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Research Article

Sports Women of Different Age Groups Engaged in Kayak and Canoe Rowing: Consideration of The Features of a Number of Reproductive Indicators

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Received date: 13 August 2023; **Accepted date:** 02 October 2023; **Published date:** 30 December 2023

Citation: Bugaevsky KA, (2023), Sports Women of Different Age Groups Engaged in Kayak and Canoe Rowing: Consideration of The Features of a Number of Reproductive Indicators, *Clinical Research and Clinical Trials*, 8(4); **DOI:10.31579/2693-4779/156**

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Abstract:

The article presents the results of a study to determine the characteristics of the menstrual cycle and the stage of puberty, and their analysis in athletes of puberty and adolescence who are kayaks and canoeists. It was found that in both age groups, there are variants of disorders in the dynamics of the establishment and course of the menstrual cycle, as well as the stage of puberty.

Keywords: female athletes; athletes; adolescence; pubertal age; menstrual cycle; puberty; canoeing and kayaking

Introduction

Modern women's sport of the highest achievements imposes rather intense physical and psychological loads on athletes of different age groups, which inevitably lead to the formation of adaptive changes of varying severity in them [1; 3; 6; 10; 13]. Taking into account the fact that girls, girls and young women come to women's sports at different periods of their ontogenesis, the issues related to the study of the processes of formation in them, when playing sports, of a complex of adaptive changes in all organs and systems of the body, including and in the reproductive system [1; 3; 6; 9-11; 13]. This also applies to cyclic sports such as rowing and canoeing. An important factor, which has one of the defining values in women's sports, is the question of the relationship between the onset of intense physical activity during training and competition, and the onset of the first menstruation (menarche). We have analyzed the available research materials and publications on the problem under study. I would like to note the works of such authors dealing with the impact of sports activities on the state of the reproductive system of female athletes, such as: A.I. Nekhvyadovich, E.T. Zubovskaya, I.L. Rybina, 2006; E.A. Oleinik, 2013; S.N. Belik, I.V. Podgorny, Yu.V. Mozhinskaya, 2014; V.Yu. Davydov, V.V. Shantarovich, A.Yu. Zhuravsky, D.N. Prigodich, 2017; K.A. Bugaevsky, 2014-2023. I would like to note the research works, both domestic and foreign authors, concerning the features of the ovarian-menstrual cycle (hereinafter OMC) in athletes in a number of sports, such authors as: I.L. Rybina, A.I. Nekhvyadovich, E.T. Zubovskaya, 2006; V. Osipov, 2012; E.S. Korneeva, T.P. Zamchy, 2015; S.G. Vasin, 2016; K.G. Terzi, 2016; K.A. Bugaevsky, 2014-2018; M. Jurczyk, A. Borawska, 2010; V. Charniga, O. Solonenko, 2014; K.A. Bugaevsky, N.V. Zharska, 2017. At the same time, there are practically no research works related to the characteristics of the reproductive system and, in particular, OMC among athletes involved in rowing. The exception is the studies of such authors as I.L. Rybina, A.I. Nekhvyadovich, E.T. Zubovskaya, 2006 and V.Yu. Davydov, V.V. Shantarovich, A.Yu. Zhuravsky, D.N. Prigodich, 2017.

Numerous scientific studies have established that most often a variety of menstrual disorders appear in athletes who started their sports before the onset of menarche, the timing of which is a predictor of reproductive disorders [2-7; 9-13]. This relationship is also associated with changes in the stages of puberty in young athletes, both in puberty and in adolescence [2-7; 9, p. 230-235; 10-13]. We have conducted a study of available research, scientific and methodological sources on the problem under study. But the works concerning the age-specific features of the OMC dynamics and the stages of the process of puberty are clearly not enough. In this regard, this study is an attempt to fill this information gap.

Aim of the work

Study, analysis and presentation of the obtained data on changes in the dynamics of the ovarian-menstrual cycle and the stages of the process of puberty in athletes of puberty and youth who go in for rowing and canoeing.

Abbreviations

- **OMC** - ovarian-menstrual cycle**;**
- **CMC** - candidate for master of sports and **MS** - master of sports;
- **PMS** - Premenstrual syndrome;

- **Me** – menarche - first menstruation.

Object, material and methods of research, and organization of the study

The experimental base of the study was the sports sections, in which young athletes (n=35), rowing (n=20) and canoeing (n=15) trained. Of these, there were athletes of pubertal age (n=16) and youth (n=19). There were 9 athletes of puberty who were engaged in kayaking, and 7 in canoeing. There were 11 kayakers and 8 canoeists in the youth group. To determine the available indicators of the ovarian-menstrual cycle (OMC), we used the author's version of the questionnaire (Bugaevsky K.A., 2017) and a questionnaire to identify violations of the staging of puberty in athletes (Bugaevsky K.A., 2018). Also, to achieve the goal of the study, we used a set of scientific methods, including the analysis of available scientific and scientific-methodological sources of information, the determination of anatomical-anthropometric and morphofunctional values in athletes, interviewing. The method of mathematical statistics was also applied with the processing of the obtained data. This study was conducted in 2021-2022. The level of sports qualification of athletes of both surveyed groups - from the 1st category to the candidate for master of sports (CMS) and master of sports (MS). The intensity and frequency of classes leaves 4-6 times a week, from 2 to 2.5 hours per 1 workout. All athletes who took part in them gave their voluntary consent to it. When writing this work, the author used such research methods as literary-critical analysis of available sources of information, both domestic and foreign; questioning and individual interviewing, using author's versions of questionnaires and questionnaires; method of mathematical statistics.

