

The Effect of Menstruation on Sports Women's Performance

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ABSTRACT The aim of this study is to investigate the effect of menstruation cycle on sportswomen performing team sports. In the study, it is practiced an 18-questioned survey to 40 footballer, 40 handball players, 40 volleyball players and 40 basketball players doing sports at a distinguished level being as in total 160 sportswomen related to their menstruation cycle. Frequency and variation analysis is used for the analysis of the data being obtained in the study. Menstruation beginning ages successively 13.02 years, 13.05 years, 13.04 years, and 13.66 years. In all of the athletes normally there is an irregularity with menstruation at a rate of 19.4 percent. It is observed that ten percent of athletes used drug during sports event, 8.8 percent menstruation cycle is painful, 35.6 percent is painless, 55.6 percent is sometimes experienced painful. After menstruation 78.1 percent of athletes stated feeling themselves well. The phase athletes feel themselves the worst is the pre-menstruation phase with the rate of 10.1 percent. During the menstruation phase 19.9 percent of athletes stated that their performance is the same, 2.5 percent stated that better. It is concluded that menstruation cycle does not affect the performance of the athletes taking part in the study.

INTRODUCTION

Arguments being continuously on agenda between sports and woman have been subjected to many scientific studies and in this field, physiologic, endocrinologic and psychological studies have been done. With these studies, many topics that one is skeptical about have been clarified and it is emerged that there is no restraint for women enjoying sportive activities. These studies made by setting off from physiologic, morphologic, and hormonal differences between women and men set forth the reality that women can do all kinds of sports among their sex (Sevim 1997; Cakmakci et al. 2005). Women, according to men, have a different being physiologically, anatomically, physiologically and with their special situations. This difference in their being put women at sportive applications sometimes in advantageous and disadvantageous situations. When the topic is held anatomically, while there is a rate of five to ten percent difference, in regard to their physiologic being this rate shows difference between ten to twenty percent. These negative changes in

women have a statistical importance in most of the sportive applications (Cakmakci et al. 2005). The greatest physiologic difference separating women from men is the menstrual cycle is the menstrual cycle being under control of the hormonal system. While these cycles putting forth the difference between women and men, the effect of its on performance has become an argument topic (On et al. 2014). However, it is important that these features should be known and well evaluated for the exercise programs done on the women. With this direction for this study it tries to evaluate the performance of women in their menstruation cycle. The menarche, being described as the first phase of menstruation generally starts at the age of 12-13. Menstruation is a life period that is a result of the evolution in the ovary functions of women. It is known that it is more regular with the ones doing sports. Retarding of the menarche age determines the performance of athletes. In several studies menstruation beginning age of swimmers and athletes is weaker than them, retarded than their rivals (Fox et al. 1988). In the women athletes doing heavy and long-term exercise the changes in the menstruation cycle in respect to that amenorrhea is seen. It is stated that amenorrhea prevalence changes between six to seventy-nine percent because of its being related to exercise duration and intensity (Warren et al. 2001). In some of the women pre-menstruation and during menstruation, while there is no difference experienced, in some of them physical, psycho-

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logical and emotional changes and some irregularity can be seen (Kin et al. 2000). Female athletic performance has been associated with a broad spectrum of menstrual dysfunction, ranging from primary amenorrhea or delayed menarche to luteal phase deficiency, oligo menorrhea, anovulation and secondary amenorrhea (Nikolaos et al. 2011). In the menstruation phase there is no decrease seen on performance of athletes. However, just before the flow and on the first days, with the known complaints there can be seen some decrease of performance. In this respect menstruation does not hinder exercise or competition (Carl and Daniel 1977; Cakmakci et al. 2005). No matter how women feel a decrease on their physical capacity, the medical examinations at Olympic games showed that women set world records in every phase of menstruation (Fox et al. 1988).

MATERIAL AND METHODS

This study uses the qualitative of scan (survey). Data is gathered using of 40 football players, 40 handball players, 40 volleyball players and 40 basketball players doing sports at distinguished level, with 160 in total. The survey is applied after the written and spoken information given to the athletes with the study. The survey form is composed of two chapters and including some specifications belonging to menstruation and situations and being prepared according to menstruation filled by athletes. The survey comprises 21 questions including three of them for demographic information and 18 of them Likert-type questions.

In the analysis of data, the SPSS packet program is used. In the evaluation of obtained data, definitive statistics and frequency analysis is used.

For investigating and putting forward to a reliability proof of the scale being prepared according to menstruation get its last form by applying factor analysis and Cronbach Alpha internal consistency coefficient is calculated. The Cronbach Alpha internal consistency coefficient of the scale is found as 0.868. This coefficient is literally among the most trustable accepted rates (Kalayci 2009).

