

A Pilot Study to Assess the Effectiveness of Pilates Exercise on Constipation for Internal Hemorrhoids Grade I and II

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ABSTRACT

Background: Hemorrhoids and constipation are the most prevalent gastrointestinal conditions. Numerous studies have been conducted to rule out the prevalence of hemorrhoids in many places. In 2011, a study showed a strong positive correlation between hemorrhoids and constipation. With the increased prevalence of hemorrhoids and lack of evidence-based studies to control constipation and internal hemorrhoids, we have proceeded to conduct a study to find out the effectiveness of Pilates exercise on Constipation for Internal hemorrhoids of Grade I and II.

Purposes: To find the Effectiveness of Pilates Exercise on Constipation for Internal Hemorrhoids Grade (I And II).

Method: The study design was a pilot study, 15 patients were selected from Sanjeevi Gastro and Maternity Care Center, Gingee, and Pilates exercise was given to the patient for six weeks. The Constipation Scoring System and Hemorrhoid Severity Score were used as the outcome measures, and measured in the pre-test and post-tests for six weeks.

Result: The statistical analysis was done using a paired test with the values of the significance of ($p < 0.05$). The group analysis of post values shows that the study is significant. After the statistical analysis, it

shows that there is improvement in reducing Constipation and internal Hemorrhoids. This shows that it proves to be an effective tool for efficiency.

Conclusion: The six-week study concludes the Pilates exercise shows significant improvement in reducing constipation by significantly reducing internal hemorrhoids in people with 30-60 aged.

Keywords: Internal hemorrhoids, constipation, Constipation Scoring System, Hemorrhoid severity score, Pilates exercise

INTRODUCTION

Hemorrhoidal disease is a type of anorectal disorder, which has been troubling mankind for the past decades. The patient exhibits symptoms like anal bleeding, pain, and itching sensation which significantly influences the quality of life of the diseased person. ⁽¹⁾ Hemorrhoids are commonly called piles, formed due to swollen blood vessels in or around the anus and rectum. Hemorrhoidal veins swell & their walls become stretched, thin, and irritated while passing stool or bowel movements. Generally, hemorrhoids are classified into two types: Internal & External.

Internal hemorrhoids are difficult to see with the naked eye or feel with the hand as it lies inside the rectum ⁽²⁾ The first degree of hemorrhoids is a bulge into the lumen of the

anal canal with or without bleeding. The second degree is prolapsed hemorrhoids and reduced spontaneously. ⁽¹⁾

In India, it is estimated that 40,723,288 persons are reported to have hemorrhoids. 1 million new cases are reported annually, 47 per 1000, and increases with the age group of 45-65yrs. It is estimated that 50-85% of people around the world have hemorrhoids and in India, 75% of the population is estimated.

Constipation refers to bowel movements that are not often frequent or hard to pass and maybe a general term accustomed to indicate fewer bowel movements. The person with constipation has signs of Solidified hard stools, painful defecation, and a feeling of bloating abdominal discomfort, or incomplete elimination. Constipation is one of the most common causes of painful bowel movements. ⁽⁴⁾

In 2011 and 2018 the study showed a relationship between Hemorrhoids and Constipation. ⁽⁵⁾⁽⁶⁾ And the 2011 study states that there was a significant association between constipation and hemorrhoids. ⁽⁶⁾ By 2018 study states that straining and constipation were seen in the majority of the patients with hemorrhoids. ⁽⁵⁾ Constipation often is characterized by straining and incomplete bowel emptying. ⁽⁷⁾ More importantly, excessive straining from constipation can damage the pelvic floor muscles. Since these muscles are responsible for opening and closing the sphincter. ⁽⁸⁾

Pilates done as mat exercise increases flexibility and strengthens the muscles through controlled movements, it improves mental health and physical well-being. ⁽⁹⁾

The Pilates method is based on 6 fundamental principles: Concentration, Centering, Control, Precision, Fluidity, Diaphragmatic breathing. Pelvic floor muscles or perineal muscles include levator ani, coccygeus, superficial and deep transverse perineal, and others. The principles of working above the structural components of the powerhouse will affect the muscles and joints of the pelvis. It also

affects the static and dynamic strength and flexibility of the pelvic region. It increases the tone and integrity of the abdominopelvic cavity. ⁽¹⁰⁾

Therefore, this study was undertaken to find out the effectiveness of Pilates exercise on constipation for Internal hemorrhoids Grade I and II.

MATERIALS & METHODS

This study was pilot study that includes 15 patients from Sanjeevi gastro & maternity care centre, Gingee. The inclusion criteria of the study were Hemorrhoids grade (I and II), Both males and females, aged 30 to 60 years, Patients with constipation. The exclusion criteria were Bedridden patients, Hemorrhoids grade (III and IV), Patients with extreme pain, Spinal cord injuries, Active vaginal or urinary tract infection, having chronic or physical disease which hinders doing Pilates, Pregnant women, those who are not willing to participate.

The subjects who fulfilled the inclusion criteria were included in the study. such eligible subjects were selected after obtaining informed consent. The subjects were evaluated by using a constipation scoring system and hemorrhoid severity score.

