

Effectiveness of Walk Standing Backbend Arch or Modified Anuvittasana in Patients with SI Joint Dysfunction: Experimental Study

A.K. Vijay Krishna Kumar¹, Varsha V², Suruthi R³

¹Principal, Department of Physiotherapy, Dr. B. R. Ambedkar Medical College and Hospital, Bangalore, India.

²Student, Department of Physiotherapy, Dr. B. R. Ambedkar Medical College and Hospital, Bangalore, India.

³Lecturer, Department of Physiotherapy, Dr. B. R. Ambedkar Medical College and Hospital, Bangalore, India

ABSTRACT

Background – Sacroiliac joint dysfunction is a painful musculoskeletal condition, responsible for 15-30% cases of low back pain, also called as Sacroiliac syndrome. It is a term often used to describe pain in and around the region of the joint that is due to traumatic, infection, inflammatory, degenerative, metabolic and biomechanical disorders of the joint (hypermobility and hypo mobility) and pathological conditions.

Methodology – The Study design is Experimental. Total 25 samples are selected conveniently for this study. Data was collected by using Pain perception on VAS (Visual Analog Scale) and Disability Score on Revised Oswestry Disability Index

Results – It has been proved significant that there is average improvement of 16.48 in ODI and 5.04 in VAS. The result of experimenting the effectiveness of walk standing position back bend arch or modified Anuvittasana among 25 individuals with SI joint dysfunction is proved significantly effective on the patients who has undergone the treatment for 7 sessions of 7 day.

Conclusion - It can be concluded from the present study that there is significant improvement in the pain, range of motion, activities of daily living that underwent walk standing position back bend arch or modified Anuvittasana exercise.

KEYWORDS: Sacroiliac joint dysfunction, Walk Standing Back Bend Arch or Modified Anuvittasana, VAS, Disability score on Revised Oswestry disability index.

ARTICLE DETAILS

Published On:
30 October 2021

Available on:
<https://ijmscr.org>

INTRODUCTION

Sacroiliac joint syndrome is a significance of pain in 15% to 30% of people with mechanical low back pain. In manual medicine, SIJ dysfunction is a potential cause of low back pain and prevalence rate of SI joint dysfunction is reportedly 13.8% to 47% in the general population¹. The SI joint dysfunction is defined as the pain in the region of the SI joint with possible radiation to the groin, medial buttocks and posterior thigh. The joint can be hyper or hypo-mobile which can cause the pain. Pain is usually localized over the buttocks, usually describes as sharp, dull, achy, stabbing or shooting pain over the affected joint. Patients can often complain of sharp, stabbing, shooting pain which extends down the posterior thigh usually not past the knee. Pain can frequently mimic and be misdiagnosed as radicular pain. Patients will frequently complain of pain, while sitting down, lying on the ipsilateral of pain or climbing stairs².

Etiology- True or apparent leg length discrepancy, Older age, Inflammatory arthritis, Previous spine surgery, Pregnancy, Trauma, Osteoarthritis, Ankylosing spondylosis, Reiter's syndrome, Psoriasis arthritis, Inflammatory arthritis, Enteropathic arthritis³.

Mechanism of injury- Direct fall on buttocks, Motor vehicular accident, causing injury to side of the pelvis, Misjudged height leading to sudden heel while climbing down, Lumbar surgery in past leading to mechanical disturbances in musculoligamentous support system, Gravid/para patients⁴.

Signs and symptoms- Low back pain, Thigh pain, Local tenderness of the posterior aspect of the sacroiliac joint (near the PSIS)^{2,5}, Pain occurs when the joint is mechanically stressed e.g. forward bending, Absence of neurological deficit/nerve root tension signs, Aberrant sacroiliac movement pattern⁶. Pain is usually localized over the buttock, Patients can often complain of sharp, stabbing, and/or

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shooting pain which extends down the posterior thigh usually not past the knee, Pain can frequently mimic and be misdiagnosed as radicular pain, Patients will frequently complain of pain while sitting down, lying on the ipsilateral side of pain, or climbing stairs².

