

# Comparison Of Effects Of Stretching Exercises And Core Strengthening Exercises Versus Core Strengthening Exercises In Adolescent Girls With Primary Dysmenorrhoea

*\*Dr. Smita Shinde,*

*MPT Associate Professor, Jayantrao Tilak College of Physiotherapy Pune.*

*\*\*Dr. Afroz Shaikh*

*B.P.Th Student CMF college of Physiotherapy, Chinchwad Pune*

## Abstract

**Background** Dysmenorrhoea is a common symptom during menstrual cycle characterized by pain, which is often called as menstrual pain. The risk factors for dysmenorrhoea are; age < 20 years, heavy menstrual flow, smoking, upper socioeconomic status, physical inactivity, depression and anxiety.

**Objectives:** - To assess the severity of dysmenorrhoea with Verbal Multidimensional scoring system (VMS) and measure pain intensity by Visual Analogue Scale (VAS).

**Material and Methodology:** - In Experimental Study 60 Adolescent girls with primary dysmenorrhoea age between 13- 16 years were selected. Girls involved in any sports activities, yoga or aerobics; secondary dysmenorrhoea were excluded. Subjects were divided into 2 groups randomly: Group A (experimental n=30) and Group B (control n=30). Outcome measures were VAS and VMS for assessment of severity of dysmenorrhoea. Active stretching exercise with core strengthening exercise program for 4 weeks (5 days per week, 2 times per day) and re-assessment was done at the end of 4<sup>th</sup> weeks.

**Results:-** Statistically significant difference in pre-post decrease in VAS from 6.7 to 3.36 and VMS showing decrease in grades from 2.1 to 0.6 shows a significant decrease in severity of dysmenorrhoea in group A than group B after 4 weeks of treatment.

**Conclusion:-** This study concluded that active stretching along with core strengthening can be safely used as an alternative therapy for pain relief in dysmenorrhoea.

**Keywords:** Dysmenorrhoea, Active stretching exercise, Verbal Multidimensional scoring system.

## Introduction

Dysmenorrhoea is a common symptom during menstrual cycle characterized by pain, which is often called as menstrual pain. It hinders with day-to-day social, academic and sports activities of many women and may be disabling. Dysmenorrhoea can be primary or secondary. Secondary dysmenorrhoea is diagnosed when symptoms are attributed to a disease, disorder or structural abnormality, which is already prevailing within or outside the uterus whereas primary dysmenorrhoea is diagnosed when none of these are detected<sup>(1)</sup>

Primary dysmenorrhoea is defined as painful, spasmodic cramping in the lower abdomen, just before and/or during menstruation, in the absence of any discernible macroscopic pelvic pathology. The onset of primary dysmenorrhoea usually occurs in adolescence, at or shortly after (6-24 months) menarche. The onset of primary dysmenorrhoeic pain usually has a clear and predictable temporal pattern, beginning just before or at the start of menstruation. The pain typically lasts for 8-72 hours, is most severe during the first or second day of menstruation, and may radiate to the back and thighs. In addition, systemic symptoms such as nausea, vomiting, diarrhoea, fatigue and insomnia frequently accompany the pain.

Secondary dysmenorrhoeic pain, in contrast, may originate from a number of identifiable pathological conditions, including endometriosis, adenomyosis, fibroids (myomas) and pelvic inflammatory disease. The onset of secondary dysmenorrhoea can occur any time, usually more than 2 years, after menarche, and depending on the underlying condition, may be accompanied by other gynaecological symptoms such as intermenstrual bleeding and menorrhagia. In addition, the timing and intensity of secondary dysmenorrhoeic pain during the menstrual cycle may be constant or diffuse, and is not necessarily associated with menses.

A study conducted on primary dysmenorrhoea showed that prevalence rates were as high as 90% and it was the common cause for absenteeism and reduced quality of life among women<sup>[2]</sup>.

Dysmenorrhoea pains are felt in lower abdomen and may radiate into inner parts of thighs. In a high percentage of cases, girls may experience systemic symptoms such as backache, nausea, vomiting, diarrhoea, fatigue and headache<sup>[3]</sup>. Although primary dysmenorrhoea is not a real threat of life, but can impact on the quality of female life and in case of severity it may lead to disability and inefficiency<sup>[4,5]</sup>. On the other hand, dysmenorrhoea can cause psychological problems in some of the females resulting in their loneliness and inactive participation in different social activities<sup>[6]</sup>.

Dysmenorrhea can be treated through pharmacological and non-pharmacological methods. Pharmacotherapy includes using Oral Contraceptive Pills (OCP), Non-Steroidal Anti-Inflammatory Drugs (NSAIDs), and analgesic tablets which reduce menstrual pain by affecting the level of prostaglandins<sup>[7]</sup>.

