

ISSN : 2395-4132

THE EXPRESSION

An International Multidisciplinary e-Journal

Bi-Monthly Refereed & Indexed Open Access e-Journal



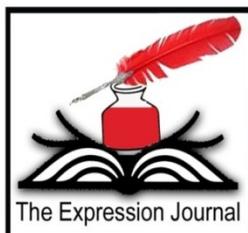
Impact Factor 3.9

Vol. 4 Issue 1 February 2018

Editor-in-Chief : Dr. Bijender Singh

Email : editor@expressionjournal.com

www.expressionjournal.com



EFFECTIVENESS OF STRETCHING AND STRENGTHENING EXERCISES IN PATIENTS WITH POSTURAL LOW BACK PAIN

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Abstract

Low back pain is characterized as pain and distress underneath the costal edge or more the second rate gluteal overlap, without or with alluded leg pain. It might be experienced as throbbing, copying, cutting, sharp or dull, well-characterized, or dubious with force running from mellow to severe. It is described by a hub or para sagittal uneasiness in the lower lumbar district and is musculoskeletal in nature. Low back pain can be delegated intense or interminable dependent on the side effect span. Another arrangement of back pain depends on the hidden reason with non-explicit low back pain bring detailed more frequently than a known reason. An intense scene of low back pain further gives a background marked by having repeat rate of 52-60% over a one year follow up which was professed to be business related. History of back pain goes back to the season of Hippocrates where antiquated strategies were utilized in diagnosing and treating pain. From that point forward low back pain has experienced broad research so as to discover the causative elements in charge of the weakening condition. With headway in therapeutic science different reasons for low back pain have surfaced. Reasons for low back pain can be delegated alluded pain disorders and non-alluded pain disorders. Alluded pain disorders incorporate sacroiliac joint disorders, back joint disorders and nerve root compressions. Nerve root compressions normally detailed are herniated plate sores and sidelong spinal stenosis. Non alluded pain disorders are fundamentally caused because of nearby hard and delicate tissue pathology. Basic conditions incorporate muscle strains, tendon sprains and muscle irregular characteristics.

Keywords

Postural Back Ache, Janda's Approach, Stretching Exercises and Strengthening Exercises.

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Introduction

Low back pain is a well-recorded noteworthy medical issue with lifetime frequency somewhere in the range of 54% and 90%. Clinical perceptions recommend that distortions of stance may assume a job in the advancement of low back pain. McKenzie stated that low back pain (postural syndrome) could result from delayed overstretching of the innervated delicate tissues when poor sitting or standing stances were kept up. Postural low back pain is regularly connected with lopsided characteristics in hip muscle length and strength. Moreover, Janda first noted shortcoming of the gluteal muscles in patients with low back pain.

Janda distinguished two gatherings of muscles dependent on their phylogenetic advancement yet practically, muscles can be delegated tonic or flexors and phasic or extensors. It was noticed that the tonic framework muscles were increasingly inclined to snugness or shortness and the phasic framework muscles would more often than not experience shortcoming or hindrance and that this reaction relied upon the neurological reaction of nociception in the strong framework. Lower crossed disorder is portrayed by assistance of the thoraco-lumbar extensors, rectus femoris, and iliopsoas, just as restraint of the abs (especially transversus abdominus) and the gluteal muscles. There is developing proof that the back pain populace isn't a homogeneous gathering and postural variability, regarding exasperating and calming stances might be a useful method to clarify some various subgroups.

History and Prevalence

The historical backdrop of low back pain goes back to 1,500 BC with the notice of the most punctual enduring content by Edwin Smith's papyrus that expressed afflictions as intense sprain of the spinal section. Copus Hippocrates in 400 BC is the pioneer of western drug, in his compositions back pain was referenced as a side effect of 'brief' pain with nearby and removed wellsprings of origin. Low back pain is characterized as pain that is confined between the twelfth rib and the second rate gluteal folds, without leg pain.

The Expression: An International Multidisciplinary e-Journal

(A Peer Reviewed and Indexed Journal with Impact Factor 3.9)

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ISSN: 2395-4132

An orderly survey was done on low back pain in 2012 and examined 165 investigations on overall public from 54 nations. The investigations were taken from a timespan of 1980 to 2009. The outcomes expressed that low back pain is a noteworthy reason with most astounding commonness in females matured 40-80 years. The mean + SEM point commonness was 11.9+2.0% and 23.2+2.9%. The commonness of low back pain in 401 men and 403 ladies matured 20 or more in Southern India were 28.4% and 52.9% separately in Indian populace. Patients who experienced low back pain were of lower financial status. The lifetime commonness of low back pain was observed to be 84%. The predominance of constant low back pain was 23%. Around 11-12% populace were impaired by low back pain.