RESULTS

Table 1 shows the age, menarche and average of exercise ages of athletes participating in the study.

Table 1: Calendar age, competition age and exercise age according to branches

Variables	Branches	N	Ave. $\pm$ SS
Age (year)	Football	40	20.91 $\pm$ 2.16
	Handball	40	20.72 $\pm$ 2.06
	Volleyball	40	21.02 $\pm$ 2.02
	Basketball	40	21.13 $\pm$ 2.18
Menarche Age (year)	Football	40	13.02 $\pm$ 1.18
	Handball	40	13.05 $\pm$ 1.29
	Volleyball	40	13.04 $\pm$ 1.10
	Basketball	40	13.66 $\pm$ 1.49
Exercise Age	Football	40	4.75 $\pm$ 0.10
	Handball	40	5.75 $\pm$ 1.15
	Volleyball	40	6.75 $\pm$ 1.10
	Basketball	40	6.50 $\pm$ 1.50

The percentage distribution of the answers given by the athletes to the 18 questioned surveys prepared according to menstruation and some features belong to menstruation and situations are given in Table 2.

DISCUSSION

In this study, the menstruation beginning age is defined in footballers as 13.02 years, in handball players as 13.05 years, in volleyball players as 13.04 years and in basketball players as 13.66 years.

Fox (1988) in a study he did, reported that menarche begins approximately among sedentaries at 12.29 years, high school athletes at 13.02 years, college athletes at 13.05 years, competitive swimmers at 13.04 years, national athletes at 14.58 years, Olympic athletes at 13.66, middle rangers becoming national athletes at 14.10 years, Olympic volleyball players at 14.18 years, and runners in the national team at 14.20 years. It is identified that in the studies related with the beginning age of menstruation, the menarche age of athletes' rate is higher than sedentaries and even the distinguished athletes begin the menstruation process later than normal athletes (Di Cagno et al. 2012; Dusek 2001; Georgopoulos et al. 2010; Klentrou et al. 2003; Uysal 1996). Kin et al. (2000) found the menarche age among 103 people being athletes 13.61 and 99 people being non-athletes as 13.25. It is indicated that in 19.4 percent of the athletes attending the study, irregularity is found while menstruating. It is observed that ten percent of athletes using medicine during competition, 84.4 percent not using medicine, 8.8 percent having menstruation phase painful, 35.6 percent painless, 55.6 percent some-

Table 2: The answers given to survey questions and % values

Questions	Answers	Total	
		N	%
General menstruation situation	Regular	116	72.5
	Irregular	31	19.4
	Sometimes irregular	13	8.1
Pain situation of menstruation	Painful	14	8.8
	Sometimes painful	89	55.6
	Sometimes painful	57	35.6
The effect situation of sports to menstruation pain	Doesn't effect	18	11.3
	Effects positively	133	83.1
	Effects negatively	9	5.6
Using medicine at exercise	Yes	26	16.3
	No	134	83.8
Using medicine at competition	Sometimes	-	-
	Yes	16	10
	No	135	84.4
The effect situation of menstruation on daily life	Sometimes	9	5.6
	Doesn't effect	136	85.0
	Sometimes effects	15	9.4
Monthly menstruation situation	Effects	9	5.6
	Less than 3 days	-	-
	3-5 days	117	73.1
	5-8 days	43	26.9
	8-10 days	-	-
	More than 10 days	-	-
Attending situation at exercise on menstruating phase	I attend	154	96.3
	I sometimes attend	6	3.8
	Never attends	154	96.3
Attending situation at competition on menstruation phase	I attend	156	97.5
	I sometimes attend	4	2.5
	Never attends	-	-
The situation of feeling herself before menstruating	Very well	24	15.0
	Well	120	75.0
	Bad	14	8.8
Feeling situation of herself on menstruating phase	Very bad	2	1.3
	Very well	24	15.0
	Well	120	75.0
Feeling situation of herself after menstruating phase	Bad	14	8.8
	Very bad	2	1.3
	Very well	35	21.9
	Well	125	78.1
	Bad	-	-
	Very bad	-	-
At which phase of menstruation your acts are comfortable	At the beginning	17	10.6
	In the middle	13	8.1
	At the end	48	30.0
The term in which your performance enhanced	From beginning till the end	82	51.3
	At the beginning	-	-
	In the middle	147	91.9
	At the end	4	2.5
	From beginning till the end	9	5.6
Being effected of physical performance at menstruation phase	Negative	-	-
	Sometimes negative	3	1.9
	Sometimes positive	11	6.9
	Positive	146	91.3

times painful, in 83.1 percent of them, it is observed that exercise positively affected pains. Among eighty-five percent menstruation does not affect negatively to the daily life. Monthly menstruating phase duration is 73.1 percent with 3-5 days, 26.9 percent with 5-8 days. After men-

struating 78.1 percent of the athletes stated that they feel well after menstruating. The phase athletes feel themselves worst is the phase just before the menstruation with 10.1 percent. The athletes stated that 97.5 percent of them took part in competitions during the menstruation phase.