It was believed that contracted ligamentous bands in the abdominal region were the causative factor for physical compression of nerve pathways and their irritation, So the stretching exercise was considered very effective. Active stretching exercise will increase the blood flow and metabolism of the uterus during exercise may be effective in the reduction of dysmenorrhoeal symptoms. In another words, improved metabolism is a factor in the reduction of symptoms. It is also suggested that increased menstrual pain by uterine muscle contraction is derived from a nervous system that is innervated by the sympathetic nerve hence stress through hyperactivity of sympathetic nerve system via the increase contractibility of uterine muscles lead to menstruation symptoms. Consequently, it might be possible to reduce dysmenorrhoeal symptoms by decreased sympathetic over activity through active stretching.

Core strengthening is a description of the muscular control around the lumbar spine to maintain functional stability. It has been promoted as a preventive regimen, as a form of rehabilitation, and as a performance enhancing program for various lumbar spine and musculoskeletal involvements.

Over time it became clear that stability is a process that includes both static positions and controlled movement. This includes both an alignment in sustained postures, as well as movement patterns which reduce tissue strain, avoid causing trauma to the joints or soft tissue, and allow for efficient muscle action<sup>[8]</sup>.

Physical exercise has been suggested as a non-medical approach for the management of symptoms. Despite the widespread belief that exercise can reduce dysmenorrhea, evidence-based studies are limited. Several observational studies reported that physical exercise was associated with a reduced prevalence of dysmenorrhea, although numerous other studies found no significant association between outcomes. Evidence from controlled trials suggests that exercise can reduce dysmenorrhea and associated symptoms<sup>[9]</sup>, hence the present study was done.

## Methodology

The aim of the study was the comparative effects of stretching exercises and core strengthening exercises versus core strengthening exercises in adolescent girls with primary dysmenorrhoea. An experimental study was conducted at Beena English medium school and convenience sampling was done. The study consisted of 60 participants, 30 in each group. Girls with primary dysmenorrhoea were selected of the age group 13- 16 years. Those willing to participate and fulfilling the inclusion criteria were included. Outcome measures used were VAS and VMS for assessment of severity of dysmenorrhoea. VMS grading system ranges from 0-3 grade for evaluating the working ability, the

systemic symptoms and whether analgesia is required or not. Participants were explained the procedure and purpose of the study and written informed consent was taken in understandable language. After initial examination the participants were assigned randomly in two groups, Group A: Experimental group (stretching exercise group & core strengthening exercises), Group B: Control group(core strengthening exercises). Severity of condition was measured by VAS and VMS for assessment of dysmenorrhoea severity pre-treatment and post-treatment. Group A participants completed an active stretching exercise with core strengthening exercise program for 4 weeks (5days per week, 2 times per day). They were asked to perform 6 stretching exercises and 6 core strengthening exercises. They were: STRETCHING- Forward bending from hip joints, backward trunk bending, alternate heel raise (bilateral), half squatting, Trunk side flexion (bilateral), knee to chest(bilateral) & CORE strengthening exercises that included; pelvic bridging, plank, cat and camel, single leg abdominal press, double leg abdominal press, curl up. Group B were asked to perform only core strengthening exercises for 4 weeks (5days per week, 2 times per day). The participants were interviewed with the questionnaire, pain intensity scale and Verbal dimensional scoring system before and after 4weeks of exercise program. Participants were instructed not to perform these exercises during the menstruation phase. The two pre and post results were compared to observe the effect of exercises on primary dysmenorrhoea in both the groups.

**Result**

Data analysis was carried out after collecting the data for two outcome measures of the subjects in both the groups consisting of VAS and VMS.

In this study maximum of the treated girls reported a reduction in menstrual pain after an average of 4 weeks of exercises. There is significant decrease seen in pain intensity and also decrease in grades of the VMS in experimental group comparative to control group being decrease in VAS from 6.7 to 3.36 and VMS showing decrease in grades from 2.1 to 0.6 and in control group decrease in VAS seen is from 7.27 to 6.16 and VMS showing decrease from 2.34 to 1.94 respectively.

**COMPARISON OF PRE AND POST VAS IN BETWEEN GROUP A AND GROUP B**

	GROUP A		GROUP B		t VALUE	p VALUE
	MEAN	SD	MEAN	SD		
PRE	6.7	1.119	7.27	0.94	2.12	0.038
POST	3.36	0.92	6.16	1.05	10.92	0.0001

Table shows that there is significant change between the Pre and Post treatment VAS in both the Group A as well as B as p value is < 0.0001. When the two Groups were compared, the t value showed significant difference in both the groups. Mean value shows the decrease in pain in Group A was more than that of Group B which was statistically significant.