Physiotherapy is one of the most widely used forms of treatment in SI joint dysfunction Manipulations including high-velocity low-amplitude and Mulligan mobilization with movement^{8, 9}. Modalities like Ultrasound with or without phonophoresis, moist heat therapy or cold therapy and TENS, IFT⁹. Activity Modification, stretching, strengthening, and stabilizing pelvic floor muscles; correcting gait abnormalities; and addressing postural and dynamic muscle imbalance⁷.

NEED OF THE STUDY

Mainly the need of the study is that to know how effective the Walk standing position back bend Arch or modified Anuvittasana exercise in patient suffering with SI joint dysfunction.

STUDY CRITERIA

- ❖ Study design:-The study design is Experimental.
- ❖ Sample size:-A sample size of 25 individuals of both the sexes (Male and Female) will be taken among the age group of 25-60 years of age suffering from SI joint dysfunction.
- ❖ Study population: - Individuals who have taken treatment in “Department of Physiotherapy, DR. B.R. Ambedkar Medical College and Hospital, Bangalore” with fulfilling the inclusion and exclusion criteria of this study are the population of this study. The investigator use the convenience sampling technique due to the small size of population and is the one of the low experience and quicker method of sample collection.
- ❖ Sampling technique:-Purposive/Convenience sampling method.
- ❖ Criteria for selection :-
 - ❖ Inclusion criteria-
 - Chronic Low back pain greater or 1months of duration
 - Subjects aged between 25-60 years of age
 - Sex- Male and Female
 - Tenderness over the sacroiliac joint particularly on the sacral sulcus (Fortin finger test – Positive)
 - Gaensan’s, Faber’s, Distraction and Compression and is positive for SIJD
 - ❖ Exclusion criteria
 - Acute injury or fracture
 - During pregnancy
 - Inflammatory pathology
 - History of lumbar spine surgery

- Hypermobility of SIJ
- Renal impairment
- CNS disorders
- Peripheral vascular disorders

Pain perception using Visual Analog scale (VAS)-

The pain VAS is a unidimensional measure of pain intensity.

QUESTIONNAIRE

The Revised Oswestry Disability Index (also known as the Revised Oswestry low back pain disability questionnaire).

METHODOLOGY

A Sample size of 25 individuals of both male and female were taken among the age group of 25-50 years with SI joint dysfunction. SI joint dysfunction is diagnosed with the help of Gaenslen’s test, Faber’s test, Gillet’s test, Distraction and Compression test. Demographic data will be collected for each patients including age, sex, occupation, history. Revised Oswestry Low back pain Disability Questionnaire and VAS has been employed to assess the pain among the individuals. By using this Questionnaire and VAS both pre and post comparison of the individual is done after the treatment. The procedure used here is “Walk Standing Back Bend Arch or modified Anuvittasana. The patients are asked to perform the Walk Standing Back Bend Arch or modified Anuvittasana for 5 repetitions of 10 counts. The individual patient receives the treatment for 7 sessions for 7 days and will be asked to perform the same exercise at home for 3 times a day.

PROCEDURE

Stand straight on the floor the whole body must be balanced and stabilized in correct alignment on feet with small base of support by coordinated work of many muscles groups. From standing position, walk standing position is achieved by placing one leg directly forwards to the other leg, so that the heel are two foot lengths apart in the sagittal plane, maintaining the same angle between the feet. Now slowly inhale by keeping your spine neutral, then exhale to arch your spine back or bend backwards as far as you feel comfortable.



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Remain in this position for about 10 seconds- this is 1 repetition Do 10 repetitions and repeat 3 times a day.