With a rate of 91.3 percent athletes are in the thought of menstruation phase effects physical performance positively.

Kin et al. (2000), in a study they conducted found that when they investigated 103 athletes and 99 sedentary women ranging the ages between 12-25, 54.37 percent of woman athletes and 72.73 percent of the control group have irregular menstruation, the proportion of the stating pain in menstrual phase is 70.87 percent and 29.3 percent stating no pain. Again in the same study when they asked the woman athletes the effect of menstrual phase to their performance, they got the answer of 50.49 percent does not affect and 49.51 percent affects.

Imamoglu et al. (2005) in the study they conducted found the rates of 51.5 percent having regular menstruation, 14.5 percent irregular, and stating irregularity for sometimes thirty-four percent. Again in the same study they stated that 36.9 percent of the athletes having painful menstruating, 17.4 percent painless, 45.6 percent having this phase sometimes painful, for reducing the pain 9.5 percent of the athletes using medicine, 11.6 percent using medicine during competition and only 1.7 percent of the athletes use medicine for bringing menstruating forwards or backwards.

In a study with the 96 women athletes dealing with a team sport it is observed that the people doing heavy exercise have more irregularity of menstruation and menstrual function being turned into normal by giving break to exercise or the density of exercise is decreased (Uysal 1996).

Dusek (2001) found of the result of a survey he applied to 72 athletes and 96 sedentary group between the ages of 15-21 that the pain is twice more among sedentaries than athletes during menstruating. Reer (1992) states that in a study he completed, seventy percent women have the same or better performance during menstruating and thirty percent show worse performance. The highest performance capability of athletes is post menstruating period and comes out between the 15th day of the menstrual cycle.

The lowest performance is seen before the menstruating. In a study Imamoglu et al. (2004) completed, it is stated that seventy-one percent of the athletes felt themselves good during the first 14 days after menstruating began, the phase they felt worst is the phase just before menstruating with the proportion of forty-nine percent. Again in the same study it is stated that through

the menstruation performance of the 62.2 percent of the athletes as the same, 21.2 percent is worse. Ozdemir and Kucukoglu (1993) found in their study that when the women have a painless menstruation and their speed and strength do not get affected negatively.

Colakoglu et al. (2005) in a survey they made on 56 active women volleyball players, investigated exercise-menstruation and age of exercise-menstruation cycle relations and as a result they found that exercise does not affect menstruation and menstruation effects sportive activity physiologically. Cakmakci et al. (2005) in a study on 30 women having menstruation phase painless and little painful, identified that average of age 19.66 years, average of body weight 56.33 kg and average of height 164.6 cm. according to the Wingate test, it is found that in menstruating phase the average of anaerobic strength values 429.73 $\pm$ 62.58 W, in ovulation phase 409.68 $\pm$ 57 $\pm$ -44 W, but there was no difference statistically. Hazir et al. (2011) in the sprint test and in the gathering speed tests at midfollicular and luteal phase conducted on 11 women athletes having regular menstruation, they could not find any effect of menstruation on repeated sprint performance and to the gathering speed.

In this study it is identified that menstruation phase does not affect the performance of athletes, even it is stated that at some phase the performance is enhanced. As a result of a literature scanning according to this topic the findings have supporting qualitative. It is being an argumentative topic that being sportive reduces or enhances the pain coming out by menstruation. In this study it is investigated whether menstruation has positive or negative effects on sportive performance and as a result of the researches the negative effects of menstruation differs from person to person, also the positive effects give the same result on everybody. In the interviews made with the athletes attending this study voluntarily stated that they are hesitating about being aware of their menstruation phase by others, and when they get this situation under control, they can too comfortably attend to exercises and competitions. Scientific studies indicate that menstruation does not have too important an effect on organisms and women can easily attend sportive activities.

Ozmerdivenli et al. (2007) in a study believe that regularly performed non-vigorous exercise does not affect the gonadotropic hormones of

the anterior hypophysis and the free thyroid hormones, but increases the PRL and the total thyroid hormone levels without any effect on the menstrual pattern.

CONCLUSION

Finally, the studies, being done, put forward that no matter how menstruation phase does not negatively affect performance, there is difference among people. It should not be forgotten that everybody does not experience this situation the same. It is thought that at exercise and pre-competition, during and after, giving posited support on women athletes' affects performance in a positive direction.

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