

# Pathological Menstrual Cycle: Studying A Number of Physical and Psychological Manifestations of Premenstrual Syndrome in A Number of Sports, In Women Athletes of Different Age Groups

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## Annotation

The article presents the results of a longitudinal study devoted to the study of the characteristics of somatic and psychological manifestations of premenstrual syndrome [PMS] in athletes of different age groups and in various sports. Presents comparative data of researchers involved in this problem, and the data of the author, describes the options for the formation and development of PMS in each of the examined age groups.

**Keywords:** Female athletes, pubertal age, adolescence, I reproductive age, ovarian-menstrual cycle, premenstrual syndrome, somatic and psychological manifestations.

## 1. Introduction

Questions related to the study of various aspects of the functioning of the reproductive and endocrine systems in athletes of all age groups in modern women's sports are always relevant and in demand. This also applies to the study of various aspects of the ovarian-menstrual cycle (OMC), as well as the individual characteristics of the physical and psychological manifestations of premenstrual syndrome [PMS], in female athletes of different age groups, under the influence of intense physical and psychological stress on the athletes' bodies. Unfortunately, in the domestic specialized literature concerning various aspects of PMS in female athletes, we have not found any works concerning the analysis and consideration of the somatic and psychological aspects of PMS, and their possible combinations, in female athletes of different age groups, in different types of modern women's sports. This work is an attempt to study this issue and compare the results of the study with the results obtained by foreign colleagues, researchers of this problem in modern women's sports [1-5].

According to the opinion of a number of authoritative experts, "Premenstrual syndrome [PMS] is a condition that occurs as a result of a complex of psycho-emotional, endocrine and vegetative-vascular disorders [6-10]. Symptoms of PMS usually appear 2-10 days before the start of menstruation. According to statistics, PMS in one form or another is observed in 70-90% of women, of which about 35% seek

medical help due to severe symptoms" [V.N. Serov, V.L. Tyutyunnik, M.A. [11-14]. Tverdikova, 2013; According to E.B. Yakovleva and co-authors, "The frequency of PMS depends entirely on the woman's age: the older she is, the higher the frequency, and ranges from 25 to 90%. At the age of 19 to 29 years, PMS is observed in 20% of women, after 30 years, the syndrome occurs in approximately every second woman [6, 7]. At the same time, the symptoms of PMS are individual for each woman. Issues related to the study of various aspects of medical and biological problems and functional disorders in athletes of different age groups are always relevant and in demand [1-14]. The problems of studying reproductive system disorders in female athletes in various sports are no exception. The menstrual cycle, as a predictor of functional and organic disorders of the female reproductive system, has always been the object of close attention of researchers [1-14]. The issue of premenstrual syndrome, with its variety of somatic and psychological changes [both psychosomatics and somato-psychology], has received quite a lot of attention in recent years from gynecologists, endocrinologists and psychologists.

In the issue of studying PMS in female athletes, the palm belongs to foreign researchers of this problem. These are research works by such authors as: L.M. Dickerson, P.J. Mazzyk, M. H. Hunter; P.K. Braverman; M.H. Balaha, El Monem Amr MA et al, I. Zukov, R. Ptacek, J. Raboch et al; S. Popova, D. Popova-Dobrev, S. Karacan, F.F. Colakoglu, G. Ercöz; Taşğın

Özden. A number of domestic specialists in the field of gynecology and gynecological endocrinology have conducted studies on non-athlete patients, studying various aspects of PMS in different age groups. These are scientists such as: V.N. Serov, V.L. Tyutyunnik, M.A. Tverdikova; E.B. Yakovleva, O.M. Babenko, O.N. Pilipenko. The issues of various aspects of ovarian-menstrual cycle [OMC] disorders and disorders of the reproductive system in female athletes, including the problem of various manifestations of PMS, were dealt with by such researchers as: N.A. Kalinina; V.M. Osipov; S.N. Belik, I.V. Podgorny, Yu.V. Mozhinskaya; S.G. Vasin; K.A. Bugaevsky].

### 1.2. Aim of study

The purpose of this research, author's article is to present the results of the study, and their analysis, directly related to a number of physical and psychological manifestations of such a widespread type of ovarian-menstrual cycle [OMC] disorders as premenstrual syndrome [PMS], in female athletes of different age groups, in a number of sports.

### 2. Material and methods

This study is longitudinal, covering the time of the study, the period from 2021 to 2022. To conduct the study, a special questionnaire was created, including questions regarding the individual characteristics of the dynamics of CMC and the somatic and psychological manifestations of PMS and variants of its combinations [author - Bugaevsky K.A., modification]. Also, to clarify a number of individual characteristics of OMC and PMS in female athletes, interviewing was used. The method of literary analysis of available sources of information on the problem under study was used. All athletes who took part in the study conducted by the author gave their voluntary, written consent to participate in it.

When conducting the study, the modern classification of this pathological condition was used as criteria for the manifestations of PMS [6, 7]. The somatic and psychological manifestations of PMS included the following: neuropsychic, edematous and cephalgic forms [6, 7]. In accordance with the provisions of this classification, "the neuropsychic form is characterized by a predominance of symptoms such as irritability, depression, weakness, tearfulness, aggressiveness, etc. In the edematous form, symptoms such as engorgement and tenderness of the mammary glands, swelling of the face, legs, fingers, bloating, irritability, weakness, itchy skin, increased sensitivity to odors, sweating. In the cephalgic form, the clinical picture is dominated by symptoms such as headache, irritability, depression, nausea, vomiting, increased sensitivity to sounds and smells, and dizziness" [6, 7].

