To Analyze the Effect of Aerobic Exercise and Pelvic Floor Exercise Among Dancers with Dysmenorrhea

Running Title: Aerobic Exercise vs. Pelvic Floor Exercise in Dysmenorrhea among dancer

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ABSTRACT

Objective: To analyze the effect of aerobic and pelvic floor exercises among dancers with dysmenorrhea.

Materials and method: This study was conducted on 60 dancers those who were suffering from dysmenorrhea. The participants were divided into two Groups A and B. Group A is given with aerobic exercise and Group B is given with pelvic floor exercise. Menstrual symptom questionnaire and Numerical pain rating scale were given to the participating dancers and values are collected and recorded.

Results: Pain reduction is more in aerobic exercise when compared with pelvic floor exercise.

Conclusion: Aerobic exercise is more effective for dysmenorrhea**.**

Keywords: Dysmenorrhea, Aerobic exercise, pelvic floor exercise, Dancers.

INTRODUCTION:

A cramping ache in the lower abdomen that occurs soon before or during a menstrual cycle is known as dysmenorrhea. Primary dysmenorrhea and secondary dysmenorrhea are the two forms that are recognized. Common menstrual pains that recur frequently and are not caused by other conditions are known as primary dysmenorrhea. Pain typically starts one to two days before to menstruation or when actual bleeding starts. A problem with the reproductive organs is the root cause of secondary dysmenorrhea[1]. Over time, the pain worsens and lasts longer than typical period cramps. The majority of women

who experience menstrual bleeding do so with pain, and 10% of these painful periods interrupt a woman's life for one to three days per month[2].

Dysmenorrhea's root cause is not fully understood. However, the overproduction of uterine prostaglandins, particularly PGF 2a and PGF 2, which leads to an increase in uterine tone and stronger contractions, has been identified as the cause. Prostaglandin levels are higher in dysmenorrhea-affected women, and they are at their maximum during the first two days of menstruation.[3]. Progesterone regulates prostaglandin production; as progesterone levels fall, prostaglandin levels rise just before menstruation[3]. Between 40 and 70 percent of women of reproductive age experience dysmenorrhea, along with the psychological, physical, behavioural, and suffering that it is linked with[4]. A rise in the severity of dysmenorrhea is associated with a protracted, heavy blood flow [5.]

Due to stress, lack of sleep, lack of exercise, and adequate nutrition, teenagers are more likely than adults to have dysmenorrhea [6]. The physical activity described as aerobics mixes stretching and strength training exercises with rhythmic aerobic exercise. Aerobic activities include vigorous walking, running, swimming, and cycling because the word "aerobic" implies "with oxygen." Without sufficient consideration or careful examination of the facts, aerobic exercise is frequently viewed as a cure-all or magic elixir for dysmenorrhea. Surprisingly little analysis of the effects of aerobic exercise on dysmenorrhea has been done somehow[7].

Even though the American College of Obstetricians and Gynecologists and the NHS in the UK have advised women about the benefits of aerobic exercise as a treatment for dysmenorrhea and disorders related to the menstrual cycle, it is mandatory that high quality randomized controlled studies be performed out before women are given the go-ahead that aerobic exercise is an effective treatment[8].

Exercises for the pelvic floor that involve frequently tightening and relaxing the muscles that make up the pelvic floor help to strengthen it. Exercises for the pelvic floor muscles are seen as being a crucial part of pelvic floor rehabilitation. Additionally, studies have revealed that strengthening the pelvic floor muscles enhances women's quality of life, which in turn boosts their physical, mental, and social functioning[8].

Here, I'm going to examine the effectiveness of aerobic exercise and pelvic floor exercises in treating dysmenorrhea in dancers. To evaluate the pain, two questionnaires were filled out.
Chesney and Tasto created the Menstrual Symptom Questionnaire (MSQ) to quantify the signs and symptoms of dysmenorrhea. The categorization of menstruation symptoms has changed since the MSQ was created, though. A deeper comprehension of menstrual symptoms has resulted in the designation of several symptoms as separate illnesses, including PMS and dysmenorrhea. The MSQ definition of dysmenorrhea may not necessarily agree with the current definition, for this reason. As a result, the MSQ can no longer be considered a measure of dysmenorrhea but rather only a tool to evaluate menstrual symptoms[9].

