



A Comparison between the effect of Kegel exercises and stretching exercises on pain of females aging 18 to 25 suffering from primary dysmenorrhea

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ABSTRACT

Menstrual cycle is an integral part of women's fertility period. Although having a minor pain during menstruation is normal, severe pain could not be considered normal. During years of adolescence and youth having severe menstruation pains is the main reason for absence of women from work and school, thus it is important to pay attention to its reasons and solutions for reducing it. The current research general aim is comparing the effect of 12-week Kegel exercises and stretching exercises on pain and quality of life of females aging 18 to 25 suffering from primary dysmenorrhea. In this research which was a quasi-experimental study, 60 individuals (20.21 years \pm 1.85) from single girls of Bandar Abbas who visited clinics because of severe pain of menstruation from 2012 to 2013 were chosen through completing Evaluation Form of Primary Dysmenorrhea, Visual Analogue Scale (NRS) and McGill Pain Questionnaire and they were randomly divided in to two groups of experimental group (Kegel exercises and stretching exercises) and control group. Exercises were 12 weeks long, 3 sessions per week, 2 times a day and each time for 10 to 15 minutes, and also after 12 weeks again the McGill Pain Questionnaire was distributed among 3 groups. Analysis results of repeating the measurements showed that Kegel exercise and stretching exercise are effective on reducing the severity and duration of menstrual pain. Also results showed that the effect of Kegel exercises on reducing severity and duration of menstrual pain is more than the stretching exercises. Based on these results, Kegel exercise and stretching exercise result in reducing the severity and duration of pain of primary dysmenorrhea. Thus perhaps it is possible to use Kegel exercises and stretching exercises for treatment of primary dysmenorrhea.

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Introduction

Dysmenorrhea or painful menstruation is one of the most common problems of women (Diaz, 2006; Ryan KJ, 1999), and it is considered as the first reason for the absence of young women (Sheykh Hosseyni & Shahrjerdi, 2009). Dysmenorrhea is usually divided into two primary group and secondary group. Primary dysmenorrhea is painful menstruation in the absence of demonstrable pelvic disease and secondary dysmenorrhea is painful menstruation caused by pelvic pathological problems such as Endometriosis, inflammatory disease or uterine Leiomyoma (Ryan KJ, 1999). Pain starts with the menstruation or a few hours before it starts and lasts for 12 to 72 hours and it is reported to be similar to labor pains with pains above the pubic, nausea, vomiting, and diarrhea and, rarely fainting along with primary dysmenorrhea (Alan H, 2000). Although primary dysmenorrhea is not life threatening and it does not result in impairment, it can affect the women's quality of life, and in severe cases it can result in inability and inefficiency which occurs in the form of absence from school or work. On the other hand, dysmenorrhea could result in mental problems for some women and thus it results in isolation and absence of continuous active presence of these individuals at different levels of the society. In our country nearly half of the students are girls and women are a considerable part of workforce, and this trend is on the rise (Diaz A, 2006). The use of inhibitors of prostaglandin, contraceptives, calcium channel blockers, percutaneous electrical stimulation and massage are some of the common

treatments and most of them are expensive and time-consuming and they are often associated with side effects which make some people prevent from using those methods (Marefati et al., 2012). Physical activity and sports as a non-pharmacologic method has found a special medical position. Although some researchers have not reported any relation between the severity of menstrual pain and primary dysmenorrhea and level of physical activity (Blakey H, 2010), in some studies it has been observed that participation in regular exercises reduces the primary dysmenorrhea (Demitruk F, 2008). Sports such as Pilates (Marefati et al, 2012), isometric (Shavandi et al., 2010), stretching (Shahrjerdi et al, 2009) and flexibility (Saadatabadi et al, 2010) could have positive effect on menstrual pain. Edward (2001) suggested that women suffering from dysmenorrhea who do regular exercises are dealing with contraction of the abdominal ligaments, and Edward suggested a series of continuous stretching exercises to them and it was observed that these exercises had a significant role in reducing the severe symptoms of dysmenorrhea. Decreased dysmenorrhea in women who perform exercises could be due to the effect of hormonal changes on the lining of the uterus and/or increased level of endorphins. It seems that exercise acts as a non-specific analgesic (Ortiz, 2010), and also by decreasing depression and stress, sports can result in decreasing the symptoms of primary dysmenorrhea. Also in a research (Jonathan, 2007) named the effect of high intensity exercise on menstrual irregularities it was shown that athletes have less problems related to the