RESULTS

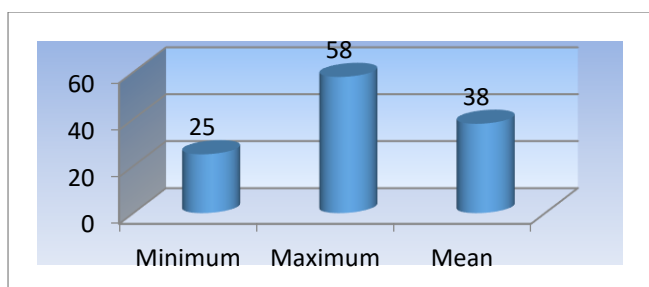
Data were numerically coded and analysed the data by using an SPSS 24 version. The investigator collected the descriptive data from the hospital and calculated as percentages and presented by using bar and pie graph and is tabulated in a table, for this study 25 individuals were taken as sample. Descriptive statistics is found using Mean, Standard deviation and Frequency percentage. Pre and Post comparison was done by paired t test. Significant level was set at 5%.

➤ AGE DISTRIBUTION:

Among the respondent participants who were suffering from SI joint dysfunction, the minimum age is 25 years and the maximum age is 58 years.

Table 1 - Mean and SD of Age

Age	N	Minimum	Maximum	Mean	Standard deviation
	25	25	58	38	9.848

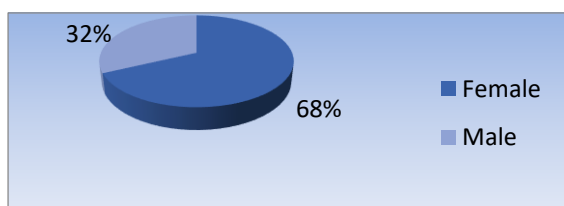


➤ GENDER DISTRIBUTION

Among the 25 respondent participants who were suffering from SI joint dysfunction, 8 are Male and 17 are Female. In percentage 32% of population were male and 68 % of population were female.

Table 2 - Gender Distribution

	Frequency	Percent
Female	17	68.0
Male	8	32.0
Total	25	100.0



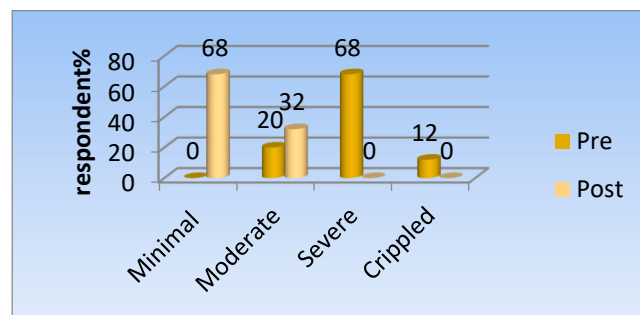
➤ PRE- PATTERN INTERPRETATION SCORE:

Among the 25 respondent participants who are suffering from SI joint dysfunction, the researcher had been collected the information about the patient's disability of an individual by Revised Oswestry Low Back pain disability questionnaire.

Based on that the pre- pattern interpretation score has been analysed, in that the 12% were crippled, 68% were severely disabled and 20% were moderately disabled.

Table 3 – Pre-Interpretation Score

Pre pattern of disability	Frequency	Percent
Crippled	3	12.0
Severe	17	68.0
Moderate	5	20.0
Total	25	100.0



➤ POST- INTERPRETATION SCORE:

Among the respondent participants who were suffering from SI joint dysfunction, the researcher had been collected the information about the patient's disability of an individual by Revised Oswestry Low Back pain disability questionnaire. Based on that the post-interpretation has been analyzed that 68% were minimal disability and 8% were moderate disability.

Table 4 – Post Interpretation Score

Post- disability pattern	Frequency	Percent
Minimal	17	68.0
Moderate	8	32.0
Total	25	100.0

➤ PRE-POST COMPARISON IN ODI INTERPRETATION SCORE:

Any statistical test, is said to be statistically significant if the p-value < 0.05. If p-value > 0.05 we say that is not statistically significant.

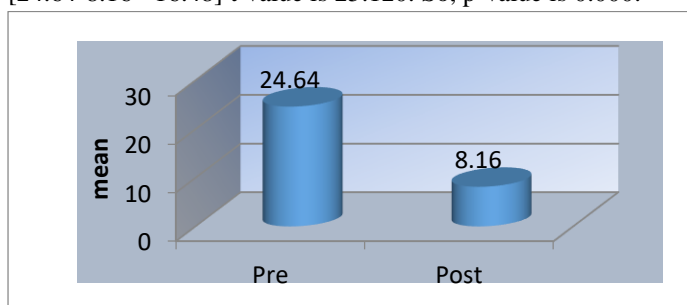
In the pre-post comparison table, pre-interpretation score is 24.64 with standard deviation 5.138 and the post-interpretation score is 8.16 with standard deviation 2.357.