Using the Numeric Pain Rating Scale, the intensity of the pain was evaluated (NPRS). The National Pain Rating Scale (NPRS) is a scale from 0 to 10, where 0 means "no agony" and 10 means the "worst pain." The one number on the scale that best represents the respondent's level of pain had to be selected. Dysmenorrheal subjects had severe pain after being assessed. The study omitted the "0" point response[10]

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METHOD

Menstrual symptoms were measured using the MSQ. A 14-item self-report measure called the Monthly Symptom Questionnaire (MSQ) rates menstrual pain and symptoms. If the total score is higher, there are more symptoms. 10. Each item receives a score between 1 (never) and 5. (always)[10].

A total of 60 women dancers were selected from Chennai and surrounding areas. The study includes 60 dancers with age group of (18-25). The following are excluded from the study: non-dancers, pregnant women, known genital diseases, chronic medical conditions (heart disease, pulmonary, kidney, blood pressure, asthma, diabetes, epilepsy, migraine, thyroid, anemia, mental disorders), and participation in other sporting events. This may impact study outcomes. A brief explanation was given to them about the study for collecting consent form. Daily practicing dancers, those who have difficulty during menstruation period were selected. All participants were selected based on above mentioned criteria. Clinical data was evaluated as well as presence and characteristic of pain and its impact on daily life.

The participants were divided into two groups after being chosen by convenience and purposive selection. After explaining the study's objectives to the participants, a written informed consent was obtained. A modified questionnaire made up of 14 questions taken from the Menstrual Symptom Questionnaire was used to gauge the severity of dysmenorrhea (MSQ). In this survey, the severity of the symptoms was graded from 1 to 5, with 1 representing no symptoms and 5 representing extremely severe symptoms. Participants in the study had menstrual cramps of at least 3-5 (moderate to extremely severe) each day[11]. The participants in two groups filled out this questionnaire, and the pain scale was measured before the intervention, in the middle of the intervention, and after the intervention[9]. On the other hand, the Numeric Pain Rating Scale was used to evaluate the outcome and determine the degree of the pain (NPRS). The NPRS is a scale with 11 points from 0 to 10, with 0 denoting "no pain" and 10 denoting the "worst agony possible." To best represent their amount of pain, respondents were asked to select one number from the scale. Only those participants who reported dysmenorrhea evaluated the level of pain. The "0" points response was left out of the analysis. The pain was categorized as mild, moderate or severe based on the literature. 1-3 points denoted mild discomfort, 4-6 point's moderate pain, and 7-10 points' severe pain. The women were split into three groups for the analysis: those who experienced dysmenorrhea every cycle (PG), those who experienced it sporadically (SG), and those who did not (WG) [10].

TREATMENT PROTOCOL:

60 Dancers were split into two groups A and B.

Group A is given aerobic exercises and

Group B is given pelvic floor exercises.

According to their exercises both the groups were given exercises during their menstrual cycle for 2 cycles.

Group A -Aerobic exercises

Exercise one

Light jogging for 20 minutes

Exercise two

Cycling for 10 minutes

Exercise three

Hip circles for 60 seconds

Group B -pelvic floor exercises

Exercise one

1. Lie on your back with your knees bent and legs apart, or kneel on your hands and knees
2. Tighten the muscles you use to hold back urine and feel your pelvic floor lift up
3. Squeeze and hold for 3–5 seconds and then gently let go
4. Rest for a few seconds and then repeat up to 10 times

Exercise two

1. Sit or stand tall and visualize the pelvic floor muscles
2. Squeeze and lift in a strong and fast motion
3. Let go without holding – a quick squeeze and release
4. Rest for a few seconds and then repeat up to 10 times

Exercise three

Focus on pelvic floor connection alongside deep breathing exercises in a yoga or Pilates session. The movements in these forms of exercise release endorphins, improve blood flow to muscles that may be neglected in other workouts and strengthen muscles through holding positions for longer. Poses and stretches that are particularly helpful for menstrual health include:

Child's pose

Put your toes together and your knees hip-width apart while you knead the ground. Your shoulders should be relaxed and your chest should be down between your knees. You should also extend your arms with your hands facing down. Take calm, deep breaths while holding for up to 60 seconds.

Sphinx pose

Put your hands behind your shoulders and your elbows close to your ribs while lying flat on your stomach. As you raise your torso off the mat, squeeze your shoulder blades together and press into the tops of your feet and your palms. Hold for ten full breaths, and then gradually lower your torso, chest, and head to the ground. After resting for ten seconds, repeat up to five times.

RESULT:

Out of 60 dancers who agreed to take part in identified with dysmenorrhea.
30 were randomly selected for aerobic exercise (MSQ and NPRS).
30 were randomly selected for pelvic floor exercise for (MSQ and NPRS).