**COMPARISON OF PRE AND POST VMS IN BETWEEN GROUP A AND GROUP B**

	GROUP A		GROUP B		p VALUE
	MEAN	SD	MEAN	SD	
PRE	2.1	0.60	2.34	0.60	0.188
POST	0.83	0.46	1.94	0.64	0.0001

Table shows that there is significant change between the Pre and Post treatment VMS in Group A, as its p value is 0.0001 and in Group B, as its p value is 0.0005. When the two Groups were compared, the p value showed significant difference in both the groups. Mean value shows that the severity of dysmenorrhoea in Group A had decreased more than that of Group B which was statistically significant.

## Discussion

The disabling nature of pain makes dysmenorrhoea distressing and it can become important factor in the lives of every girl. Some girls are completely prostrated and confined to bed, where as others are able to remain afoot with the aid of analgesics. The present study was conducted to see which exercise protocol is more better, either active stretching with core strengthening or core strengthening alone in primary dysmenorrhoea. In this study maximum of the treated girls reported a reduction in menstrual pain after an average of 4 weeks of exercises. There is significant reduction in pain intensity by VAS in experimental group. There is reduction of pain from 6.7 to 3.36 but where as in control group less significant results were observed. The role of exercise therapy as a tool for reducing stress and biochemical changes in the immune system was considered extensively as well. Izzo and Labriola<sup>[11]</sup>

There is significant decrease seen in pain intensity and also decrease in grades of the verbal multidimensional scoring system in experimental group comparative to control group being decrease in VAS from 6.7 to 3.36 and VMS showing decrease in grades from 2.1 to 0.6 and in control group decrease in VAS seen is from 7.27 to 6.16 and VMS showing decrease from 2.34 to 1.94 respectively. These findings have shown that stretching exercises increases the pain threshold and core exercises stabilizes the lumbar spine while the combination of these two exercise protocols shows a significant decrease in severity of dysmenorrhoea comparative to the core exercises alone showing minimal decrease in pain and dysmenorrhoea severity.

Studies have shown that exercise can result in reduced stress, fatigue and depressed mood; it therefore has the potential to relieve some of the secondary symptoms that can occur with primary dysmenorrhoea.

## References

- 1) George A. **Incidence of dysmenorrhoea among adolescent girls of Karnataka, its relationship to selected factors and the effect of Yoga in its management**, Manipal, Karnataka, 1998.
- 2) Coco A S. **Primary dysmenorrhoea**. Am- Fam- Physician 1999; 60(2): 489-96
- 3) EL-Gilany, AH., K. Badawi and S. EL-Fedawy, 2005. 26: 335-340. **Epidemiology of dysmenorrhea among adolescent students in Mansoura, Egypt**. East Mediterranean, Health Journal, 11: 155-163.
- 4) Golomb, L.M., A.A. Solidum and M.P. Warren, 1998. **Primary dysmenorrhea and physical activity**. Med. Sci. Sports Exerc, 30(6): 906-9.
- 5) Amodei, N., R.O. Nelson, R.B. Jarrett and S. Sigman, 1987. **Psychological treatments of dysmenorrhea: different effectiveness for spasmodic and congestive**. J BehavTherExp Psychiatry, 18(2): 95-103.
- 6) Diaz, A., M.R. Laufer and L.L. Breech, 2006. **Menstruation in girls and adolescents: using the menstrual cycle as a vital sign**. Pediatrics, 118(5): 2245-50.
- 7) BerekJS.Novak E: Berek& Novak's gynecology.15th ed. Philadelphia, PA, Wolters Kluwer Health/Lippincott Williams & Wilkins; 2012.
- 8) Sandeep Kaur, et al; **To compare the effect of stretching and core strengthening exercises on Primary Dysmenorrhea in Young females**;IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) e-ISSN: 2279-0853, p-ISSN: 2279-0861. Volume 13, Issue 6 Ver. V (Jun. 2014), PP 22-32
- 9) Daley AJ. BJOG 2010;117:222-4.
- 10) A.Izzo, Labriola D, **dysmenorrhoea and sports activities in adolescents** (1991) clinical experimental obstet gynecol.18:109-116
- 11) KarampourElham, KhoshnamEbrahim, **The influence of stretch training on primary dysmenorrhea, advances in environmental biology**[2012]vol6[12]3069-3071.
- 12) M Golomb, Solidium A.A., warden, **primary dysmenorrhoea and physical activity**,(1998),Medical science sports exercise,30:508-511

- 13) Jerdy Shahnaz , Hosseini Rahman,GhMaghsound ,**Effects of stretching exercises on primary dysmenorrhea**, Biomedical human kinetics[2012] vol [4]127-132.

Mahratta