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THE EFFECT OF AN 8-WEEK-FLEXIBILIBY TRAINING ON PRIMARY DYSMENORRHEA'S PHYSICAL AND PSYCHOLOGICAL SYNDROMES IN NONATHLETIC GIRLS

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ABSTRACT

Dysmenorrhea is one of the most common complaints in women medicine which comes along with physical psychological symptoms.

The objective of current study was to study the effects of an 8-week-flexibility training on primary dysmenorrhea's physical and psychological symptoms in nonathletic girls.40 nonathletic girls were randomly divided into 2 equal groups (control and training). The training group participated in an 8-week-training plan consisting abs muscle, waist, hamstring and thigh adductors. They performed 8 moves with 3 times repeating in every move and each repetition lasted for 10 seconds during 4 days in a week. The control group did not intervene. Before and after 8 weeks, subjects filled out the menstruation disorders questionnaire. These data was analyzed through deduction and description statistics (T test).

Significant decrease was observed among training group physical symptoms from 28.4 to 6.7 and psychological symptoms from 25.86 to 5.93 after 8-week-flexibility trainings ($P<0.05$).

So, current study findings have shown that, an 8-week-flexibility training cause's decrease in primary dysmenorrhea's physical and psychological syndromes in girls.

Key words: Flexibility Training, Primary Dysmenorrhea, Physical Symptoms, Psychological Symptoms, Nonathletic Girls

INTRODUCTION

Today's, everyone knows the advantageous of exercise and activities. By exercising, we can prevent diseases or use it for treatment. Dysmenorrhea is one the most common problems among women which is divided into 2 types primary and secondary. In primary dysmenorrhea, the pain begins along or hours before period and lasts for 12-72 hours and is like childbirth pains with upper pubis cramps **[1].** Secondary dysmenorrhea occurs with painful bloodshed caused by pelvic diseases such as endometriosis, pelvic inflammatory diseases, cervical stenosis, cysts, ovary tumors etc **[2].**

Primary dysmenorrhea does not threaten the life of person cause no handicap, however can affect the quality of women's life and cause disability in extreme cases that makes person not to attend in her workplace **[3]**; near 1% of women in pregnancy ages cannot work 1 to 3 days per month because of hard dysmenorrhea and every month near 14 % of girls are absent in school, and those who attend in their workplace, have low efficiency **[4].**

The reason for primary dysmenorrhea is not well-known yet, but what apparent is, prostaglandin plays an important role in occurring primary dysmenorrhea and most of its syndromes can be justified by prostaglandin activities. Many studies have shown the effects of non-steroid anti-inflammatory medicines on dysmenorrhea syndromes improvement. The study results showed that exercising can improve the difficulties caused by dysmenorrhea **[5].**

Exercise would decrease sympathetic nerves activity by decreasing stress, thereby menstrual syndromes would increase. On the other hand exercising causes increasing on beta endorphin levels **[6]**, so it probably affects pain feelings and can decrease dysmenorrhea syndromes. Most of survey results have shown that, exercising improves inconveniences caused by dysmenorrhea. One of these surveys has shown the decrease of menstrual syndromes after a 12-week-aerobic exercising **[5]** and in other study titled as" the effect of exercising on primary dysmenorrhea in high school girls of Masjed Solejman", announced that exercising can decrease painful menstruation intensity and duration and also using sedative medicines in high school girls **[7].**

Leib et al (1986) studied the effects of exercising on primary dysmenorrhea for 3 years. The subject girls carried out Globe sport for this research. At the end of the research, he showed that there is significant

difference in decreasing pain between two groups of training and non-training **[8].**

Abbaspour et al (2006) studied the effects of exercise on dysmenorrhea treatment. The results showed that pain intensity has decreased in 3th and 4^{th} period of training group ($P \leq 0.01$) and also the average pain duration significantly decreased during these two periods ($P \leq 0.01$). So they put it in this sentence that, exercising can decrease duration and intensity of dysmenorrhea in high school girls **[7].** Rasoul zadeh et al (2007) examined the effects of relaxation on primary dysmenorrhea, and concluded that, the muscular advancing relaxation method causes decrease on dysmenorrhea pain **[9].**