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menstrual pains compared to the control groups, thus the benefits of regular physical exercise is stated as one of the possible ways for improvement of females' dysmenorrhea (Ryan et al, 2006). But because of lack of a same method for treatment of dysmenorrhea and also different responses individuals show to different types of these treatments, several methods have been provided for the treatment and some of them are: pharmacotherapy, acupuncture, percutaneous electrical stimulation, surgery and administration of vitamins and minerals. Most of the treatments have side effects and/or contraindications. On the other hand, although the effect of drug therapy such as nonsteroidal and anti-inflammatory drugs or oral contraceptives is significant, their failure has been estimated to be 20-25%, and also sometimes they have resulted in worsening the symptoms. During the last 20-30 years, sports and regular physical activities have managed to be expressed as one of the effective treatments for preventing and treatment of dysmenorrhea, but also there are some articles that didn't find any relation between the level of physical activity and dysmenorrhea (Harlow SD, 1996; Jarret M, 1995; Gordley LB, 2000). There are several treatments available for primary dysmenorrhea, and each of them has its own pros and cons; one of these treatments is prostaglandin inhibitors, which is useful for treatment of primary dysmenorrhea, and these inhibitors should be consumed before the pain starts or when the pain starts continuously for each 6 or 8 hours. Consuming these drugs in patients who have gastric ulcer or bronchial hypersensitivity to aspirin is prohibited (Hillen, 1999). At the same time, there is a particular sport which affects the pelvic floor muscles and improves them (Morkved S, 1997), which is known as Kegel exercise. These exercises are recommended for strengthening the muscles around the genitals and enhancing the muscle strength and they have several benefits (Riazi et al., 2006). Pelvic floor muscles have an important role in development of adequate bladder contraction (Menefee S, 2002). Different problems could result in weakening the above mentioned muscles, and some these problems are: pregnancy, childbirth, frequent constipation and even obesity (Riazi et al., 2006). Kegel exercise is free, pain-free and without side effects, furthermore, it is possible to do these exercises at any time of the day or night. Stretching exercises before or after work, exercise or sports have a vital role in keeping the flexibility of muscles and bending joints and releasing contractions and muscle tensions. More importantly, different individuals at different ages with different flexibilities and lack of flexibilities could create stretch in their muscles. Studying the research literature, there was no sign of using Kegel exercises for reducing the severity and duration of pain for treatment of Dysmenorrhea., and based on the important role of women in family and society and high prevalence of dysmenorrhea and the fact that Kegel exercises could be performed at any time of the day and night and at different places, thus it required the research to state that whether the Kegel exercises and stretching exercises solely have an effect on primary dysmenorrhea or not, and also it made this research to survey that which of the above mentioned methods independently have more effect on primary dysmenorrhea.

Methodology

In order to achieve research aims, by the use of purposive sampling, 60 individuals were chosen as the sample from the 18 to 25 year old females in Bandar Abbas who visited Shariati Hospital of Bandar Abbas because of severe menstrual pain from 2012 to 2013. Criteria for entering the research were: 1- existence of pain in most of the menstrual cycles, 2- tendency

toward using a method for alleviating pain, 3- the menstrual pain is periodically repeated, 4- regular menstrual cycles and at each 24 to 35 days, 5- a minor pain before menstruation or at the same time of beginning of menstruation and lasting for 12 to 72 hours and also lack of 1- menstrual pains for more than 5 to 7 days, 2- pain at other times except during menstruation, 3- infection of one of the first-degree relatives to endometriosis. 4- lack of suffering from chronic diseases such as diabetes, hypertension, and cardiovascular diseases) and also history of professional sports (a person who performs exercises for one hour per day or more, or 7 hours per week or more). Participants were randomly put into three groups of experimental (Kegel exercise), (stretching exercise) and control groups, and each group included 20 individuals. At first in a session participants were informed about the type of plan, aims and methodology through written text and orally. At the end of this session, participants completed the testimonial to participate in this plan. Participants were asked to complete the evaluation form of primary dysmenorrhea and McGill pain questionnaire in order to complete the questionnaire based on their previous and current symptoms of dysmenorrhea (pretest). A written scheduled program for determining the days, duration and place of exercise were given to the participants. These exercises were conducted during three cycles in a row (12 weeks). These exercises were performed regularly and carefully, three sessions per week and by the presence of the researcher. At each session the participants of experimental group performed Kegel exercises (Demirturk F, 2008) and stretching exercises (Ronkainen, 1985). These exercises were conducted in the interval between two menstruations, and at the end of menstrual cycle the questionnaires were collected and the next-month questionnaires were given to them. For the control group, during these three months they had to tolerate the menstrual pain, and if the intensity of the pain was intolerable a physician could have prescribed medication for them.

