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A STUDY TO COMPARE THE EFFECTIVENESS OF PILATES VERUS CORE STRENGTHENING FOR PRIMARY DYSMENORRHEA AMONG COLLEGIATE GIRLS

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ABSTRACT

Dysmenorrhea is one of the most common and important health problems among girls. It is a common cause of absenteeism and reduced quality of life in women. It badly affects the daily activities sand quality of life which lead to depression in many girls. Hence this study aims to reduce dysmenorrhea and also to compare the effectiveness of Pilates and core strengthening in reducing pain for collegiate girls. 40 subjects are randomly divided into 2 groups of 20 subjects in each group. Group A was given Pilates and Group B was given Core strengthening. Pre test and Post test values was recorded using NPRS. Data obtained were analysed using SPSS version 24.0. The significant difference between groups was compared using Paired T test. Differences were considered as significant at P<0.005. This study concludes that application of Pilates is more effective than Core strengthening in reducing menstrual pain among collegiate girls.

KEYWORDS: Primary Dysmenorrhea, Pilates, Core Strengthening, Numerical pain rating scale.

INTRODUCTION

Dysmenorrhea is one of the most common gynecological problems affecting the quality of life in menstruating women. It manifests as lower abdomen pain or uterine cramps in the few days before and /or during menstruation, and it typically goes away at the end of the cycle. It is the leading women-hood problem that affects 90% of adolescents girls and more than 50% menstruating women.[1] It is associated with significant emotional, psychological, and functional health impacts. Although underlying illness may still be present, it is more prevalent in teens and women under 30. Teenagers frequently have endometriosis, which is detected at laparoscopy in 70% of girls with Primary Dysmenorrhea. Typically, Primary Dysmenorrhea peaks between the ages of 20 and 24. Primary Dysmenorrhea is associated with significant impairment in quality of life between 16% to 29% of women.[2] Furthermore, 12% of the monthly school and work activities are lost due to absenteeism because of Dysmenorrhea.[2][3]

Dysmenorrhea is two types namely, Primary Dysmenorrhea and Secondary Dysmenorrhea. Primary Dysmenorrhea is a lower abdomen pain that occurs throughout the menstrual cycle. It is unrelated to other diseases or pathologies.[4] Secondary Dysmenorrhea is in contrast, It is frequently accompanied by additional uterine or external disease.[5]

The pathophysiology of Primary Dysmenorrhea is mostly caused by prostaglandin F (PGF), which is a major factor.[6],[7] When menstruation first begins, endometrial cells produce PGF at the same time as endometrium sheds. Uterine contractions are brought on by prostaglandin s (PGs), and the severity of the cramps varies according to how many PGs are generated following the sloughing process that was triggered by a hormonal surge that was lowering.[8],[9]

The risk factor of Primary Dysmenorrhea are family history, age, smoking, attempts to lose weight, higher body mass index, depression / anxiety, earlier age at menarche, longer and heavier menstrual flow, family history of dysmenorrhea.[10] The symptoms of Primary Dysmenorrhea is Gastrointestinal issues like nausea, bloating, diarrhea, constipation, or both, coupled with vomiting and indigestion, are among the symptoms of Primary Dysmenorrhea. In addition, women who come with Primary Dysmenorrhea frequently have headaches, low back discomfort, and irritability. Primary Dysmenorrhea is also accompanied by fatigue and lightheadedness.[11]

Pilates exercise has a positive effect on health physical fitness as it increases the muscular strength, muscular endurance, flexibility, cardio respiratory endurance and a positive effect on female sex hormone. Pilates exercise is

a good one for the promotion of physical metabolism and physiological function by positive change of immunoglobulin and sex hormone.[13] The method combines principles of exercises from Eastern cultures and the western cultures.[12]

Core strengthening is identifying and strengthening core muscle groups, it enables the small intrinsic musculature surrounding the lumbar spine to be trained for improved performance. Even when the body is under the strain of the menstrual cycle, these muscles are much more able to sustain the daily demands of normal biomechanics when they are strong. The regulation of the muscles around the lumbar spine to maintain functional stability is referred to as core strengthening.[12] The "core," also known as the lumbopelvic-hip complex, is a three-dimensional region with muscular limits that include the diaphragm (superior), abdominal and oblique muscles, para-spinal and gluteus muscles, pelvic floor, and hip girdle (inferior).[13] The proposed series of stretching exercises was thought to be very effective because it will increase blood flow and metabolism of the uterus, reducing dysmenorrheal symptoms.[14]

MATERIALS AND METHODOLOGY

This is a comparative study done among collegiate girls to find the effects of Pilates and Core Strengthening exercise on reducing dysmenorrhea. A total of 40 students were selected based on inclusion criteria and were divided into 2 groups with each group containing 20 members.

