

Premenstrual Syndrome: Peculiarities of Manifestation in Female Athletes of Different Age Groups in A Number of Sports

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Abstract

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.

Key words: female athletes; pubertal age; adolescence; I reproductive age; ovarian-menstrual cycle; premenstrual syndrome; somatic and psychological manifestations

Introduction

According to the opinion of a number of authoritative experts "Premenstrual syndrome (PMS) - a condition resulting from a complex of psycho-emotional, endocrine and vegetovascular disorders [6-10,12-14]. Symptoms of PMS are manifested, as a rule, 2-10 days before the beginning of menstruation. According to statistics, PMS in one form or another is noted in 70-90% of women, of which about 35% seek medical care due to severe symptoms" (V.N. Serov, V.L. Tyutyunnik, M.A. Tverdikova, 2013; According to E.B. Yakovleva et al. "The frequency of PMS depends entirely on the age of the woman: the older, the higher frequency, and varies 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 about every second woman [6, 7]. At the same time, PMS symptoms are individual for each woman. Questions concerning the study of various aspects of medical and biological problems and functional disorders in female 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 ovarian-menstrual cycle (OMC), 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

somatopsychology), has received quite a lot of attention from gynecologists, endocrinologists and psychologists in recent years. In the study of PMS in female athletes, the palm belongs to foreign researchers of this problem. These are the research works of such authors as: L.M. Dickerson, P.J. Mazyck, M.H. Hunter, 2003; P.K. Braverman, 2007; M.H. Balaha, El Monem Amr MA et al., 2010; I. Zukov, R. Ptacek, J. Raboch et al., 2010; S. Popova, D. Popova-Dobrevva, 2011; S. Karacan, F.F. Çolakoglu, G. Ercöz, 2013; Taşğın Özden, 2013. A number of domestic specialists in the field of gynecology and gynecological endocrinology have conducted studies in female non-athletic patients, with the study of various aspects of PMS in different age groups. They are scientists such as: V.N. Serov, V.L. Tyutyunnik, M.A. Tverdikova, 2013; E.B. Yakovleva, O.M. Babenko, O.N. Pilipenko, 2014. The issues of various aspects of ovarian-menstrual cycle disorder (OMC) and reproductive system disorders in female athletes, including the problem of their various manifestations of PMS, have been addressed by such researchers as: N.A. Kalinina, 2004; V.M. Osipov, 2012; S.N. Belik, I.V. Podgorny, Y.V. Mozhinskaya, 2014; S.G. Vasin, 2016; K.A. Bugaevsky, 2015-2018. Unfortunately, in the domestic special literature concerning the issues of various aspects of PMS in female athletes, we have not found any works concerning the analysis and consideration of 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 paper is an attempt to study this issue and compare the results of our research with the results obtained by our foreign colleagues, researchers of this problem in modern women's sports.

Aim of the work

Purpose of the article: consideration and analysis of the research results concerning the dynamics of the formation and course of the premenstrual syndrome and its somatic and psychological manifestations in female athletes of pubertal, adolescent and reproductive age, of different gender somatotypes, engaged in different sports.

Analysis of recent research and publications

This problem has been studied by specialists in women's sports for a long time. But, unfortunately, among specialists, there is still no consensus on the etiology (causes) and pathogenesis of changes in the timing of Me period in female athletes [1-17]. Some authors believe that it is associated with the features of the constitution of female athletes, taken into account by coaches when selecting female athletes for different sports (V.M. Osipov, 2012), others link the delay of menarche with excessive intensity (in frequency and volume) and, respectively, with the physical and psychological components of stress affecting the body of young female athletes and their sports experience (N. D. Roups, N.A. Georgopoulos, 2011; Y.T. Pokholenchuk, B.N. Pangelov; S.G. Vasin, 2016; K.A. Bugajewski, 2014-2018), others emphasize the loss of fat mass and increasing processes of hyperandrogenism in female athletes, with somatic and psychological changes in sexual somatotypes of female athletes (M. Jurczyk, 2010; B. Charniga, O. Solonenko, 2014; E.S. Korneeva, T.P. Zamchiy, 2015; M.G. Masalkin, Y.A. Martynov, 2016; K.G. Terzi, 2016; K.A. Bugajewski, 2014-2018).

