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Original Article

Scientific rationale for the use of special physical exercises to optimize the pre-launch conditions of highly skilled Rowers in kayak and canoes

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Abstract:
As in any other sport, in rowing and canoeing, in order to achieve high sports results, an optimal pre-start condition of the rowers is extremely important. The problem lies in the fact that rowing specialists, in particular, rowing and canoeing, do not pay enough attention in training highly qualified rowers of their pre-start readiness, and if they do, they are mainly from a psychological point of view, through psychological influence. Meanwhile, not all athletes are equally successful in psychological suggestion (influence). Therefore, the authors proposed and substantiated the positive impact of the proposed special physical exercises on the optimization of pre-start conditions of highly skilled rowers in kayak and canoes. The article presents one of the complexes of such exercises, tested in a natural pedagogical experiment, which influenced the growth of sports results in highly skilled rowers in kayak and canoes.
Key Words*:* - optimization, prestarting conditions, special physical exercises, highly skilled rowers on kayak and canoes

Introduction

Nothing raises the prestige of the state like winning gold medals at the most prestigious international competitions when the flag is raised and the anthem of the victorious country sounds (Rajabi etc., 2019). This applies to all sports, including rowing and canoeing.

Literary sources show that if psychological means and methods of influencing athletes (Stănescu & Vasile, 2014) before starting to optimize their pre-launch state are studied in detail, experimentally proved and used, then the problem of using pedagogical tools and methods in this case is not actually affected. And this is despite the fact that the lack of a special pre-launch optimization of the state of athletes naturally leads to miscalculations in the planning of the preparation process (Serpanou etc., 2019), since its influence undoubtedly affects the degree of training effects, and through them the athletic result. The lack of development of this problem and determined the need for this study (Alecu, 2017, Niu etc., 2018).

As a specific type of research we have chosen rowing kayak and canoeing, as having the status of an Olympic sport.

Material & methods

The object of research - is the features of optimization of pre-launch conditions of highly skilled rowers in kayak and canoes, leading them to the highest sporting achievements.

The subject of the research - is the prestarting conditions of highly skilled rowers in kayak and canoes as one of the factors affecting their athletic achievements in competitions (Marsac, 2010).

The purpose of the study - is to develop and scientifically substantiate a set of special pedagogical tools that positively affect the pre-launch conditions of highly skilled rowers in kayak and canoes.

Research hypothesis. It was assumed that an effective method of optimizing the pre-launch conditions of highly skilled rowers in kayak and canoes would increase their level of preparedness for international competitions.

Objectives of the study:

1. To analyze the available literature on the problem of optimizing the pre-launch conditions of highly skilled rowers in kayak and canoes.
2. To develop and test in a natural pedagogical experiment a complex of special physical exercises for optimizing pre-start conditions for highly skilled rowers on kayak and canoes.
3. To determine the impact of the developed complex of special physical exercises on the performance of competitive activities of highly skilled rowers in kayak and canoes in a natural pedagogical experiment and in high-level competitions.

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Research methods.

To achieve the goal and solve the research tasks, the following methods were used: studying, analyzing and summarizing data from domestic and foreign scientific international and other sources, as well as a combination of identified factors and patterns with the systematization of the results obtained; compilation of best practices based on the results of interviews, oral and questionnaire surveys of rowing experts (research scientists, coaches); pedagogical and psychological observations during the training camps and rowers' performances in major international competitions; analysis of the planning documents of the training process and training programs for the training of rowers, their training diaries and competition reports; control testing; natural pedagogical experiment; methods of mathematical statistics.

Results

The study involved 28 highly qualified paddlers in canoes and canoes: international-class sports masters (MSIC) with a sport experience of over 6 years - 8; masters of sports (MS) with a sports experience of over 5 years - 10; candidates for the master of sports (CMS) with a sports experience of 3 years-10. Subjects in a natural pedagogical experiment were divided into control and experimental groups of 14 rowers each. The study also took place in several competitions in rowing and canoeing in 2017 and 2018: Championship and RK Cup (2-6.05.2018, Kazakhstan, Almaty), Asian Championship (China, Shanghai, 15- 10/18/2017), the Asian Games 2018 in Indonesia (Jakarta), the Asian Cup (Uzbekistan, Samarkand, 22-24.10.2018).

