



A Study on the Effectiveness of William's Flexion Exercises on Non-Specific Low Back Pain

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ABSTRACT: One in three persons experience low back discomfort, which could be the highest global burden of disease. NSLBP is outlined as the rear pain results from posture that is poor due to which apt function of the muscles alters, it becomes dysfunctional after undergoing back pain. Among various acquirable options for management of low rear pain, William's flexion exertion is one among the known methods for treating back pain. The set of exertion referred to as William's flexion exercises is used within the study to enhance lumbar flexion and to manage low back pain by strengthening the muscles within the gluteus and abdominal regions.

The samples were collected from the physiotherapy outpatient department at AVMCH. The study comprised of patients who had non – specific LBP was chosen in accordance with the selection criteria for the study, pain prior to intervention was assessed using VAS and at the end of the final intervention of one week, the intensity of the pain was again noted. It is advised that other outcomes be added in the future to reach a higher level of dependability as this study was confined to one outcome and psychological elements were not taken into consideration. Results concluded that significant improvement in the reduction of pain following William's flexion exercise. This study demonstrated the value of William's flexion exercises for people with generalized low back pain was effective

Keywords: William's flexion exercise, Non- Specific Low back Pain and Visual Analog Scale.

INTRODUCTION

The discomfort and stiffness within the lower back are referred to as low back pain. Low back pain affects 84 percent of people at some point in their lives, making it a typical musculoskeletal disorder. Low back pain can have a sway on either gender. Typically, pain is assessed consistent with how long it lasts. Acute pain is defined as lasting less than a week, and a week to months is considered the chronic range for low back pain. With targeted therapy, the acute discomfort goes away in a week. Chronic pain can develop from this pain if it's not managed (Zehra, 2013).

Consistent with a global study of low back pain, prevalence rate was 15-30% and 1 month prevalence was 19-43 percent (Badley *et al.*, 1994). Consistent with studies conducted in developed nations, the prevalence of low back pain was 6.8percent in North America, 13.7 percent in Denmark, 12 percent in Sweden, 14 percent within the UK, 33 percent in Belgium, and 28.4 percent in Canada. In a similar, several studies in poorer nations have shown even higher incidence of 72.4 percent in Nigeria, 64.4 percent in China, and 56.2 percent in Thailand (Loney and Stratford 1999). Low back discomfort has been reported by over 60% of Indians at some point in their lives, which raises concerns about the prevalence of the condition (Koley and Sandhu 2009).

Muscle atrophy and decreased muscle activity have both been related to low back pain. This ends up in altered spinal mechanics, which can exacerbate the vicious circle of pain, discomfort, and spasm while boosting dysfunction and decreasing muscular stamina. LBP encompasses a direct correlation using the lumbar core muscles strength (Johnson, 2012). Despite no discernible improvement in patient outcomes or disability rates, Medicare payments for persons with low back pain have risen, including large increases in spending 629 % on epidural corticosteroid injections and 423 % opiate prescriptions (Deyo *et al.*, 2009).

Nonspecific low back pain is that the commonest musculoskeletal complaint and one among the foremost common health issues worldwide. The most common misconception is that 5–10% of people endure chronic pain, however reports of back pain recurrence contradict this (42–75%) and recurrences (24–84 %) are made. The frequency of low back pain has been mentioned numerous times in books and papers. Nonspecific pain in the lower back may be a common, incapacitating condition that harms the patient's emotional and physical well-being without being caused by a severe pathology. A study of national guidelines defines non-specific low back pain as an exclusion diagnosis when a radicular syndrome or a suspected or confirmed serious pathology such as an

infection, tumour, or fracture are ruled out (Zahoor *et al.*, 2021).

Lower back pain is the most common medical complaint because most people experience it at some point in their lives. A variety of simple physiotherapy exercises should be performed every day to help strengthen the muscles and ligaments (Jeganathan *et al.*, 2018).