In the context of this problem, a special place is occupied by the question: "When it is more physiological to begin to practice sports: before the onset of menarche, or after? There are studies showing the effect of changing the timing of menarche with the beginning of intensive sports activities (B.A. Nikityuk, 1984), where it was shown that female athletes of pubertal age who began sports activities after the onset of menarche, statistically no deviations in the formation and dynamics of CMC were revealed, and also associated with a delayed process and staging of puberty (V.M. Osipov, 2012). In turn, there is an opinion (E.R. Rumyantseva, T. Sokha, 2012, referring to the research of B.A. Nikityuk, 1984) states that "the early beginning of intensive muscular activity (from 7 to 9 years) creates the most sparing conditions for the female body, not preventing timely puberty, provided the training process is built adequately to the functional state of female athletes at certain stages of their development". [9,12]. According to the above authors, in their study in female athletes engaged in weightlifting, both before, during and immediately after the onset of menarche, no violations of the timing of the first menstruation that appeared in the studied female athletes in the physiological terms of 12 to 14 years [9,12,19-21,67-75] were revealed. The determining factor in this issue is the fact that the time of menarche onset depends on the climatic zone, body weight, including the amount of fat tissue (V. Abramov et al., 2005; V.K. Likhachev, 2007; E.A. Konovalova, 2015; K.A. Bugaevsky, 2014-2018), nature of diet, other factors, which are often combined and individual. According to the above authors, in their study in female athletes engaged in weightlifting, both

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In our opinion, it is crucial and fundamental to solve the question of the relationship between sports activities and the timing of menarche in female athletes during puberty. Also, not completely solved issue, which there is no unanimity among modern researchers of biomedical problems of women's sports and in particular the features of menarche in young female athletes, is the question of determining the timing of intensive sports - before the appearance of girls Me, in the short term after the first period, or already on the background of a formed and stable menarche and OMC.

Material and methods

To conduct the study, a special questionnaire-questionnaire was created with the inclusion of questions concerning individual features of OMC dynamics and somatic and psychological manifestations of PMS and variants of its combinations (author - Bugaevsky K.A., 2014, modification, 2018). Also, to clarify a number of individual features 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. During the study, as criteria of PMS manifestations, the modern classification of this pathological condition was used [6,7]. The somatic and psychological manifestations of PMS were classified as: neuropsychological, edematous and cephalgic forms [6, 7].

According to the provisions of this classification, "the neuro-psychic form is characterized by the prevalence of such symptoms as irritability, depression, weakness, tearfulness, aggressiveness, etc. With the edematous form, symptoms such as engorgement and painfulness of the mammary glands, swelling of the face, shins, fingers, abdominal bloating, irritability, weakness, itchy skin, hypersensitivity to smells, sweating predominate. In the cephalgic form, the clinical picture is dominated by symptoms such as headache, irritability, depression, nausea, vomiting, hypersensitivity to sounds and smells, dizziness" [6,7]. All of the young female athletes who took part in the study conducted by the author of this article gave their voluntary consent, in accordance with the moral and ethical requirements of the Helsinki Conference on Research Involving Human Subjects.

Research results and their discussion

A total of 300 female athletes participated in the study. Of them, 106 female athletes of pubertal age, 155 female athletes of adolescent age, and 39 female athletes of reproductive age. Taking into account the fact that PMS manifestations occur in menstruating women, the group of pubertal age female athletes, who already had a history of menstruation and, accordingly, having PMS manifestations, were involved in the study. Table 1 shows the prevalence of somatic, psychological and combined manifestations of PMS in female athletes of pubertal age (n=106), in 6 different sports.

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
Dancing sport (n=15)		
11 (73,33%) female athletes	10 (66,67%) female athletes	10 (66,67%) female athletes
Canoeing and rowing (n=19)		
11 (57,95%) female athletes	9 (47,37%) female athletes	9 (47,37%) female athletes
Kyokushinkai Karate (n=18)		
6 (26,09%) female athletes	6 (26,09%) female athletes	6 (26,09%) female athletes
Pankrathione (n=14)		
8 (57,14%) female athletes	7 (50,00%) female athletes	7 (50,00%) female athletes

Table 1: Dynamics of PMS manifestations in female athletes of pubertal age.

We found that 61 (57,55%) female athletes of pubertal age, were identified somatic manifestations of PMS, 54 (50,94%) - psychological manifestations, and 54 (50,94%) were identified combined manifestations of PMS. In the group of female adolescent 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.

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
Dancing sport (n=15)		
13 (86,67%) female athletes	11 (73,33%) female athletes	11 (73,33%) female athletes
Canoeing and rowing (n=21)		
17 (80,95%) female athletes	11 (52,38%) female athletes	11 (52,38%) female athletes
Kyokushinkai - 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
The Triathlon (n=7)		
7 (100,00%) female athletes	5 (71,43%) female athletes	5 (71,43%) female athletes
Pankrathione (n=12)		
12 (100,00%) female athletes	10 (83,33%) female athletes	10 (83,33%) female athletes

Table 2: PMS manifestations in female youth 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 (71.61%) female athletes.