Table 1 contains pre and post Mean, standard deviation, T and P values obtained from 30 dancers who performed aerobic exercise and from 30 dancers who performed pelvic floor exercise by menstrual symptom questionnaire.

Table 2 contains pre and post Mean, standard deviation, T and P values obtained from 30 dancers who performed aerobic exercise and from 30 dancers who performed pelvic floor exercise by numerical pain rating scale.

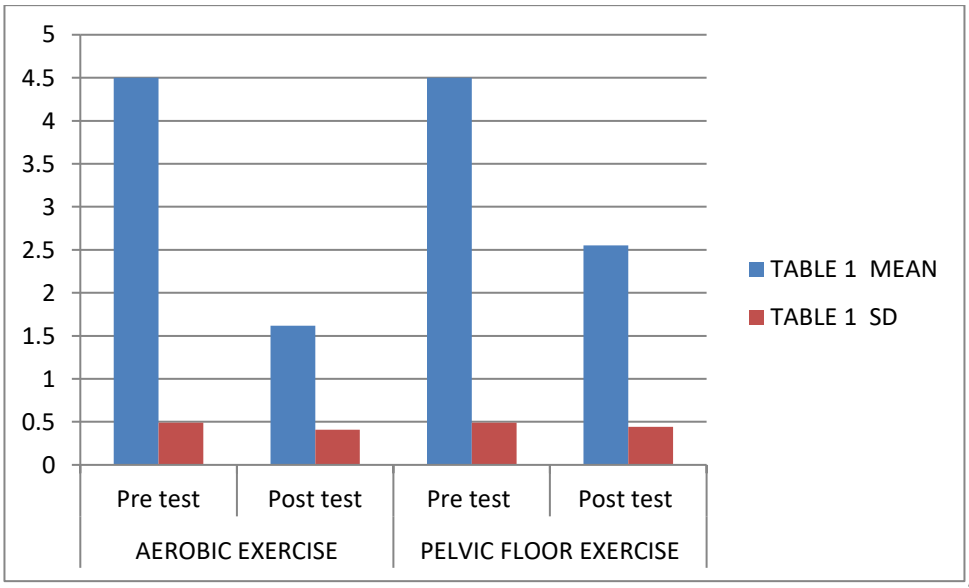
TABLE 1

MENSTURAL SYMPTOM QUESTIONNAIRE	AEROBIC EXERCISE		PELVIC FLOOR EXERCISE	
	Pre test	Post test	Pre test	Post test
MEAN	4.500	1.616	4.500	2.550
SD	0.491	0.409	0.491	0.442
T value	24.7143	24.7143	16.8332	16.8332
P value	0.0001	0.0001	0.0001	0.0001

TABLE 2

NUMERICAL PAIN RATING SCALE	AEROBIC EXERCISE		PELVIC FLOOR EXERCISE	
	Pre test	Post test	Pre test	Post test
MEAN	8.63	2.47	8.77	3.70
SD	0.61	0.51	0.63	0.92
T value	42.3651	42.3651	25.0237	25.0237
P value	0.0001	0.0001	0.0001	0.0001

GRAPH FOR TABLE 1:



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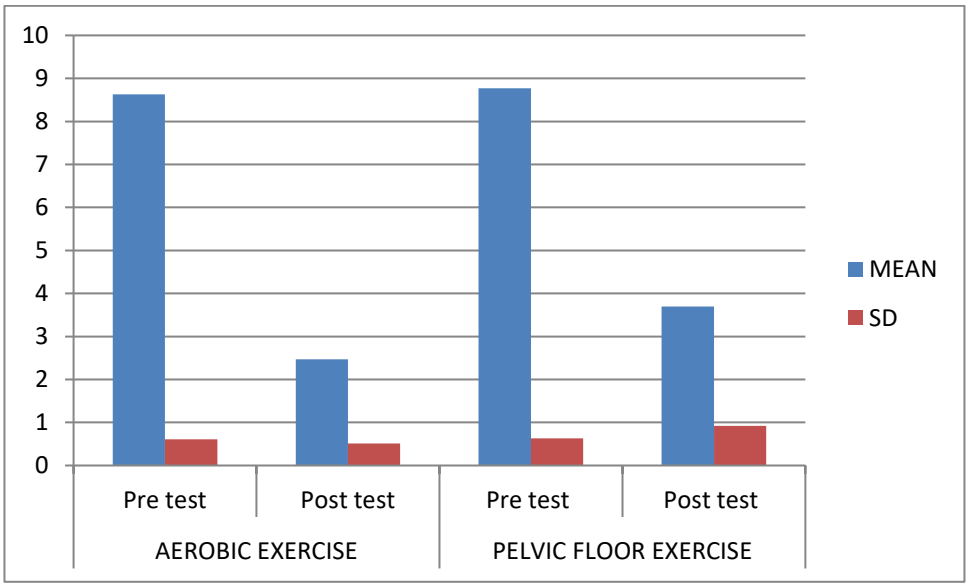
GRAPH FOR TABLE 2:



This graph clearly shows that aerobic exercise reduces menstrual pain in dancers than pelvic floor exercise.