Shahrjerdi et al (2009) studied the effects of an 8-week-stretchinging exercises primary dysmenorrhea of 15-17 years old student girls in Arak. The results showed that pain intensity and duration and the amount of using sedative medicines in stretching exercises have significant decrease in compare with control group in dysmenorrhea **[10].**

In other study, Shavandi et al (2010) studied the effects of an isometric training period on primary dysmenorrhea. He has shown that the effects of isometric trainings did not have significant difference in order to reducing the pain between the pretest (after the first period of menstruation), and mid-test (after the second period of menstruation), and also between mid-test and post-test (after the 3th period of menstruation), but a significant difference was observed among pretest **[11].**

So, according to studies results, the objective of current study was the effects of an 8-week-flexibility training on primary dysmenorrhea's physical and psychological syndromes in nonathletic girls.

SUBJECTS AND METHODS

The current research statistical society is consisted 380 nonathletic girls (16-18 years old) from Marvdasht, Fars, Iran that 40 volunteers were chosen randomly as statistical subjects according to sample volume calculation formula. The volunteers got familiar with the performing method, types and objectives. At the end of session, a testimonial and two personal information questionnaire were given to volunteers, consisting the questions about age, height, weight, first menstruation age, having exercise and activities, consuming sedatives during dysmenorrhea, the period of menstruation (between 28-30 days), menstruation cycle discipline and pain visual analogue scale, and they were asked to fill out the questionnaire during their first and second menstruation cycles. The visual analogue scale (VAS) is a 10 cm line, and the

person being asked to indicate her pain level on this line from 0 (no pain) to 10 (intolerable pain). Those who get 4-7 have medium dysmenorrhea and those who get 7-10, have intense dysmenorrhea. Those who get less than 4 have not been participated in this research. 40 subjects were chosen among those people in order to participate in training plan provided that, have not been athlete, have not had pelvic inflammatory diseases, fibroma, cyst and tumor after examination, were not single, have not had any ailment diseases or stressful factors such as parent divorce and so it last 6 months.

The subjects were randomly divided into equal groups (control and training) and the first menstruation disorders questionnaire (form T) were given to research groups to fill them out according to menstruation period signs, and the questionnaires were consisted 22 dysmenorrhea's physical and psychological syndromes (12 questions about psychological symptoms and 10 questions about physical symptoms), were divided into degrees of None (0 point), Slight (1 point), Medium (2 points), intense (3 points), and extreme (4 points). Then research schedules were given to the subjects in form shape. During 4 days in 8 weeks, subjects of training group performed 8 certain moves in 3times and each times lasts for 10 s. Some of these moves were performed in different directions. By considering these directions, 18 moves were performed in total and 1 s added to stretching duration every week. The control group did not intervene. After 8 weeks, subjects filled out the second menstruation disorders questionnaire and the results were being analyzed. We have to mention that most surveys have shown that, at least 6 to 8 weeks is needed for training effects, so research period is 6-8 weeks **[12].** In current study, the 8-week-training consisted 8 types of flexibility training about abs, waist, thigh and hips muscles that were taught to the subjects. The subjects in training group were asked to do as what explained in following schedule during 8 weeks:

The gathered data was analyzed by SPSS software and descriptive statistics (average, standard deviation) and concluding (T test).

Table 1: The flexibility training protocols of training group

Week	Duration of each moves	Week	Duration of each moves	Set numbers	During week
First	**10 s**	**Fifth**	**14 s**	**3**	**4 days**
Second	**11 s**	**Sixth**	**15 s**	**3**	**4 days**
Third	**12 s**	**Seventh**	**16 s**	**3**	**4 days**
Fourth	**13 s**	**Eighth**	**17 s**	**3**	**4 days**

RESULTS

According to the results, the subjects were match to each other in demographic properties (age, height and weight), and they have no significant difference (P>0.05) (Table 2).

Results in Table 2 showed that, an 8-week-flexibility training causes a significant decrease in physical-psychological dimensions (P=0.001) (Table 3).

According to results in Table 3, a significant difference was in physical dimensions changes (P=0.001), as the value of physical dimension reduction in training group was significantly more than control group (P=0.001). Also significant difference was observed in psychological dimension changes of groups, as the value of physical dimension reduction in training group was significantly more than control group (P=0.001).