To optimize the pre-start conditions, the test-rowers of the experimental group before training and competitions replenished our special physical exercises.

Research results and discussion

In domestic and foreign scientific publications there is a fairly significant amount of material on the physical preparation of athletes, but not enough covers the preparation of their nervous system, the settings for the upcoming competition. However, an important place in sports practice is occupied by the problem of excitement of athletes before a competition, which is often associated with their tension, fever, that is, with what they call "jitters". Many coaches and methodologists are thinking about how to ensure control over the feelings and mood of athletes, how to avoid the harmful and unpleasant nervous tension that gives rise to "stiffness", "sports paralysis" and lack of self-confidence before the competition.

Based on the study of domestic and foreign literature on pedagogy and the psychology of sports, the theory and methodology of sports, we came to the conclusion that every athlete wants to win, but not all of them have sufficient volitional training for this. By speaking at a competition, not everyone is able to concentrate, sweep away the thought of a possible defeat or doubt in victory. The presence of the will to win is associated with the level of human intellectual development. It often happens that an athlete with outstanding physical data loses to a much weaker opponent, failing to mobilize his will to win and give excitement to the competition.

The excitement before the competition is felt by most athletes. The more important the competition, the greater the desire and desire of the athlete to perform as best as possible, the stronger the excitement and the more negative the influence of this excitement on the sportsman's winning (Alves & Alves, 2018). Undoubtedly, the excitement experienced by an athlete, naturally and to some extent even useful, because it helps to mobilize his strength and attention, contributes to better preparation for the competition. However, for a number of reasons, many athletes have this excitement and the tension they cause so much that it leads to an overly depressed mood and a strong nervous tension, which in general has a negative effect and reduces their achievements.

Since the excitement experienced by an athlete will result from his intellectual development, it is usually athletes with a particularly sensitive and excitable nervous system and keen imagination who suffer most from the tension caused by this excitement. The ability of these athletes to mentally imagine the picture of the upcoming wrestling is so great that their body also strongly reacts to it accordingly. These sportsmen begin to experience a state of tension a day or two before the competition. Some foreign experts call this intensity resulting from excitement “affected intensity”, as opposed to “coordination tenseness” caused by contraction of antagonist muscles, i.e. opposite to working muscles. The excitement in question usually represents the concern of athletes for the outcome of the competition, for the success of their performance.

One of the main sources of excessive nerve excitement of athletes are friends and acquaintances, eager to see their friend as a winner, as well as a coach who cannot hide his excitement and trying to instruct athletes as thoroughly as possible so that they do not forget something. . Constant encouraging conversations of friends and acquaintances do not reduce the excitement of the athlete. Every time someone inquires about his mood, he tries to say something encouraging, the athlete feels a surge of excitement, and muscle stiffness arises. Responsibility, which rests on athletes in a big competition, the stories about the opponent also make them worry. Their wave, and with it the tension, increases as the day of the competition approaches, and, if the growing tension is not impeded, it can cause a number of harmful negative emotions. In this regard, in order to reduce these unrest to a minimum, experienced trainers before the competition seek, first of all, to keep athletes and the entire team in solitude. They believe that as a result of meetings and conversations, athletes can be agitated, be very excited, which will adversely affect their reaction during the competition.

The most characteristic signs of excitement in athletes are:

1. The emergence of a sleepy and lethargic state.
2. Depressed, anxious mood, which sportsmen refer to usually with the words: "... I am not at ease", "... it seemed to have changed me," and so on.
3. Feeling of heaviness in the abdomen, copious sweat on the hands and under the armpits, feeling of weakness.

As a result, the athlete is often unable to perform the desired movements, which he previously performed very easily and efficiently. He feels that his muscles are not in order; the tension is so great that in such a state he is not able to perform properly, with ordinary skill and endurance. This is especially pronounced before the start. An athlete trains well, demonstrating his advantage even sometimes over significantly stronger and more experienced athletes, but as soon as he comes to the start of the competition, he is replaced as it were and he loses to his rivals. All this often manifests itself in highly skilled rowers on kayak and canoes.