INCLUSION CRITERIA

- H/O Regular menstruation.
- Primary Dysmenorrhea.
- NPRS - moderate to severe.
- Age : 18 to 24 yrs.
- College going girls.
- Willing subjects.

EXCLUSION CRITERIA

- Known any genital disorder.
- Mild in NPRS scale.
- Secondary Dysmenorrhea.
- Any recent surgery.
- Gynecological conditions.
- PCOD subjects.
- Non willing subjects.

Among 40 samples, 20 will be assigned for Pilates group and 20 will be assigned for Core Strengthening randomly.

GROUP A – subjects were given Pilates for 40-60 mins, 3 days or times per week for 8 weeks.

GROUP B – subjects were given Core Strengthening exercise for 20 mins, 3 times a day for 8 weeks.

PROCEDURE

GROUP A: (PILATES)

1) Pilates curl: Lie face-up with knees bent, feet flat on the mat, and arms at your sides. Curling your chin to chest and bringing your shoulders completely off the mat. Hold for 1 breath, then lower back down slowly. Lift from your chest to engage abs and avoid crunching your neck.
2) Roll up: Leave your scapula down as you bring your arms up overhead. Continue in one smooth motion to curl your body in an "up and over" motion toward your toes. Reach for your toes keeping the head tucked, the abdominal deep, and the back rounded.
3) Rolling like a ball: Sit on your mat and clasp your hands over your shins, just above the ankle. Drop your shoulders, widen your back, deepen your abdominal and make a nice curve of your spine. Don't tuck your head; your neck is part of the long curve. But do duck your chin slightly and keep your eyes on your navel. Lift your feet off the mat and balance on—or just behind—your sit bones. Pull the lower abs in and up to get yourself going and roll back on your inhale. Roll only to the shoulders. Do not roll onto the neck. Stay deeply scooped with your spine curved. Use your exhale and abdominal s to return to upright. Repeat five to six times.
4) Boat pose: Lie flat on your back on the mat, with legs extended long and arms extended above your head. Lift your legs straight to a 45-degree angle, maintaining the extension from hips to toes. At the same time, lift your head, neck, shoulders and upper back up while engaging your abdominal s. Your arms should be extended at your sides with palms facing upward. Raise your legs and torso further so you're sitting in an upright "V" position on your sits bones. Keep your arms parallel to the floor and hold your shoulders down.
5) Pilates push ups: The Pilates push-up is a total body exercise. Practicing it strengthens your arms and shoulders, but you must also use your abs and core muscles to stabilize your torso. The legs get involved with a stretch to the hamstrings at the back of the thighs.
6) Shoulder bridge: Lay on your back with your knees bent, heels in line with your bottom and your arms rested by your side. Take a deep breath in, as you exhale flatten your lower back to the floor as though you are lifting your tailbone to the ceiling.
7) Single leg kick: Lie on your stomach with forehead resting on hands and legs touching. Slide shoulders down and back. Straighten spine. Tilt pelvic bone down and flex your core. Raise knees just slightly off the floor. Bend left leg at the knee. Lower your left leg Repeat with right leg.

GROUP B: (CORE STRENGTHENING)

1) Pelvic bridging: The subject were asked to lie supine and with knee flexed and then raise the pelvis upward till the comfort then hold that position for 5 sec and repetitions were 10 times.
2) Plank: The subjects were requested to lie prone and then by putting the weight on elbows and toes lift the body upward hold this position for 5 sec and 5 times

repetitions.

3) Cat and camel: The subjects were requested to prone kneel and then take a deep breath from nose while making hump in the back (cat) and breathe out from mouth while curving the spine (camel) for 5 second 10 times repetitions.
4) Curl up: The subjects were requested to lie supine and mild knee flexed and clasp both hands behind the head and move the body towards the knee. For 5 second 10 repetitions.

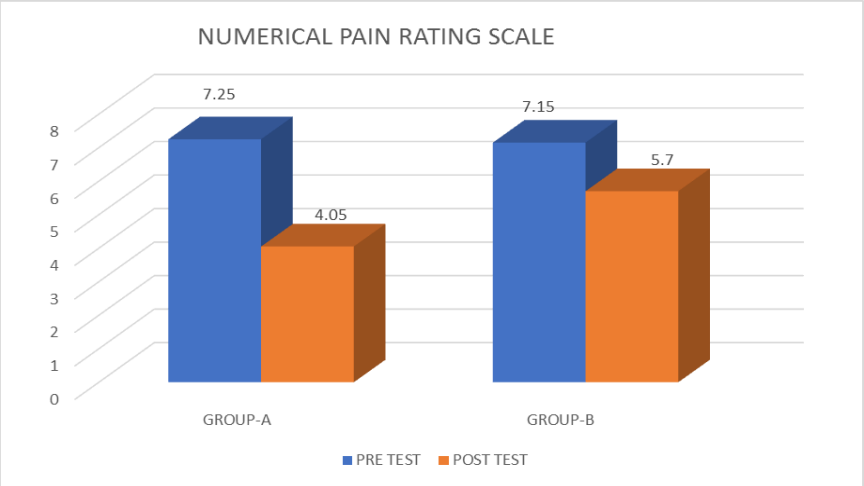
DATA ANALYSIS

The collected data were tabulated and analyzed using both descriptive and inferential statistics. All the parameters were assessed using statistical package for social science (SPSS) version 24.0. Paired t-test was adopted to find the statistical difference within the groups & Independent t-test was adopted to find the statistical difference between the groups.