The global Burden of Disease study recently listed low back pain as one of the top seven health issues affecting the global population. It is seen as a chronic, debilitating health disease that has a long-term impact on a person's life. Low back pain affects both work performance and general health, and it's also linked to high medical costs, making it one of the top causes of disability (Amila *et al.*, 2021).

For patients with persistent low back discomfort, Dr. Paul William developed William's flexion exercise, also known as lumbar flexion exercise or William's exercise, in 1937. His clinical observations that the majority of patients with chronic low back pain had deteriorating vertebrae as a result of degenerative disc disease prompted him to take this action (Akbar and Zainuddin 2020).

The William Flexion Exercise aims to relieve back pain by stretching the extensor muscle group and strengthening the muscles that represent the lumbosacral spine, especially the abdominal and maximal gluteus muscles. Additionally, it prevents tight intervertebral joints, lessens muscular spasms through a smoothing action, and checks poor posture. The William Flexion method of back exercise revealed a major improvement within the lowering of pain over the course of a month (3 times per week) (Amila *et al.*, 2021).

The Williams exercises include squats, partial sit-ups, hamstring and hip flexor stretches, single and double knee to chest lifts, and pelvic tilts. Consequently, the purpose of this study is to determine whether William's flexion exercises are useful for treating an extremely non-specific low back discomfort.

MATERIAL AND METHODS

The samples were taken from OPD of physiotherapy in Aarupadai Veedu Medical College & Hospital. Low back pain sufferers of thirty subjects without a known cause with the cohort of 25 to 65 years, chronic low back pain, both genders were included within the study; subjects were randomly taken through convenient sampling. The pain before intervention, were taken through VAS then the patients underwent to William flexion exercise, for the period of one week and at the end of the session VAS final score were recorded.

Treatment Procedure:

For Non-specific low back discomfort, William recommends the following flexion exercises:

1. Pelvic tilt: Lay flat on your back with your knees bent. Without pressing with the legs, flatten the small of your back against the floor.

2. Single knee to chest: Lay flat on your back with your feet flat on the floor and your knees bent. Pull

your right knee gradually towards your shoulder. Repeat with the other knee after lowering the first.

3. Double knee to chest: Start the exercise like the one did before. Pull the left knee to the chest after pulling the right knee, and hold both knees for five to ten seconds. Drop each leg one at a time.

4. Half sit-up: After performing the pelvic lift, slowly raise your hands and shoulders off the ground while maintaining this position. Return to the starting position carefully.

5. Hamstring stretch: Begin long-seated with knees completely stretched and toes pointed towards the wall. Maintaining extended knees, arms outstretched over the legs, and eyes focused front, slowly descend the trunk forward over the legs.

6. Hip Flexor Stretch: Put one foot in front of the other, flex the left knee on the front foot, and hold the right knee rigidly straight on the back. Flex forward through the trunk (arm pit region) until the left knee reaches the axillary fold. Repeat with the left leg in back and the right leg front.

7. Squat: Stand with your feet shoulder-width apart. The individual gently lowers his body by flexing his knees while attempting to keep his trunk as parallel to the floor as possible, his eyes fixed forward, and his feet flat on the ground.

Note: Each exercise is held for 5 to 10 seconds, followed by a 10 second break and three repetitions. One session / day for 7 days

Outcome Measure:

Visual Analogue Scale: The visual analogue scale (VAS) may be a proven, arbitrary way to score pain. A handwritten mark on a 10-cm line that indicates a continuum from "no pain" to "worst agony" is used to record scores. It is commonly used to quantify how painful various symptoms are. The patient sees this spectrum as continuous rather than as distinct leaps in pain as the categories of none, mild, moderate, and severe would imply.

Data Analysis: Frequency and percentage were used to summarise the categorical variables. The continuous variables were compiled as mean \pm standard deviation. Wilcoxon test was used to compare pre and post mean score. P values of 0.05 or below were regarded as statistically significant.

Table 1: Depicts the Mean Values of Pain Prior and Post.