Materials and Methods

Institutional Review Board Approval: The study was approved by the institutional review board and was conducted in conformity with the ethical and humane principles of research.

Patient Enrolment: A sum of 40 subjects was selected from different out-patient divisions of the Tertiary Care Set-up in India. The subjects were screened dependent on the consideration and prohibition criteria. The incorporation criteria were subjects determined to have postural back throb, both male and female s age bunch 18-60 yrs, overstated lumbar lordosis, pain with radiation, subjects willing to take an interest in the investigation. The rejection criteria was: past back medical procedure, any indications of neurological impairment, lumbar waterway stenosis, pregnant women's, spine break, spondylo-listhesis.

Method: Participants were selected from a Tertiary Care Set-up. A short history was taken about the neurological and musculo skeletal evaluation for instructive profile and financial statuses per the consideration criteria. The evaluation took around 15-20 minutes. The investigation convention was disclosed to the members. They were approached to peruse the educated assent altogether and those members willing to participate in the investigation gave a composed educated assent. The patients were allocated into the two groups; Control Group and Experimental Group. The gauge and post-intercession estimations of the mediations utilizing the result measures were finished.

Gathering A got Short wave diathermy (SWD) and Core dependability practices for 10 sessions. SWD was given with 500 watt electro-care diathermy machines with recurrence of 27.33 MHz. The treatment was allowed for 15 minutes every day for 10 sessions. Eight center security activities were given for 20 reiterations with 8 second hold. Group B got SWD and Core soundness practices that were equivalent to the control gathering. Following this was the extending protocol [11] for the iliopsoas, rectus femoris and erector spinae alongside fortifying of the abs and the gluteal gathering of muscles given for 10 reiterations of 3 sets. Outcome measures: Pain force was given by Visual Analog Scale (VAS, 0= no pain: 100=unbearable pain). Every one of the members finished the VAS by demonstrating the normal pain level experienced when the intervention. Lumbar lordosis list is approved parameter for sagittal malalignment examination and can be utilized as a tool to detect spinal malalignment. It has are liability of $r = -0.978$.

Straight Leg Raise testis performed to survey the capacity to raise the leg without bowing at the knees. This test is broadly used to distinguish any pathology at the pelvis and at the hip .Patrick testis a

Vol. 4 Issue 1 (February 2018)

Editor-in-Chief: Dr. Bijender Singh

The Expression: An International Multidisciplinary e-Journal

(A Peer Reviewed and Indexed Journal with Impact Factor 3.9)

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ISSN: 2395-4132

demonstrative test that requires a mix of flexion, snatching and outer turn at the hip which has an affectability of 0.82(95% CI 0.57-0.96) .Sit and achieve test is usually used to gauge the low back and hamstring adaptability. It is con-sidered that the erector spinae muscles are focused when the head is twisted down. Tho-mas test is additionally called as the rectus femoris compression test or Kendall test to evaluate the adaptability of the rectus femoris muscle about the knee joint. Iliopsoas muscle adaptability was resolved abstractly Thomas tests. For ili-opsoas adaptability, the normal inclinometer edge was - 10.60° ± 9.61°. The basic criteria for ili-opsoas adaptability were resolved to be - 9.69° [20, 15].

Manual muscle testing is solid with great consistency when rehashed. MMT has likewise been demonstrated to be genuine assessment apparatus for estimation of the musculoskeletal frameworks.

Statistical Analysis: Statistical analysis for the present investigation was done physically just as utilizing statistical bundle of social sciences (SPSS) form 17 to confirm the outcomes acquired. For this reason the information was gone into an exceed expectations spreadsheet, classified and exposed to statistical analysis. Illustrative measurements (mean and standard deviation) were figured for all information. Statistical estimates, for example, mean, standard deviation and different trial of centrality, for example, Wilcoxon, Mann WhitneyU Test, Un-paired& Paired t Test. Various statistical trial of hugeness were finished. Likelihood esteems under 0.05 were viewed as statistically critical and probability esteems under 0.001 were considered exceptionally noteworthy.

Results

Both the control and experimental groups were administered for the result estimates pre intervention and post tenth intercession. The demographic data and clinical characteristics of the subjects are displayed (Table 1). The test uncovered no critical contrasts in age, gender and weight list (BMI) ($p > 0.05$), which demonstrates that the gatherings had similar demographic attributes. The sexual orientation (M: F) distribution for gathering A was 6:14 and for gathering B was 7:13 (Graph 1). The mean ± SD of age for Group A was 33.30±9.79 years and for Group B was 37.80±8.68 years (Graph 2) with a p estimation of 0.1324. The mean±SD for Group An and Group B of BMI was 25.09±4.36 kg/m² and 24.90±4.44 kg/m² individually with a p estimation of 0.8916. (Graph 3)

Table1: Comparison of two groups (Group A & Group B) with respect to Gender, Age and BMI.

