**Article Full Title**

Effectiveness of Exercise Therapy and Manipulation on Sacroiliac Joint Dysfunction: A Randomized Controlled Trial

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**Paper Abstract**

Background: The sacroiliac joint dysfunction (SIJD) has been found to be the primary culprit for lower back pain (LBP), but it is still overlooked and treated as LBP. There are no guidelines or appropriate therapeutic protocols for SIJD. Thus, there is a need for an effective treatment strategy for SIJD. Objective: To compare exercise therapy (ET), manipulation therapy (MT), and a combination of the 2 (EMT) in terms of their effectiveness in treating SIJD. Study Design: A comparative, prospective, single-blind randomized controlled trial. Setting: Sports Medicine Department of Rasoul Akram Hospital. Methods: A total of 51 patients with lower back or buttock pain resulting from SIJD were randomly assigned to 1 of 3 study groups: ET, MT, or EMT. The ET group received posterior innominate self-mobilization, sacroiliac joint stretching, and spinal stabilization exercises. The MT group underwent posterior innominate mobilization and SIJ manipulation. Lastly, the EMT group received manipulation maneuvers followed by exercise therapy. Pain and disability were assessed at 6, 12, and 24 weeks after the interventions. Results: All 3 groups demonstrated significant improvement in pain and disability scores compared to the baseline (P &lt; 0.05). The difference among these therapeutic protocols was found to be a function of time. At week 6, MT showed notable results, but at week 12, the effect of ET was remarkable. Finally, at week 24, no significant difference was observed among the study groups. Limitations: A major limitation of the present study is lack of a control group receiving a type of intervention other than the experimental protocols. Another limitation is the short duration of follow-ups. Conclusions: Exercise and manipulation therapy appear to be effective in reducing pain and disability in patients with SIJD. However, the combination of these 2 therapies does not seem to bring about significantly better therapeutic results than either approach implemented separately. Key words: Exercise therapy, manipulation therapy, sacroiliac joint dysfunction

**NIH Risk of Bias Tool**

Quality Assessment of Controlled Intervention Studies

1. **Was the study described as randomized, a randomized trial, a randomized clinical trial, or an RCT**

Yes

1. **Was the method of randomization adequate (i.e., use of randomly generated assignment)?**

Yes

1. **Was the treatment allocation concealed (so that assignments could not be predicted)?**

Cannot Determine, Not Reported, or Not Applicable

1. **Were study participants and providers blinded to treatment group assignment?**

No

1. **Were the people assessing the outcomes blinded to the participants' group assignments?**

Cannot Determine, Not Reported, or Not Applicable

1. **Were the groups similar at baseline on important characteristics that could affect outcomes (e.g., demographics, risk factors, co-morbid conditions)?**

Yes

1. **Was the overall drop-out rate from the study at endpoint 20% or lower of the number allocated to treatment?**

Yes

1. **Was the differential drop-out rate (between treatment groups) at endpoint 15 percentage points or lower?**

Cannot Determine, Not Reported, or Not Applicable

1. **Was there high adherence to the intervention protocols for each treatment group?**

Yes

1. **Were other interventions avoided or similar in the groups (e.g., similar background treatments)?**

Yes

1. **Were outcomes assessed using valid and reliable measures, implemented consistently across all study participants?**

Yes

1. **Did the authors report that the sample size was sufficiently large to be able to detect a difference in the main outcome between groups with at least 80% power?**

No

1. **Were outcomes reported or subgroups analyzed prespecified (i.e., identified before analyses were conducted)?**

Yes

1. **Were all randomized participants analyzed in the group to which they were originally assigned, i.e., did they use an intention-to-treat analysis?**

Yes

**Key Finding #1**

All three treatment options succeeded in relieving pain and improving functionality for a period of 24 weeks compared to baseline.

**Key Finding #2**

The therapeutic effect of manual therapy appeared more quickly (at week 6) than exercise therapy alone.

**Key Finding #3**

Exercise therapy proved to be more effective in improving functionality at week 12 than manual therapy alone.

**Key Finding #4**

No significant difference observed between exercise therapy, manual therapy, or exercise therapy and manual therapy after 6 weeks.

**Please provide your summary of the paper**

This single-blind randomized controlled trial followed 56 patients with SI joint dysfunction (SIJD) over a 24-week span. They assessed effects at 6, 12, and 24 weeks to discover the impact, immediately and over time, of exercise therapy and manual therapy combined versus manual therapy or exercise therapy alone on SIJD. The exercise therapy group performed assigned exercises at home and at one in-person office visit per week. The manual therapy group received 2 maneuvers from the same clinician each session, with the clinician repeating the maneuvers until the patient scored negatively on the Standing Forward Bending Test and the Gillet Test. The manual therapy and exercise therapy combined group received both interventions with the same parameters as noted above. The Visual Analog Scale, Oswestry Disability Index, and Roland Morris Back Pain Questionnaire were used to subjectively assess effects, while the timed up-and-go and self-paced walk tests were used to objectively assess effects. Results were recorded before intervention and at the 6, 12, and 24-week marks. At the 6-week mark, the manual therapy showed better results than both other groups, however, at the 12-week mark the exercise therapy group demonstrated better results. Finally, at the 24-week mark, there were no significant differences between results in the three groups. All three methods can be effective at reducing pain caused by SIJD but the researchers noted that a combination of manual therapy and exercise therapy would likely be the most effective to inact early improvements from the manual therapy intervention and lasting improvements from the exercise therapy intervention.

**Please provide your clinical interpretation of this paper. Include how this study may impact clinical practice and how the results can be implemented.**

This study is one of the first to assess the effects of manual therapy as compared to other treatment methods for SI joint dysfunction. While the pool of information is slightly larger for vague LBP, this article takes a specific focus that will likely be very helpful for clinicians treating patients with SI joint dysfunction. While the study may be missing a few nuances surrounding methods, it remains one of the only studies that offers research in this area and therefore can be considered a valuable resource.