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	Mean	N	Std. Deviation
Pre	24.64	25	5.138
Post	8.16	25	2.357

	Average improvement from pre to post	t-value	p-value	Result
ODI	16.48	25.120	0.000	p< 0.05

The above table show pre post mean score of ODI. Pre ODI score is 24.64 ± 5.138 and Post treatment the score reduced to 8.16 ± 2.357 Average improvement is 16.48 i.e. [Pre-interpretation score – Post-interpretation score] = [24.64-8.16= 16.48] t-value is 25.120. So, p-value is 0.000.



Here by, Pre post comparison by paired t-test shows average improvement from pre to post is 16.48 with p value < 0.05. There is statistically significant improvement in ODI from pre to post

➤ PRE-POST COMPARISON IN VAS INTERPRETATION SCORE:

Any statistical test, is said to be statistically significant if the p-value < 0.05. If p-value > 0.05 we say that is not statistically significant.

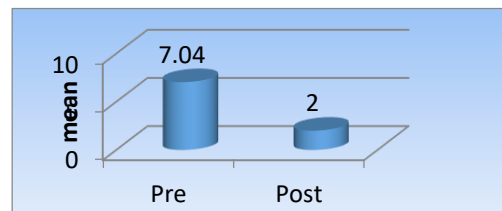
In the pre-post comparison table, pre-interpretation score is 7.0400 with standard deviation 1.01980 and the post-interpretation score is 2.0000 with standard deviation 1.04083.

	Mean	N	Std. Deviation
Pre	7.0400	25	1.01980
Post	2.0000	25	1.04083

The above table show pre post mean score of VAS. Pre VAS score is 7.0400 ± 1.01980 and

	Average improvement from pre to post	T-value	P-value	Result
VAS	5.04	37.129	0.000	p< 0.05

Post treatment the VAS score reduced to 2.0000 ± 1.04083 Average improvement is 5.04 i.e. [Pre-interpretation score – Post-interpretation score] = [7.0400 – 2.0000 =5.04] t-value is 37.129. So, p-value is 0.000.



Here by, Pre post comparison by paired t-test shows average improvement from pre to post is 5.04 with p value < 0.05. There is statistically significant improvement in VAS from pre to post.

DISCUSSION

All the participants were evaluated with data collection form, VAS score and Revised Oswestry low back pain disability Questionnaire. The assessment is made for pre and post interpretation score of an individual. In this the researcher explains the respondent participants about the Walk standing position back bend arch or modified Anuvittasana exercise. We ask them to perform this for 3 times a day with 10 repetitions of 10 counts. This will be asked the patients to perform the exercises for 7 days. Later the reassessment of the patients is done with VAS score and Questionnaire. Among that the according to age distribution of the sample says that 25 years was the lowest age and 58 years was the highest age with the mean age is 38. According to Gender distribution, 32% of population were male and 68 % of population were female. In Pre- pattern interpretation 12% were crippled, 68% were severely disabled and 20% were moderately disabled. In Post- pattern interpretation 68% were minimal disability and 8% were moderate disability. In the pre-post comparison, the interpretation score is said to be statistically significant if the p-value < 0.05. So, the conclusion is that there is significant increase in the improvement in the interpretation score after the treatment and the improvement is 16.48 in ODI and 5.04 in VAS. At last we can say that the patients who were suffering from SI joint dysfunction were decrease in their pain and effectively improved ROM, ADL's, by performing Walk standing position back bend arch or modified Anuvittasana exercise. So, it can be included in the physiotherapy treatment for SI joint dysfunction.

CONCLUSION

It can be concluded from the present study that there is significant decrease in the pain, improvement in range of motion, activities of daily living that underwent walk standing position back bend arch or modified Anuvittasana exercise.

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