joint manipulation on sacroiliac syndrome.

The study design was a crossover clinical experiment consisting of sixty patients between the ages of 25-45 suffering from sacroiliac syndrome. Thirty males and thirty females were randomly divided into two groups of thirty, each containing fifteen males and fifteen females. Group A received a sacroiliac manipulation at every visit for the first three visits, and group B just received motion palpation of their sacroiliac joints. At visit four a crossover occurred and group A received only motion palpation and group B received a sacroiliac manipulation at every visit for the next three visits. Subjective data was obtained at visit 1, 4, and 7 and objective data at visit 1, 2, 4, 5, and 7.

Baseline comparisons between the categorical baseline variables and the group to which the participant was assigned were done using Fisher's exact test. Continuous baseline variables that were not normally distributed were compared between groups using a non-parametric Wilcoxon Mann-Whitney test. Continuous normally distributed baseline data were compared using the two sample t-test. The differences obtained in each of the periods of the cross-over design were analysed using a repeated measures analysis of variance (ANOVA). To determine the effect of certain baseline variables on the treatment, a repeated measures ANOVA was done with the baseline variables included as covariates.

The results indicated that sacroiliac joint manipulation had a significant effect on sacroiliac syndrome and hip joint range of motion. Manipulation also improved hip joint proprioception, however the improvement was immediate and not sustained. It was suggested that other proprioceptive exercises be performed between manipulations. The effect of manipulation on Piriformis muscle pressure threshold was beneficial but not significantly so.

In conclusion it is suggested by the researcher that sacroiliac joint manipulation be used for sacroiliac syndrome and in the prevention of hip joint pathologies occurring due to erroneous muscle contraction, decreased hip joint range of motion and/or decreased hip joint proprioception.