TABLE 1: Comparison Of Numerical Pain Rating Scale (Nprs) Score. Between Group – A And Group – B In Pre Test And Post Test.

NPRS	GROUP A		GROUP B		T-TEST	SIGNIFICANCE
	MEAN	SD	MEAN	SD		
PRE TEST	7.25	1.68	7.15	1.63	0.191	.850*
POST TEST	4.05	1.19	5.70	1.34	4.113	.000*

(*- P > 0.05, **- P ≤ 0.001)



Graph 1: Comparison of Numerical Pain Rating Scale (Nprs) Score Between Group – A And Group – B In Pre Test And Post Test.

RESULT

In Table 1, On comparing mean values of GROUP-A and GROUP-B on Numerical Pain Rating Scale shows highly significant improvement in the posttest mean but GROUP-A(4.70) shows more effective than GROUP- B (5.70) at P≤0.001, Hence the null hypothesis is rejected.

DISSCUSION

The purpose of this study is to compare the effects of core strengthening and Pilates on reducing pain intensity and improving the muscle strength in patient with Primary Dysmenorrhea. The major goal is to improve the functional ability of patients. The present study was concluded to estimate the prevalence of primary dysmenorrhea and to compare the prevalence and severity of Primary Dysmenorrhea among college going girls. It was noticed that all age group female experiences Primary Dysmenorrhea and their severity differ. Based on the finding, the prevalence of Primary Dysmenorrhea was estimated to be higher among college going girls with mean of 5.70. In previous research the prevalence of dysmenorrhea worldwide ranges 66.6-73.4% with higher prevalence rates reported in the adolescent population. Our result showed that mean of Primary Dysmenorrhea prevalence among college going girls was 84.2 respectively. This shows that the prevalence of Primary Dysmenorrhea among collage going girls was higher. Based on NPRS between the groups and within in the group, the t test was 4.113 which is statically significantly at P= 0.001. This is because of adaptation to the severity of symptoms with respect to their frequency. The study concluded that severities of Primary Dysmenorrhea increased by family history, age, smoking, attempts to lose weight, higher body mass index, depression / anxiety, earlier age at menarche, longer and heavier menstrual flow, family history of dysmenorrhea.

The sample are fulfilled the inclusion criteria and were recruited for this study. From that 20 samples are were allotted for core strengthening and 20 were allotted for Pilates. Patient constant was taken by signing authorization. The demographics data of pre intervention variables of NPRS were scored and documented. Group

A were given core strengthening and group B were given Pilates. Then their post intervention variables of NPRS were scored and documented. The results were measured using NPRS. At 8 weeks of follow up, observed a reduction on NPRS.

Exercises also stimulate the production of endorphins, which act as the body's natural painkiller. Stretching the abdominal muscles can help ease the period cramps. Similar to the earlier studies related to the physiotherapy treatment, core strengthening also showed improvements in managing symptoms of Primary Dysmenorrhea.The current study revealed that Pilates and core strengthening for 8 weeks in patient with Primary Dysmenorrhea results in significant increase in muscle strength in the pre- treatment, associated with a significant decrease in pain intensity in post- treatment in both groups. All the patient in both groups had symptoms of Primary Dysmenorrhea, with pain over abdominal region which affects the daily functional activities of the patients. Pain is the most common observed symptom in patient with Primary Dysmenorrhea. In particular, the increased of pain cause decrease in functional activities of daily life. Primary Dysmenorrhea is a menstrual problem occurring in a patient causing significant increase in pain, whereas Primary Dysmenorrhea is found to be common at the age group of 18-25 years by Neha Oswal et al., 2017 and in this study the samples were selected between the age of 18-25 years.

According to Luana Macedo de Araujo, Pilates is a series of exercise based on progressive movements the body is able to perform. It is a dynamic technique aiming at working strength, stretching and flexibility.

The previous studies agreed with this results by confirming that physical therapy was able to reduce pain, improve muscle strength and improve functional activities. In this study both groups showed statistically significant improvement in reducing pain. But clinically considering the mean difference of group A core strengthening and group B Pilates where group B was more effective than group A.

CONCLUSION

The present study concludes that both group A core strengthening and Group B Pilates had shown improvement in Numeric Pain Rating Scale in Primary Dysmenorrhea patients, but more significant improvement was observed in patients who undermine Pilates than Core Strengthening.

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