In total, 300 female athletes took part in the study. Of these, 106 are female athletes of puberty age, 155 are female athletes of adolescence, and 39 female athletes are of reproductive age. Considering the fact that manifestations of PMS occur only in women who have menstruation, the group of female athletes of puberty age, to participate in the study, included athletes who already had a history of both menstruation and, accordingly, having manifestations of PMS. Also, the author of this study actively used the method of literary critical analysis, available sources of information on the issue under study, as well as the method of mathematical statistics.

### 3. Results and discussion

After the survey and clarifying, additional interviews of the female athletes, a thorough analysis of the research results was carried out. In table Figure 1 shows the prevalence of PMS manifestations in female athletes of pubertal age [n=106], in 6 different sports.

**Table 1: Dynamics of PMS manifestations in female athletes of puberty age**

Somatic manifestations of PMS	Psychological manifestations of PMS	Combined manifestations of PMS
Women's boxing (n=17)		
6 (35,29%) female athletes	6 (35,29%) female athletes	6 (35,29%) female athletes
Kickboxing (n=23)		
19 (82,61%) female athletes	16 (69,57%) female athletes	16 (69,57%) female athletes
Dance sport (n=15)		
11 (73,33%) female athletes	10 (66,67%) female athletes	10 (66,67%) female athletes
Kayaking and canoeing (n=19)		
11 (57,95%) female athletes	9 (47,37%) female athletes	9 (47,37%) female athletes
Kyokushin - karate (n=18)		
6 (26,09%) female athletes	6 (26,09%) female athletes	6 (26,09%) female athletes
Pankration (n=14)		
8 (57,14%) female athletes	7 (50,00%) female athletes	7 (50,00%) female athletes

We found that 61 (57.55%) female athletes of pubertal age had somatic manifestations of PMS, 54 (50.94%) had psychological manifestations, and 54 (50.94%) had combined manifestations of PMS. In the group of female youth athletes

(n=155), somatic, psychological and combined manifestations of PMS were also identified. Data on the manifestations of PMS in this group of female athletes are presented in Table. 2.

**Table 2: Manifestations of PMS in teenage female athletes**

Somatic manifestations of PMS	Psychological manifestations of PMS	Combined manifestations of PMS
Women's boxing (n=13)		
13 (100,00%) female athletes	11 (84,62%) female athletes	11 (84,62%) female athletes
Kickboxing (n=24)		
8 (53,33%) female athletes	8 (53,33%) female athletes	8 (53,33%) female athletes
Dance sport (n=15)		
13 (86,67%) female athletes	11 (73,33%) female athletes	11 (73,33%) female athletes
Kayaking and canoeing (n=21)		
17 (80,95%) female athletes	11 (52,38%) female athletes	11 (52,38%) female athletes
Kyokushin - karate (n=24)		
21 (87,50%) female athletes	18 (75,00%) female athletes	20 (83,33%) female athletes
Tennis (n=12)		
12 (100,00%) female athletes	11 (91,67%) female athletes	11 (91,67%) female athletes
Weightlifting (n=11)		
11 (100%) female athletes	11 (100%) female athletes	11 (100%) female athletes
Powerlifting (n=16)		
13 (81,25%) female athletes	13 (81,25%) female athletes	13 (81,25%) female athletes
Triathlon (n=7)		
7 (100,00%) female athletes	5 (71,43%) female athletes	5 (71,43%) female athletes
Pankration (n=12)		
12 (100,00%) female athletes	10 (83,33%) female athletes	10 (83,33%) female athletes

In total, in the group of female youth athletes representing 10 sports, somatic manifestations of PMS were identified in 127 (81.94%) female athletes, psychological manifestations were identified in 109 (70.32%) female athletes, and combined manifestations were identified in 111 (71.94%). 61%

female athletes. Also, a study was conducted on the manifestations of PMS variants in a group of female athletes of the first reproductive age (n=39), in four sports. The obtained data are presented in table. 3.

**Table 3: Manifestations of PMS in female athletes of the first reproductive age**

Somatic manifestations of PMS	Psychological manifestations of PMS	Combined manifestations of PMS
Women's boxing (n=11)		
11 (100,00%) female athletes	9 (81,82%) female athletes	9 (81,82%) female athletes
Pankration (n=11)		
7 (63,63%) female athletes	5 (45,46%) female athletes	5 (45,46%) female athletes
Dance sport (n=13)		
12 (97,31%) female athletes	11 (84,62%) female athletes	11 (84,62%) female athletes
Triathlon (n=4)		
4 (100,00%) female athletes	4 (100,00%) female athletes	4 (100,00%) female athletes

It was found that 34 [87.18%] athletes in this group have somatic manifestations of PMS, 29 [74.35%] athletes have psychological manifestations, and 29 [74.35%] athletes have combined manifestations of PMS. After receiving the results of the study, their analysis was carried out, which showed that the results obtained are almost completely consistent with the results of domestic and foreign researchers on the problem of PMS in female athletes and do not contradict them.

#### 4. Conclusions

Considering the analysis of the results obtained, in the entire examined group, various somatic manifestations of PMS were identified in 222 [74.00%] of all female athletes. Various psychological manifestations of PMS were recorded in 192 [63.00%] female athletes. Combined manifestations of PMS, with moderately and significantly expressed somatic-psychological and psycho-somatological manifestations of PMS, were identified in 194 [64.67%] of all athletes in the three examined age groups. Data from additional interviews

and questionnaire results directly indicate a significant prevalence of PMS in all types of modern women's sports and in all age groups, being a factor in a significant decrease in the performance of female athletes, both during the competitive and training periods of their activities. The prospect of research in this direction is to conduct additional studies of various disorders of the ovarian-menstrual cycle, incl. and PMS in a larger number of athletes in other types of women's sports.

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