The manifestations of PMS variants in the group of the sportswomen of the first reproductive age (n=39), in four sports, were also studied. The obtained data are presented in Table 3.

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

Table 3: Manifestations of PMS in female athletes of I reproductive age.

It was found that the somatic manifestations of PMS have 34 (87,18%) female athletes, and combined manifestations of PMS, also 29 (74,35%) female athletes of the group, psychological manifestations - 29 (74,35%) female athletes. After obtaining all the results of the study, their analysis was

conducted, which showed that the results obtained are almost entirely consistent with the results of domestic and foreign researchers of PMS female athletes and do not contradict them.

Abbreviations

- **OMC** – ovarian and menstrual cycle.
- **PMS** - Premenstrual syndrome.

Conclusions

1. Taking into account the analysis of the results obtained, in the whole examined group, various somatic manifestations of PMS were determined in 222 (74,00%) all female athletes.
2. Various psychological manifestations of PMS, were recorded in 192 (63.00%) female athletes.
3. Combined manifestations of PMS, with moderately and significantly pronounced somato-psychological and psychosomatic manifestations of PMS, were identified in 194 (64.67%) all female athletes in the three age groups examined.
4. The data of additional interviewing and results of questionnaire directly indicate significant prevalence of PMS in all kinds of modern female sports and in all age groups, being the factor of considerable decrease in productivity of female athletes, both in competitive, and in training period of their activity.
5. The results of our study do not contradict the data conducted by other researchers and, practically, coincide with them in most of the results.

References

1. Belik SN, IV. Podgorny, YuV. (2014). *Mozhinskaya Influence of sports activities on the reproductive health of girls // Proceedings of the Sociosphere Research Center*, 33:103-111.
2. Bugaevsky KA. (2015). *Menstrual cycle disorder, hyperandrogenism and sports // Medico-physiological bases of adaptation and sports activity in the North: materials of the All-Russian correspondence scientific and practical conference. Syktyvkar*, 13-15.
3. Vasin SG. (2016). *Peculiarities of training process of women taking into account the course of ovarian-menstrual cycle // Innovative Science*, 86114-86116.
4. Kalinina NA. (2004). *Diagnosis and prevention of violations of the reproductive system of female athletes // Theory and practice of physical culture*, 1:49-51.
5. Osipov VM. (2012). *To the influence of intensive physical activity on menstrual function of sportswomen // Theory and method of physical training*, 5:42-45.
6. Serov VN, VL. (2013). *Tyutyunnik, MA. Tverdikova Premenstrual syndrome: the tactics of management of patients in outpatient practice // Reproductive Endocrinology*, 4 (12):30-34.
7. Yakovleva EB, OM. Babenko, ON. (2014). *Pilipenko Premenstrual syndrome. To help the practicing physician // Reproductive Endocrinology*, 4 (18):30-34.
8. Balaha MH., El Monem Amr MA et al. (2010). *The phenomenonology of premenstrual syndrome in female medical students: a cross sectional study // Pan Afr Med J*, 5:4.
9. Braverman PK. (2007). *Premenstrual syndrome and premenstrual dysphoric disorder // J Pediatr Adolesc Gynecol*, 20(1):3-12.
10. Dickerson LM, P.J. Mazyck, M.H. (2003). *Hunter Premenstrual Syndrome // Am. Fam. Physician*, 67(8):1743-1752.
11. Karacan S., F. F. Çolakoglu, G. Ercöz *Menstrual status differences of elite Turkish female athletes from various team sports // Nigde University Journal of Physical Education and Sport Sciences*, 7(2):82-93.
12. Özden Taşğın. (2013). *Psychological situations of Turkish female athletes in premenstrual period // Archives of budo| science of martial arts*, 9(1):15-20.
13. I. Zukov, R. Ptacek, J. (2010). *Raboch et al. Premenstrual dysphoric disorder - review of actual findings about mental disorders related to menstrual cycle and possibilities of their therapy // PragueMedRep*, 111(1):12-24.
14. Popova S, D. (2011). *Popova-Dobrevva Influence of the premenstrual syndrome on the emotional condition of female athletes // Bulletin of the Transilvania University of Brasov. Series VIII: Art. Sport*, 4 (53). 1:225-230.



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