McGill pain questionnaire was used for measuring menstrual pain. This questionnaire is an accurate and valid questionnaire for measuring pain. By the use of this questionnaire two scales of pain are measured. Severity of menstrual pain based on the Visual Analogue Scale (VAS). This ruler is 10 centimeters long and at one end it is written without pain (0) and at the other end, it is written intolerable (10), the point marked by the patient shows the severity of patient's pain. Other scale for measuring pain is present pain intensity (PPI) with scores 0 to 5, (0) without pain, (1) minor pain, (2) uncomfortable, (3) irritating, and (4) fatal that are determined by samples in McGill pain questionnaire.

The first time this questionnaire was used by Melzack in 1973 on 297 patients who suffered from different types of pains. In 1980, again for ease of use of this questionnaire, Melzack invented the short form of McGill pain questionnaire (Melzack, 1980). In Iran the reliability and validity of this questionnaire have been evaluated by Valiani et al, and the Cronbach's alpha was reported to be 0.74. Variance analysis and Tukey's post hoc test were used for analyzing data. Significance level was $\alpha=0.05$, and all the analyses were conducted by the use of SPSS16 software.

Results

By the use of ANOVA test it was determined that there is no significant difference between these three groups, and this shows the similarity of groups in pretest. Also the ANOVA analysis did not show any significant difference between the duration and severity of menstrual pain in different groups (table1).

Table 1. Mean, standard deviation and significance level of severity and duration of menstrual pain in different groups in pretest

Variable	Group	Indicators	Before	F	P
Mean of Duration of Menstrual pain With PPI sale	Kegel	Mean	4.94	0.17	0.42
		SD	1.19		
	Stretching	Mean	5.14	1.92	
		SD	1.92		
	Control	Mean	4.25	1	
		SD	1		
Mean of severity Of menstrual pain With VAS scale	Kegel	Mean	5.99	0.47	0.88
		SD	1.01		
	Stretching	Mean	5.14	1.01	
		SD	1.01		
	Control	Mean	5.7	1.12	
		SD	1.12		

After the training interventions, ANOVA showed a significant difference between three groups in posttest (table2). Tukey's post hoc test showed a significant difference in severity of menstrual pain between two groups of Kegel and stretching exercises (F= 6.43, P= 0.032), Kegel and control group (F= 7.21, P= 0.012), and Stretching and control group (F= 6.88, P= 0.015).

Table 2. Mean, standard deviation, significance level and duration of menstrual pain in different groups after the training interventions.

Variable	Group	3 rd period	Indicators		1 st period	2 nd period
			F	P		
Mean of 0.01 Duration of menstrual pain With PPI scale	Kegel	Mean	3.66	3.5	3.02	4.95
		SD	1.48	0.97	0.84	
	Stretching	Mean	4.5	3.98	3.75	
		SD	1.69	1.88	1.76	
	Control	Mean	4.47	4.62	5.2	
		SD	1.8	1.25	1.67	
Mean of 0.01 Severity of Menstrual pain With VAS scale	Kegel	Mean	5.06	4.68	3.54	6.54
		SD	0.75	1.35	1.45	
	Stretching	Mean	5.01	4.92	4.17	
		SD	0.93	1.05	0.89	
	Control	Mean	6.92	5.72	4.88	
		SD	0.77	1.22	0.94	

About the relation between duration of menstrual pain a significant difference was observed between two groups of

Kegel and stretching exercises (F= 5.77, P= 0.028), Kegel and control group (F= 6.32, P= 0.018), stretching and control group (F= 6.34, P= 0.021). Factors measures in the posttest showed the positive effect of exercise compared to the pretest. For the participants of control group none of the factors in the pretest and posttest were different.