Sometimes the tension during an athlete's performance at competitions is barely noticeable, but still quite sufficient to negatively affect the result. It manifests itself in the fact that the rower, for example, does not bring his stroke to the end with the necessary force, or goes astray, etc. Even if an athlete does not realize this tension, she still has a negative effect on him. The reason, in our opinion, is that when tension increases to significant, the muscles contract, create pressure on the blood vessels and disrupt the normal flow of blood to the nerves and muscles. Such a violation of normal blood circulation, in turn, causes a functional disorder that can disrupt digestion, cause headaches, a feeling of weakness, etc. When the muscles remain tense for a long time, they experience fatigue and the athlete has a feeling of fatigue and apathy , drowsiness and lethargy, feeling as if he had already participated in competitions. When an athlete begins to compete with such muscular tension, his stiffness turns into coordination tension and interferes with precise coordination of movements. Stiffness covers to some extent all the muscles. As a result, the muscles that should not participate in the execution of a movement, interfere with the optimal work of the muscles performing this movement (Uzunkulaoğlu etc., 2019).
Another unpleasant phenomenon that accompanies an overstrain, in our opinion, is chemical precipitation, occurring at the thought of the upcoming competition. Before the competition, when great tension is experienced, toxic effects occur in the body. To a limited extent and at the right moment, accompanied by movements, these selections are useful. In large quantities, not accompanied by muscular work, they cause lethargy and drowsiness in athletes.

A very unpleasant sensation that an athlete experiences when overstressing is incomplete, uneven and rapid breathing, caused by stiffness of the muscles of the breathing apparatus and chest. With incomplete breathing, the athlete does not receive the required amount of oxygen and is not fully released from the used. This causes dizziness, nausea, headaches and various other unpleasant sensations and, of course, rapid heartbeat, which, in turn, leads the athlete to an even more nervous state, removes him from mental equilibrium.

The excitement and tension that arises before the start of an athlete creates a number of negative phenomena that mutually aggravate each other, cause him to have a bad mood, often forcing him to think about quitting the sport at all, and, worst of all, interfere with proper muscle work.
In order to help the athlete to overcome his own nervous tension on his own, to teach him to prevent growing tensions before the start, we have carried out research for several years to develop practical measures to combat these negative phenomena.

Analysis of the opinions of many coaches and rowing athletes, own research [6], the study and synthesis of statistical data showed that this complex problem can be largely solved not by self-suggestion and psychological means and methods, as recommended by many rowing experts and coaches, but through the use of special exercise. We have developed such special physical exercises, the implementation of which before the start made it possible to significantly influence the elimination of highly skilled rowers in kayak and canoes of high tension before competition. These exercises, designed to relax muscle tension, which usually interferes with the performance of movements with full efficiency and leads to excessive and premature fatigue, have been very effective if they were performed regularly.

According to many rowers and trainers, these exercises are very useful not only for easing muscle tension, but also as a means of preventing the harmful effects of excessive stress. If these exercises were performed regularly, they also helped to develop the “relaxation sensation”, which, in turn, made it possible for the rowers to feel even the slightest appearance of tension, learn how to regulate muscle relaxation, and promote better athletic performance. The natural pedagogical experiment we conducted showed that these exercises are valuable even for those rowers who do not feel particularly noticeable before the competition. These exercises exercise the muscles so that they can, despite even acute nervous tension, interfere with physical changes in the body, which adversely affect the athletic results of the rower. The experiment showed that among some athletes, thanks to their perseverance, enthusiasm and already developed control over their muscles, the results of the exercises showed up immediately, while others needed some training time, after which they felt a positive effect.
The more rowers used these exercises in training, the easier it became for them to perform them and the better they were to eliminate tension. If the rower did these exercises regularly for several weeks, then he no longer had to remind about them. As these exercises were completed, he began to feel much better and to notice in his state of health such a great change that he was already used to doing them without reminders. These exercises are also useful for the trainers themselves, who are experiencing nervous tension before the performance of their athletes or during competitions.