PROCEDURE

The total fifteen samples were categorized according to the age group from 30-60 years. Duration of the Pilates exercise will be for 6 weeks, 10 repetitions equal to 1 set; the patient should complete 2 sets, 2 sessions per day, 15 to 20 sec rest period after 1 set.

PILATES EXERCISE:

1. INITIAL PRINCIPLES:

Pilates breathing- inhale slowly and deeply focusing on diaphragm movements and exhale “wringing” the breath out. Neutral pelvis- lie on your back, bent the knee, feet flat on the mat. Knee folds- lie on your back, bent the knee, feet off the floor, pelvis neutral and Pelvic floor activation.



Fig.1: Initial Principles

2. PELVIC CLOCK:

Lie on your back, bent knee and Neutral pelvis. Imagine pelvic movements like a clock. Elevate the pelvis so that 6 o'clock is

higher than the lower pelvis so that 12 o'clock is higher. Making the lumbar spine move in flexion, extension, and rotation.



Fig 2(A): Pelvic Clock (Posterior Pelvic Tilt)



Fig 2(B): Pelvic Clock (Anterior Pelvic Tilt)

3. KNEE SWAY:

Lie on your back, bent knee, feet off the floor, arms extended out to the side. Rotate

the pelvis to the left side and use abdominals to bring the pelvis back to neutral and alternate sides.



Fig 3(A): Starting Position



Fig 3(B): Knee Sway

4. HEEL SLIDES:

Lie on your back, bent knees, your back in a neutral position, and your feet on the floor. Extend the leg out by pushing the heel out

along the floor, and repeat the exercise to another leg. Then do both heels at the same time.



Fig 4(A): Starting Position



Fig 4(B): Heel Slides

5. BENT KNEE FALLOUT:

Lie on your back, bent knees, your back in a neutral position, and your feet on the floor.

Unilateral abduction of one limb with pelvic stabilization. Repeat the exercise to another leg.



Fig 5(A): Starting Position



Fig 5(B): Bent Knee Fall Out

6. BASIC BRIDGING:

Lie on the back with knees bent and feet in parallel. Press feet down into the floor to engage the hamstrings, and lift the pelvis up

towards the ceiling. Lower the pelvis down to the floor using the legs. The spine is in neutral.



Fig 6: Basic Bridging

7. ADDUCTOR SQUEEZE:

Lie on the back with the pelvis in a neutral position, knee bent at a right angle, and foot

flat on the floor. Place the pillow between the knees. Squeeze the adductor muscles, hold for 10 seconds then relax.



Fig 7: Adductor Squeeze

8. FROG:

Lie on your back, legs extended at 45°, heels together. Bend the knees keeping

heels together and extend the knee. Keep head and neck elevated.



Fig 8(A): Starting Position



Fig 8(B): Frog

9. LEG CIRCLES:

Lie on your back, bent the knees, straighten one leg to the ceiling then circular motion

across the body first. Then repeat the exercise in another leg.





Fig 9. Leg Circles

10. ASSISTED SQUATS:

Stand upright, and keep your feet about shoulder-width apart. Grab the wall or bar

with your hands, then take a slight bend in your hips and knee. Don't lean forward. Then return to starting position



Fig 10(A): Starting Position



Fig 10(B): Assisted Squats

STATISTICAL ANALYSIS

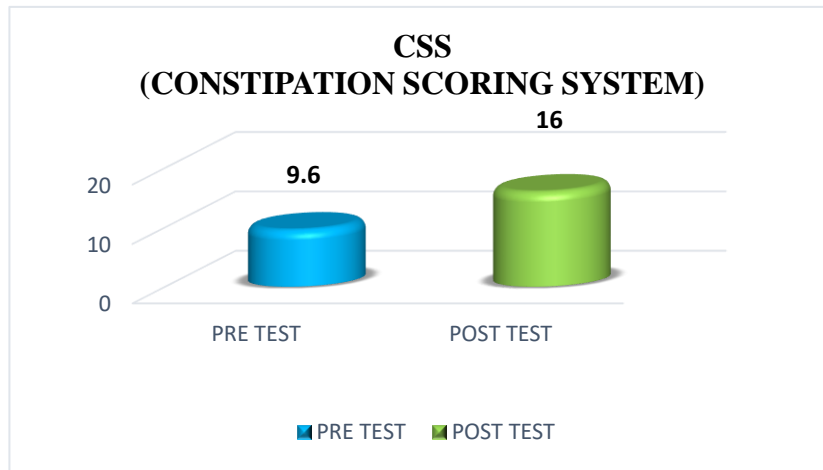
The outcome value was obtained were manually calculated. In this study, to assess the effectiveness of Pilates exercise on constipation for internal hemorrhoids grade I and II, pre and post intervention difference within the groups were analyzed using paired 't' test for each of the outcome

measures. Statistical significance was set at $p < 0.001$

The group analysis of constipation scoring system

Table:1. Showing the pre and post-test values of constipation scoring system (Paired t test values)