		Mean	Std. Deviation	't' value	'p' value
VAS	PRE TEST	6.15	1.38697	12.568	<0.001*
	POST TEST	2.85	1.78517		

Between 25 - 35 years consist of 45% of subjects, in 36 - 45 years consist of 15 % of subjects, in 46 - 55 years consist of 25 % of subjects, and 56 - 65 years consist of 15 % of subjects. In gender distribution, 65% was male and 35% was female.

The mean VAS score was significantly reduced following treatment, the mean pain score was significantly reduced from (6.15 \pm 1.38697) before

treatment to (2.85 ± 1.78517) after treatment and 't' value 12.568, 'p' value 0.001 (Table 1, Fig. 1).

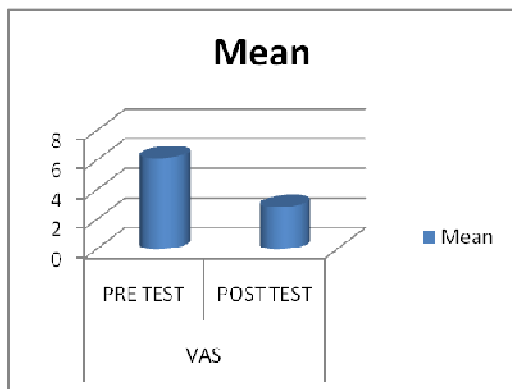


Fig. 1. Graph Depicts the Pre and Post Mean Values of Pain.

RESULTS

According to the findings of the current study, NSLBP patients who underwent William's flexion exercises experienced a considerable reduction in their pain score.

DISCUSSION

The results of the current study demonstrated that both sexes who suffer from non-specific low back pain and are between the ages of 25 and 65 can benefit from William's flexion exercise. The visual analogue scale was used as an outcome measure for pain, and the results showed that patients with nonspecific low back pain have seen a statistically significant improvement in pain reduction.

The outcome of the present study is related to other investigations, including the effectiveness of William's flexion exercises in the treatment of low back pain in a different study found that patients with low back discomfort have less pain after performing William's flexion exercises (Zehra *et al.*, 2013).

In another study use of William's Flexion exercises for the treatment of low back pain. The study's myogenic conclusion was that William's Flexion exercises are useful for treating low back pain (Wardianti and Wahyuni 2021).

In a study on the use of William's Flexion exercises in patients with low back pain issues, came to the conclusion that the William's Flexion exercise programme was successful in lowering pain scales in patients with low back pain issues. The result of these studies correlates with the current study (Akbar and Zainuddin 2020).

In an effort to treat low back pain without surgery, William's flexion exercises are a collection or system of physical activities designed to improve lumbar flexion, prevent lumbar extension, and strengthen the gluteal and abdominal muscles. The exercise is done on the floor or another flat surface while lying down.

Results from the William Flexion method are consistent with earlier research as an effective approach. The William Flexion method, designed to lessen pain and

disability and increase spinal mobility, entails repeated movements or prolonged postures. The stretching of ligamentous structures, opening of the intervertebral foramen, and consequent distraction of the apophyseal joints are the first three advantages. So the antagonist will relax when the agonist contracts, the muscles work as a couple. If this hasn't happened, the two muscles will pull against one another, restricting motion and causing discomfort.

This flexion exercise intends to stretch the muscles and fascia which raise the soft tissue extensibility in the dorso lumbar region, effective for correcting the wrong posture, and reduce the body's strain on the particular weight-bearing stress. By actively training the abdominal muscles, gluteus maximum, and hamstring to restore/improve the work balance between the postural flexor and extensor muscle groups, this flexion exercise also enhances stability within the lumbar area. As a result, the present study demonstrates a notable improvement in pain reduction after William's flexion exercise.

CONCLUSIONS

The present investigation came to the conclusion that William's flexion exercises significantly reduced discomfort after a week of intervention. Thus, people with non-specific low back pain benefit from William's flexion exercises.

FUTURE SCOPE

The result identified in this study can be exploited for LBP sufferers to lower prevalence

Conflict of Interest: None.

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