Results of the study and discussion

The obtained results of the formation and dynamics of OMC in female athletes of pubertal age involved in kayaking and canoeing are as follows: in the group of female kayakers (n=9), the onset of menarche is 13.47±1.03 years, and in their female canoeists of the same age (n=7) – 13.79±0.65 years ($p \leq 0.05$). The terms for establishing the OMC, for kayakers - 1.85±1.14 years, for canoeists - 1.94±1.03 ($p \leq 0.05$). The duration of OMC in kayakers is 39.37±1.25 days, and in canoeists it is 38.98±1.21 days ($p \leq 0.05$). The duration of menstrual bleeding in kayakers is 2.57±0.23 days, in canoeists - 2.46±0.72 days ($p \leq 0.05$).

Attention is drawn to the fact that in both groups of female athletes of puberty, there are combined disorders of the OMC, according to the type of hypomenstrual syndrome that is being formed, with the phenomena of oligo-opsomenorrhea. Also, in both groups, there was a lengthening of the timing of the establishment of CMC, compared with the average population indicators in Ukraine in girls of puberty [2; 3; 11]. Premenstrual syndrome (PMS) was detected in 6 (66.67%) kayakers and 5 (71.43) canoeists. According to the data of the survey and additional interviews with the same athletes, it was found that all pubertal athletes from the two studied groups began their activities in this sport at prepubertal age, before their menarche (Me).

A similar study of OMC was conducted in groups of adolescent athletes involved in kayaking and canoeing. Its results are as follows: in the group of kayakers (n=11), the menarche period was 13.87±1.13 years, and in canoeists it was 13.89±0.78 years ($p \leq 0.05$). The terms for establishing the OMC for kayakers are 1.84±1.13 years, for canoeists - 1.98±1.07 ($p \leq 0.05$). The duration of OMC in kayakers is 39.37±1.25 days, and in canoeists it is 41.23±1.45 days ($p \leq 0.05$). The duration of menstrual bleeding in kayakers is 2.12±0.44 days, in canoeists - 2.04±0.24 days ($p \leq 0.05$). When analyzing the results of the study of the dynamics of the menstrual cycle in athletes of both groups of youthful age, we found that in these groups there is a formed hypomenstrual syndrome.

At the same time, 5 (45.46%) kayakers and 3 (37.50%) canoeists have secondary amenorrhea, with no menstrual bleeding within 60 to 120 days [2-10; 7; 9-13]. At the same time, in both groups there are other, combined disorders of the OMC. Severe PMS, with somatic and vegetative manifestations, was detected in 8 (72.73%) kayakers and 7 (87.50%) canoeists. It was additionally found that 9 (81.82%) kayakers and 6 (75.00) canoeists started practicing this sport before menarche. Also, a study was made of the dynamics of the process of stages of formation and manifestations of puberty in athletes of both studied groups.

The results obtained in the group of female athletes of pubertal age are as follows: late menarche was recorded in all 100.00% of female athletes of both groups. Delayed thelarche (formation and growth of the mammary glands) was determined in 7 (77.78%) kayakers and 5 (71.43%) canoeists. Delayed pubarche (the process of hair growth on the body, including underarms and pubis) was determined in 6 (66.67%) kayakers and 5 (71.43%) canoeists. Also, in 8 (88.89%) female kayakers and in all 100.00% of canoeists, combined disorders of the puberty process were identified. As can be seen from the results of the study of these reproductive indicators in female athletes of puberty, in both groups there are combined violations of the staging of puberty in the vast majority of girls, with 100% violations of the OMC dynamics. Additionally, using interviewing, it was found that all female athletes of puberty who began their training before their menarche had a variety of combined disorders of the staging of puberty [2, p. 18-22; 3, p. 13-15; 9, p. 230-235; 10, p. 136-144; 11, p. 80-85]. In the group of female athletes of youthful age, the features of the process of the dynamics of puberty were also studied. The analysis of the results of this study is as follows: late menarche was detected in all (100.00%) kayakers (n=11) and canoeists (n=8).

Thelarche retention was found in 9 (81.82%) kayakers and 7 (87.59%) canoeists. Pubarche delay was determined in 10 (90.91%) female kayakers and in 7 (87.50%) female canoeists. In all 100.00% of athletes of both groups, various, combined violations of the staging of puberty were identified. The analysis of the obtained results showed that in the group of young athletes the situation is more negative, compared with the athletes of puberty. In addition to 100% delay in menarche in female kayakers and canoeists, they also, in 100%, recorded various, combined violations of the process of staging puberty, with a delay in all of its indicators. It was also found that violations of the OMC and the process of stages of puberty, in the group of female kayakers of both age groups, are more pronounced than in female canoeists.

Conclusions

1. All female athletes of puberty who go in for rowing and canoeing, who started practicing this sport before the onset of menarche, have numerous, combined disorders of the OMC, with the active formation of clinical manifestations of hypomenstrual syndrome in them, against the background of premenstrual syndrome.

2. In this group of athletes, numerous, often combined violations of the staging of the puberty process, with a pronounced delay in menarche, thelarche and pubarche, were established.

3. In the group of adolescent athletes involved in kayaking and canoeing, a pronounced presence of hypomenstrual syndrome was established, with obviousness, in almost every girl in each group, clinically recorded secondary amenorrhea, with somatically and vegetatively pronounced phenomena of premenstrual syndrome.

4. Also, in all female athletes of youthful age who began their rowing lessons before the onset of menarche, numerous, combined violations of the staging of the puberty process were identified.

5. The revealed changes in this series of reproductive indicators, with many years of intensive rowing and significant physical and psycho-emotional stress, can be regarded (in our opinion) as a result of intensive adaptive processes occurring in the bodies of female athletes of both age groups.

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DOI:10.31579/2693-4779/156

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