Table 2: Comparing the demographic properties average and scale deviation of participants in the survey

Variable group	Control	Training	Significance level
Age (year)	16.8±0.7	16.7±0.8	P>0.05
Height (cm)	158.5±6.9	162.7±4.7	P>0.05
Weight (kg)	50.3±7.9	52.5±6.8	P>0.05

Table 3: The comparison of physical-psychological changes average points in studied groups in pretest and post-test

Group	Menstruation disorders	Pretest score average	Pretest score average	Z statistics	Significance level
Control	Physical dimension	29.53	31.73	-3.49x	P=0.001
	Psychological dimension	25.2	26.6	-3.55x	P=0.001
Training	Physical dimensions	28.4	6.7	6.7x	P=0.001
	Psychological dimensions	25.86	5.93	-3.41x	P=0.001

DISCUSSION AND CONCLUSION

More than 50% of period women have dysmenorrhea. Most of behavioral changes would increase within this period that consisted 2 groups of physical symptoms and psychological symptoms. Considering this issue that, one of the making pain mechanism in dysmenorrhea is pelvic muscles hard shrinkage when blood coming out of the womb, exercise activities related to flexibility can reduce muscular strains and also causes physical and psychological calmness.

Lac et al (1999) notified that one of the making pain mechanism in dysmenorrhea is pelvic muscles hard shrinkage when blood coming out of the womb; so by increasing abs and pelvic muscles flexibility, it reduced the pain and muscles shrinkage **[13].** Eganov and Boil (1994) expressed that an aerobic training period is effective on physical symptoms caused by dysmenorrhea and psychological symptoms (anger, hatred, sadness, fear and shame) **[14].**

Naeeni et al (2008) studied the effects of aerobic and body building training on dysmenorrhea. A decreasing value in physical symptoms before menstruation of subjects was reported after 3months training **[15].** Saadat abadi et al (2010) studied the effects of a 6-week-flexibility training on dysmenorrhea. Findings showed that flexibility training causes a significant decrease in dysmenorrhea's physical and psychological syndromes, that their research results are consistent with current studies **[12].** Nikbakht et al (2005) studied the effects of an 8-week-aerobic exercise and consuming vitamins B6 on pre-menstruation syndromes in nonathletic girls from Chamran University of Ahvaz. Their results showing that aerobic exercise and vitamin B6 would significantly decrease PMS psychological and physical symptoms and the decrease rate was more sensible in the training group **[16].**

So, current findings are consistent with the survey results of Hudson (2007), Lac and Varan (1999), Eganov and Boil (1994), Saadat Abadi (2010), Birjandi (2010), Sekhavat (2008) and Nikbakht (2005) **[12,13,14,15,16,17,18,19].**

Having sport activities because decreasing in muscular strains, muscle stiffness and improves blood cycling to muscles long time that these altogether cause decrease in dysmenorrhea physical symptoms. Possibility of weakness and dizziness would decrease in blood cycling. On the other hand, physical activities cause releasing endorphins, and this hormone can reduce tiredness. Also the womb sympathetic nerves activity would decrease through decreasing sympathetic nerves activity caused by exercising, and it ends up reducing the pain.

Current findings are not consistent with the survey results of French (2008), Hightower (1997), and Metney and Smith (1989) **[20,21,22].** They notified that, sport activities cause increasing in dysmenorrhea physical symptoms. Such these contradictions maybe because of type of exercise, different characteristics of subjects such as age, weight, different nutrition diet etc. Also, Hightower et al (1997), found contradiction

results with this research. He expressed that people's training status is associated with more reports about excitement during menstruation bloodshed, and in another state, the training status has no effect on negative psychological symptoms related to period cycle. The reason for this inconsistency can be different sport activity natures in their surveys. Intensity and type of activity can cause different effects. Also if the subjects being not in the same psychological conditions, it may ends up to different results **[21].**

Also Saadat Nejad et al (2010) studied the effects of resistance training on primary dysmenorrhea. The results showed that resistance training has no significant impact on dysmenorrhea physical and psychological syndromes **[23].** These contradictions maybe because of type of training, duration, intensity and its nature.

Altogether, we can conclude from current research findings that, an 8-week-flexibility training causes decrease in dysmenorrhea physical and psychological syndromes in girls.

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