Discussion & conclusion

The aim of conducting this research was surveying the effect of 12 weeks of Kegel and stretching trainings on duration and severity of pain of female aging 18 to 25 years suffering from primary dysmenorrhea. Results showed that Kegel and stretching exercises have an effect on both length and duration of menstrual pain. During these exercises the duration and severity of participants' pain were reduced and this indicates the effects of improvement in performing these types of trainings. On the other hand, these two groups showed a significant reduced pain and severity compared to control group. In control group the difference between measurements before and after intervention was not significant. This research results are consistent with previous research results of Abbaspour et al., (2006), Riazi et al., (2006), Saadatabadi et al., (2011), Shavandi et al., (2009), and Shahrjerdi (2009).

For example, Abbaspour et al., (2006) showed that exercises not only alleviated their pain but also in the 4th week consuming sedatives has reached to 0 percent. In another research, Riazi et al., (2006) stated that repeated childbirth results in weakening the pelvic floor muscles and this muscle loosening results in urinary incontinence. If the pregnant women perform these exercises before and after childbirth, they can strength their pelvic floor muscles and as a result of these researches it could be stated that perhaps strengthening the pelvic floor muscles could reduce the menstrual pain. Saadatabadi et al., (2011) in surveying the effect of a 6-week flexibility training program including stretching abs, lower back, hamstrings, and hip adductor reported a significant decrease in menstrual pain/ In another research Rostami et al., (2005) observed a significant decrease in duration and severity of pain and also dosage of drug use during menstruation, but the bleeding was not different. Recent researches emphasize that regular exercise such as stretching abs, pelvic or thighs have positive effects on the symptoms of menstruation, and the more the exercises the more the positive effects will be (Choi, 1995). While previous studies have shown that sports intensify some of the symptoms of menstruation such as dysmenorrhea (Williams, 1989), recent researches have shown that exercise and sports don't result in menstrual disorder, and the main reason to this disorder is lack of energy (Beals, 2007), and the results of this research are inconsistent with some of these studies, and the reason could be due to proper nutrition, that along with exercising could help reducing the pain of individuals who suffer from dysmenorrhea. Kegel exercises result in increased blood flow to the rectal area and thus it reduces the pain. Kegel exercises are relaxation and non-invasive techniques that reduce the drug use and increase the patient's satisfaction. Thus, since Kegel exercises are effective, secure and inexpensive, teaching these trainings could help manage and control the pains of primary dysmenorrhea.

Stretching exercises do not require energy and effort of cardiovascular exercises, yet, they are considered insignificant by those who go to gym. The fact is that stretching exercises have several benefits. Stretching exercises help quick recovery, but only individuals who perform regular stretching exercises can benefit from quick recovery. Stretching exercises help increase the blood circulation, and this has an important role in

reducing muscle pain and enhancing the recovery process. Regular stretching exercises not only reduce the muscle pain, but also increase the range of movement. More freedom of movement in the joints and tendons reduces the risk of injury and such injuries usually happen due to limitation of motion. Some of the other benefits of stretching exercises are increased body temperature, increased blood flow among active muscles, and thus delivering oxygen and proper exchange of oxygen from hemoglobin and quick release of energy for muscles, increased speed of transmission of nerve impulses and ease of body movements, reducing muscle tensions, preventing and reducing possible injuries during performing exercises, increased heartbeat, breathing, and preparedness, more efficient and secure performance of heart, blood veins, lungs and muscles, assisting mental preparedness, reducing premenstrual discomfort, help warm up and cool down before and after any type of exercise.