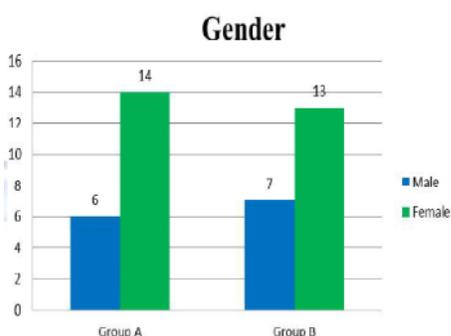
| | Group A | Group B | p value |
|-----------------|------------|------------|---------|
| Gender (M:F) | 6:14 | 7:13 | |
| Age (mean ± SD) | 33.30±9.79 | 37.80±8.68 | 0.1324 |
| BMI (mean ± SD) | 25.09±4.36 | 24.90±4.44 | 0.8916 |

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Editor-in-Chief: Dr. Bijender Singh

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Graph 1: Age Distribution for Group A and Group B



Graph 2: Comparison of mean & SD for Group A and Group B in terms of Age.

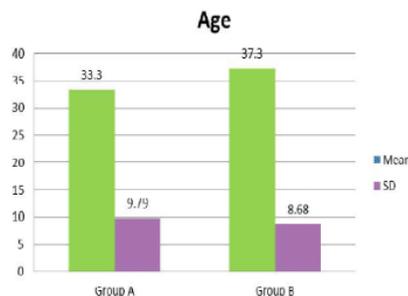
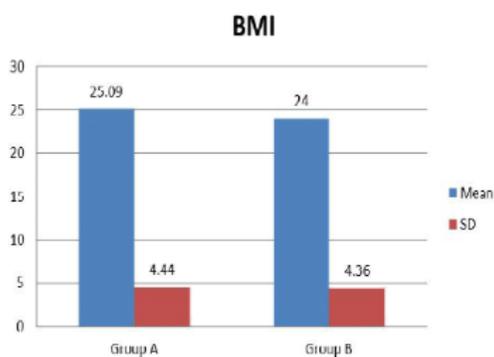


Table 2: Comparison between Group A & Group B with respect to VAS Scores, Index of Lumbar Lordosis, Strength of Abdominals & Gluteals and Flexibility of Iliopsoas, Rectus Femoris & Erector Spinae.

| OUTCOME MEASURES | DIFFERENCE IN VALUES (INTER-GROUP VALUES) | | | |
|------------------------------|---|--------------|----------|---------|
| | GROUP A | GROUP B | p value | z value |
| VAS | 1.34 ± 0.92 | 2.57 ± 1.01 | 0.00001* | -3.76 |
| Index Of Lumbar Lordosis | 5.65 ± 3.41 | 7.87 ± 3.05 | 0.00001* | -2.7182 |
| Abdominal Strength | -0.30 ± 0.47 | -1.30 ± 0.57 | 0.00001* | -4.0845 |
| Gluteal Strength | 0.30 ± 0.47 | 1.15 ± 0.59 | 0.00002 | -3.4489 |
| Iliopsoas Muscle Length | 25.55 ± 1.73 | 24.95 ± 2.68 | 0.0456 | -11.759 |
| Rectus Femoris Muscle Length | 7.10 ± 2.77 | 19.65 ± 4.98 | 0.0425 | -9.8542 |
| Erector Spinae Muscle Length | 7.10 ± 2.77 | 19.65 ± 4.98 | 0.00001 | -9.2665 |

Graph 3: Comparison of mean & SD for Group A and Group B in terms of BMI.



Mean reduction in VAS was 1.34 ± 0.92 cm for Group A and 2.57 ± 1.01 cm for Group B with a p estimation of 0.00001. The mean contrast in the list of lumbar lordosis for Group A was 5.65 ± 3.41, Group B the mean increment was 7.87 ± 3.05 with a p estimation of <0.001. The mean increment in quality of abs for Group A was 0.30 ± 0.47, Group B the mean increment was 1.30 ± 0.57 with a p estimation of 0.00001. The mean increment in quality of gluteals for Group A was 0.30 ± 0.47, Group B the mean increment was 1.15 ± 0.59 with a p estimation of 0.00002. The mean increment in adaptability of rectus femoris for Group A was 7.10 ± 2.77, and Group B the mean increment was 19.65 ± 4.98 with a