	MEAN	SD	T	P
Pre test	16	1.3	13.4	0.05
Post test	9.6	1.2		

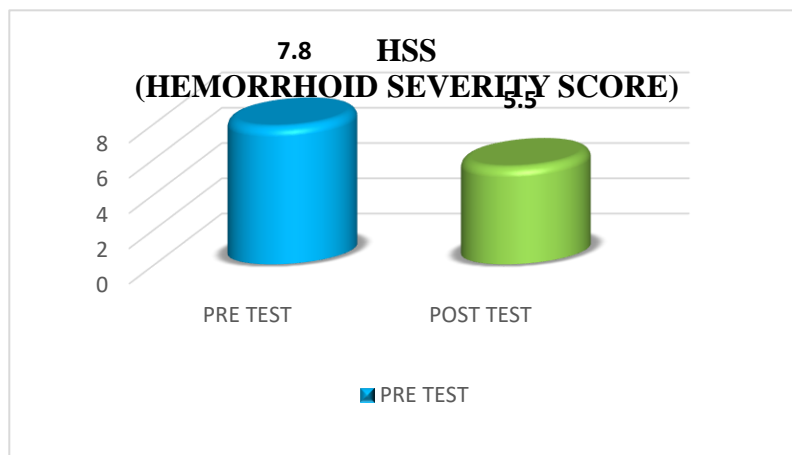


Graph:1. The group analysis of pre and post-test values for constipation scoring system

The group analysis of hemorrhoid severity score

Table :2. showing the pre and post-test values of hemorrhoid severity score (Paired t test values)

	MEAN	SD	T	P
Pre test	7.8	1.4	4.5	0.05
Post test	5.5	1.3		



Graph:2. The group analysis of pre and post-test values for hemorrhoid severity score

RESULT

The mean and standard deviation of pre and post value of constipation scoring system and hemorrhoid severity score. The analysis of the sample was done. The mean and SD of the constipation scoring system for the pre and post-test values are 16 ± 1.38701 and 9.6 ± 1.24211 and the t-value is 13.45. The mean and SD of a hemorrhoid severity score for the pre and post-test values are 7.8 ± 1.42427 and 5.5 ± 1.30201 and the t-value is 4.54. The statistical analysis is done using paired “t” test with the values of the group shows significance of ($p < 0.05$).

within the group analysis, it shows that there is improvement in reducing constipation and internal hemorrhoids. This shows that the Pilates proves to be an effective tool for efficient.

DISCUSSION

The pilot study was conducted to find out the “effectiveness of Pilates exercise on constipation for internal hemorrhoids grade I and II. This study was selected for the purpose to reduce constipation by that reducing internal hemorrhoids. S. Riss, F. A. Weiser conducted a study aimed to

assess the relationship between hemorrhoids and Anorectal dysfunction. All participants who attended the Austrian nationwide health care program for colorectal cancer screening at four medical institutions were enrolled prospectively between 2008 and 2009. Out of 976 participants, 380 (38.9%) were found to have hemorrhoids. Painful evacuation effort and assistance for defecation showed a correlation with hemorrhoids. The study states there was a significant association between constipation and hemorrhoids in adult patients. Patrick J. Culligan conducted a study to find similar improvement in pelvic muscle strength provided by a Pilates exercise and pelvic floor muscles training program. This study was approved by the Atlantic health human studies committee. Randomized controlled trial comparing a standardized physical therapy-based pelvic floor muscle training program to a standardized Pilates program. 62 women with mild or no pelvic floor dysfunction were involved. Two questionnaire -pelvic floor distress inventory and pelvic floor impact questionnaire were also collected. Participants in this were selected based on the inclusion and exclusion criteria. 30 have participated in Pilates and 32 have participated in pelvic floor training for 12 weeks. Results remain positive leading to the widespread use of the Pilates program to treat and prevent pelvic floor dysfunction. This study was conducted at Sanjeevi Gastro and Maternity Care Center, Gingee for 15 patients with age group between 30-60 years who received Pilates exercise and the duration of exercise is 6 weeks. Participants in this were selected based on the inclusion and exclusion criteria. The pre and post values are assessed before and after 6 weeks. The outcome measure used was the constipation scoring system and hemorrhoids severity score. These values were statistically analyzed using a repeated measures of paired 't' test. The outcome measures shows that significant improvement in reducing the constipation and hemorrhoids after the treatment when

compared to before-treatment values. No participants reported aggravation of symptoms during a treatment session.

CONCLUSION

The six weeks study concludes that the Pilates exercise shows significant improvement in reducing constipation by that reducing internal hemorrhoids for people with 30 - 60 years. Standard measurement tools were utilized to evaluate the effectiveness of treatment. Therefore, the null hypothesis is rejected.

LIMITATIONS AND RECOMMENDATIONS

The limitation of the study was small samples were selected; the Study duration was only 6 weeks; this study involves only 30-60 years. Recommendations of the study was Further studies can have more participants, the Study duration can be extended, further study can be done by segregating certain age group, with dietary modification, Advanced scanning (anoscope and colonoscopy) can be added for the investigation of hemorrhoids.

Declaration by Authors

Ethical Approval: Approved

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Conflict of Interest: The authors declare no conflict of interest.

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