References

- Abbaspour M, 2006. Effect of sports exercises on primary dysmenorrhea. *Journal of medical sciences.* 6(1): 26-31.
- Alan H, Martin L, 2000. Current obstetric & gynecologic diagnosis & treatment. Translated to Persian by: Ghotbi R, Vazir A, Nikraves A, Soleimani M. Tehran: Tabib pub. 158-62
- Beals KA, Meyer NL, 2007. Female Athlete triad update. *Clinics Sport Med.* 26(1): 68-89
- Blakey H, Chisholm C, Dear F, Harris B, Hartwell R, Daley AJ, et al., 2010. Is exercise associated with primary dysmenorrhea in young women? *BJOG.* 117(2): 222-224.
- Choi PY, Salmon P, 1995. Symptom changes across the menstrual cycle in competitive sportswomen, exercisers and sedentary women. *Br J Clin Psychology.* 34:447-60.
- Cockerill IM, Nevill AM, Byrne NC, 1992. Mood, mileage and the menstrual cycle. *Br J Sports Med.* 26:145-50.
- Demirturk F, Akbaryak T, Karakaya IC, Yuksel I, Kirdi N et al., 2008. Interferential current versus biofeedback results in urinary stress incontinence. *Swiss Med Wkly.* 138 (21-22): 317-21
- Diaz A, Laufer MR, Breech LL, 2006. Menstruation in girl and adolescents: using the menstrual cycle as a vital sign. *Pediatrics.* 118(5): 2245-2250.
- Edward L, Donald K, 2001. The physiological basis of physical education and athletics. Translated to Persian by: Khaledan A. Tehran: Samt pube. 585-612
- Gordley LB, Lemasters G, Simpson SR, Yiin JH, 2000. Menstrual disorders and occupational, stress, and racial factors among military personnel. *J Occup Environ Med.* 42(9): 871-881.
- Harlow SD, Park M, 1996. A Longitudinal study of risk factor for the occurrence, duration and severity of menstrual cramps in a cohort of cohort of college women. *Br J Obstet Gynaecol.* 103(11): 1134-1142.
- Hillen TI, Grbavac SL, Johnston PJ, Straton JA, Keogh JM, 1999. Primary dysmenorrhea in young Western Australian women: prevalence, impact, and knowledge of treatment. *J Adolescent Health.* 25(1): 40-5.
- Jarrett M, Heitkemper MM, Shaver JF, 1995. Symptoms and self-care strategies in women with and without dysmenorrhea. *Health Care Women Int.* 16(2): 167-78.
- Jonathan S, Berek & Novaks, Gynecology, 2007. Translate to Persian by: Ghazi Jahani B, Zonuzi A, Bahrami N. Tehran: Golban Nashr pub. 481-486.
- Kistner RW, Ryan KJ, Berkowitz RS, Barbieri RB, 1999. Kistners gynecology: principles and practice. 7 ed. Philadelphia, PA: Mosby.
- Marefati H, Salehi F, Mehrabian H, Sharifi H, 2012. Effect of Pilates exercises on primary dysmenorrhea. *Research in rehabilitation science.* 2: 248-253.
- Menefee S, Wall L, 2002. Incontinence, Prolapse and Disorder of the Pelvic Floor. In : Berek J S. Novak s Gynecology. 13 ed. Philadelphia: Lippincott Williams & Wilkins. 654.
- Morkved S, Bo K, 1997. Prevalence and treatment of post-partum urinary incontinence. *Norsk Epidemiologi.* 7(1):123-127.
- Ortiz MI, 2010. Primary dysmenorrheal among Mexican University Student. *European journal of Obstetrics.* 269(3): 125-130.
- Riazi H, Bashirian PS, Ghalichkhani S, 2006. Surveying the amount of use of Kegel exercise during pregnancy and after childbirth in women visiting Health centers in Hamadan. *Hamedan University of Medical Sciences.* 11: 47-54.
- Ronkainen H, Pakarinen A, Kirkin P, Kauppila A, 1985. Physical exercise- induced changes and sea [aon- associated differences in yhe pituitary- ovarian function of runners and joggers. 60(30): 183-192
- Ryan KJ, Berkowitz RS, Barbieri RL, Dunaif A, 2006. Kistner gynecology and women's health Translated to Persian by: Ghazi Jahani B, Ghotbi R. Tehran: Golban pub; P: 62-65
- Saadatabadi S, 2010. Effect of 6 weeks of flexibility excrises on dysmenorrhea. *Journal of Isfahan School of medicine.* 28: 109.
- Shahrjerdi SH, Sheykh Hosseyini R, 2009. Effect of 8 weeks of training on primary dysmenorrhea of female students aging 15 to 17 in Arak. *Shahrekord University of medical sciences.* 4: 84-91.
- Shavandi N, 2009. Effect of one period of isometric exercises on primary dysmenorrhea. Master thesis. Faculty of physical education of Khorasgan University.
- Williams, 1989. Pregnancy and childbirth. Translated by Ghazi Jahani B. 1st Pr. Tehran: Golban publications. 530.