The Expression: An International Multidisciplinary e-Journal

(A Peer Reviewed and Indexed Journal with Impact Factor 3.9)

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ISSN: 2395-4132

p estimation of 0.0425. The mean increment in adaptability of iliopsoas for Group A was 2.55 ± 1.73 , Group B the mean increment was 10.95 ± 2.68 with a p estimation of 0.0456. The mean increment in adaptability of erector spinae for Group A was 7.10 ± 2.77 , Group B the mean in-wrinkle was 19.65 ± 4.98 with a p estimation of 0.00001. (Table 2)

Discussion

The present controlled preliminary was expected to discover the adequacy of Stretching and Strengthening Exercises in subjects with Postural Low Back Ache for 10 sessions regarding pain reduction utilizing VAS, improvement in the file of lumbar lordosis, muscle quality of abs and gluteals and adaptability of iliopsoas, rectus femoris, erector spinae. SWD & center muscle fortifying activities was a typical traditional treatment given to both the gatherings. Alongside this, extending and reinforcing convention was a mediation included the control bunch for 10 sessions. In the present examination the age, gender & BMI demonstrated no statistical contrast in the two gatherings which speaks to the homogeneity of the subjects. Additionally, there was no critical contrast in the benchmark or pre-mediation esteems for VAS, file of lumbar lordosis and scores of solidarity of abs and gluteals and adaptability of iliopsoas, rectus femoris and erector spinae.

Impedances of lumbo pelvic muscle capacity may bargain the basic uprightness of the spinal complex, making it powerless to further injury, delayed recuperation, or chronicity of pain. Management of low back pain requires a comprehension of the sensori engine instruments used for Trunk adjustment and postural control. SWD has been a demonstrated successful methodology for constant low back pain which is reliable with the aftereffects of the investigation. An investigation presents utilization of solidarity exercises in recovery procedure of people with low back pain disorder and infers that expansion of muscle quality likewise constructive effect on scope of movement of trunk and lower appendages and abatement of pain in people with low back pain disorder. Additionally an efficient survey of randomized controlled preliminaries from Collaboration Back Review Group provide the evidence that specific exercises are effective for the treatment of acute low back pain and that these exercise may be helpful for patients with chronic low backpain to increase return to normal daily activities and work.

Mc Ceary suggested that in the erect position, weakness of abs allows a front pelvic tilt and a lordotic stance. In our study, a decline in file of lumbar lordosis clarifies a simultaneous reduction in front pelvic tilt that could have been brought about by fortifying of abs. The Janda approach incorporates a cautious analysis of muscle unevenness and its job in the propagation of the brokenness. The solid framework lies at a practical cross streets since it is affected by upgrades from both the CNS and the musculo skeletal frameworks. Muscles that will in general get feeble regularly go connected at the hip with muscles that will in general get tight.

Janda's methodology speculated that a weak muscle may simply be one that is repressed on account of a tight or hypertonic antagonist (Sherrington's law of proportional hindrance). He speculated that reestablishing muscle strain or the length of a tight muscle may unexpectedly encourage a weak rival. The standardization of muscle tone and length ought to be followed by explicit fortifying, development re-instruction, and intense exercise. When fringe structures are standardized,

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(A Peer Reviewed and Indexed Journal with Impact Factor 3.9)

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ISSN: 2395-4132

muscle parity is reestablished. Ordinary muscle tone encompassing joints must be reestablished. Sherrington's law of complementary restraint expresses that a hypertonic foe muscle might be reflexively hindering their agonist [26]. Therefore, within the sight of tight as well as short hostile muscles, reestablishing typical muscle tone and additionally length should initially be tended to before endeavoring to fortify a weakened or repressed muscle. Procedures to diminish tone must be explicit to the reason for the hypertonicity. Hilter kilter stress components ought to be killed so as to diminish bio mechanical over-burden and compromise.

Limitations: Firstly, due to little example estimate, the outcomes can't be generalized. Second, the present examination explored just the momentary impacts and did not consider any follow-up after the tenth session.

Future Scope of the Study: Further examinations can be led with a bigger example measure with a more extended follow-up period so as to research the long haul impacts of Janda's Approach in Postural Low Back Ache.

Conclusion

Stretching and strengthening exercises are effective in reducing pain, normalizing the lumbar lordosis curvature, increasing strength of abdominals and gluteals and increasing rectus femoris, iliopsoas and erector spinae.

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Vol. 4 Issue 1 (February 2018)

Editor-in-Chief: Dr. Bijender Singh

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(A Peer Reviewed and Indexed Journal with Impact Factor 3.9)

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ISSN: 2395-4132

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Vol. 4 Issue 6 (December 2018)

Editor-in-Chief: Dr. Bijender Singh