DISCUSSION:

Different types of primary dysmenorrhea treatments are now widely used, and straightforward therapies have taken a prominent position in researchers' studies on the condition. Findings from numerous studies suggest that physical activity and exercise therapy are connected to reducing dysmenorrhea. Exercise can promote the removal of toxins and prostaglandins from the uterus, which are the major causes of menstruation pain. Sports that improve premenstrual pelvic blood flow have been demonstrated to postpone the commencement of pain by delaying the prostaglandin buildup in this region, according to research. On the other hand, consistent exercise helps to enhance blood circulation, raise endorphin and nerve transmitter levels, and reduce stress Dysmenorrhea consequently reduces blood supply to the uterus. One of the most frequent reasons for the connection between exercise and menstruation is stress inhibition[11].

In a study conducted by Shavandi et al. in female college students with primary dysmenorrhea for about 8 weeks, the effectiveness of performing isometric exercises (such as abdominal, pelvic, and groyne enhancing exercises) was examined for lowering the intensity and duration of pain as well as the frequency of medication use. Additionally, Chantler et al. showed that exercise can lower the intensity and duration of dysmenorrhea due to the release of endorphins, relaxation, stress reduction, and improved blood flow. The results of this study agreed with those of Mohammadi et al., who also examined the effects of aerobic exercise on a few menstruation symptoms in nonathletic students. They come to the conclusion that regular and ongoing aerobic exercise can manage early dysmenorrhea and heavy menstrual bleeding. According to a study by Aganoff and Boyle, aerobic physical exercise can improve relaxation in the body and mood of dancers. The study looked at the effect of aerobic training on menstrual cycle symptoms and women's psychological well-being. Improvements in blood flow and an increase in physical and mental calm, according to the current study, are among the elements causing aerobic exercise's favorable impacts on dysmenorrhea. [12].

According to Harlow and Park, Blakey et al., there is no link between exercise and primary dysmenorrhea. No association between the distribution of dysmenorrhea in the groups of athletes and non-athletes was identified by Sehati et al. in their study. The study's authors, Davaneghi et al., reached the same conclusion that there was no connection between the degree

of physical activity and the severity of dysmenorrhea. The differences in training regimens and research subjects are most likely to blame for the gap between the studies and this study.

Exercise is frequently utilized to help dancers manage immune system chemical fluctuations and daily stress. Exercise, self-hypnosis, self-meditation, doing favorite things, and listening to music have all been suggested as stress-reduction methods. Exercise can lower stress by decreasing sympathetic nervous activity and increasing parasympathetic nerve activity while you're resting, which also lessens menstrual symptoms. In actuality, the way that dancers react to pain varies. This phenomenon is partially explained by the brain's capacity to suppress input signals from the pain control system. Therefore, variations in results may result from individual variations in the intensity of pain perception. Increased uterine muscular contraction, which is nerve-mediated through the sympathetic nervous system, is likely the cause of menstrual discomfort. Stress contributes to an increase in sympathetic nerve activity, which in turn may enhance uterine muscle contraction and menstruation pain. Exercise can lower stress levels, which in turn lowers sympathetic nervous system activity and, in turn, lowers menstrual symptoms[12].

Dancers' menstrual pain is lessened by aerobic activity than by pelvic floor exercises.

CONCLUSION:

Physical and mental health fitness is very important to have a good quality of life .physical activity during menstrual cycle reduces pain. Aerobic exercises and pelvic floor exercises help the dancers to reduce their menstrual pain.

Both the group A (aerobic exercise) and group B(pelvsic floor exercise) have the improvement but comparing the group A(aerobic exercise) and group B(pelvic floor exercise),Group A shows improvement.

Table 1 and 2 clearly shows how the pain decreases after practicing aerobic exercise.

Thus aerobic exercises are more effective for dysmenorrhea than pelvic floor exercise.

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