For example, we carry out one of such exercises of the complex, tested by us in a natural pedagogical experiment on highly qualified rowers - test subjects experienced in canoes (men: MSIC - 2 people; MS - 5 people; n = 7) and canoe (men: MSIC - 1 person; MS - 4 person; n = 5)

And similar - lying on his back; lie on your back and tighten your legs so that your feet are fully seated on the floor. Perform a deep breath and push your knees together. Stay in this position for a few seconds, then breathe out slowly, letting your knees “fall” to the sides. At the same time, it is necessary to ensure that the knees "fall" themselves, and not to fall by the movement of the muscles. Exercise is repeated 9-10 times.

Fully one of these sets of exercises, which showed its effectiveness in the pedagogical experiment ($P < 0.01$) in the period from the pre-competition stage to the competitive period (RK Championship March 21-25, 2018) (Zharmenov, 2018).

These exercises proposed by us must be performed daily in the morning after getting up, in the evening before going to bed (especially carefully on the last evening on the eve of competition), as well as at any time when a sportsman begins to feel an approximation in his state of tension. It is also necessary to perform them in parts, in the intervals between performances during competitions, in order to prevent the occurrence of tension caused by arousal and fatigue. These exercises help the athlete to feel at ease, relaxed, cheerful, reduce his fatigue, maintain a good mood as well as the “psychological form”, which is an integral part of the sports form.

To relieve nervous tension before bedtime, it is necessary, already in bed and trying to sleep, to perform at a certain pace several slow, unstressed deep breaths. When you inhale - slightly strain all muscles, while exhaling - to strive to completely relax. Perform this exercise for 2-3 minutes. After ensuring that maximum relaxation is achieved, take a short breath and relax even more.

Wherever possible, the athlete must do any of these exercises. After they have been completed for a certain period, it is necessary to select those muscle groups that require more attention, especially the hands, jaw, shoulders and abdominals; determine which muscles are the most stressed and give them special attention. We recommend doing any exercise possible under the given conditions every time an athlete rests between starts, expects his turn, sitting on a bench, etc.

In the issue of dealing with pre-start nervous tension, we are against the generally accepted methodology and we believe that athletes spend a lot of time to master the art of relaxation by will-power. Based on extensive practical experience and our own scientific research, we came to the conclusion that an attempt to forcibly weaken nervous tension usually ends in failure, since it is based on a false principle and a lack of understanding of muscle functions and their connection with the nervous system. An athlete, who, during a nervous tension, is in a state of imbalance between physical and mental actions, does not need violent relaxation and a conscious distraction of the brain from anxiety, but physical exercises. At the time of nerve tension, it is necessary to leave the brain alone, and give the muscles the appropriate special exercises, after which relaxation occurs naturally. Investigating the issue of exercises as a means of dealing with nervous tension, we positively treat special exercises that are performed under conscious control of the brain and should be directed precisely to bring muscles and other parts into a normal state bodies associated with them.

Considering the fact that nervous tension is greatest by the end of the day, when an athlete is tired and needs a full sleep, we also offer the following special system of exercises:

1. Lying on your back, stretched out at full length. Under the head to put a very low pillow or not to put anything. The head should touch the mattress with the back of the head, but not its top. The feet should be freely turned outward, so as to relax the internal muscles of the pelvis. Exercise must begin with hands. First you need to twist your fingers and strain the muscles of the arms, then feel the tension of the muscle to the maximum, hold them for a minute and relax. It is necessary to focus on the hands and master the technique of performing this exercise, after which it will be easier to use similar exercises for other parts of the body and for the whole body.
2. After mastering the relaxation of the hands, you can move to the legs, just likewise reducing and relaxing their muscles. To reduce the muscles of the leg, you can, straighten your leg in a bone, press it to the bed down; strongly tense muscles hold in this state for a minute, and then relax. It is necessary to lift the legs out of bed so that the large abdominal muscles contract. Holding them for a while in a shortened state, relax them. Then, putting the hand behind the head, raise the head and shoulders so that the abdominal and intercostal muscles tighten. Hold them for a few seconds and relax completely, leaning back on the bed.
3. Learn to relax the main muscles of the neck. Lifting the head out of bed, tilt it forward until the neck muscles tighten. Holding it like this for a minute, relax and let your head fall free on the bed. In the same way, do exercises for the lateral neck muscles, turning the head first to one, then to the other side so that all the muscles have the opportunity to work. And finally, lie down quietly, holding hands so that they touch the ends of the fingers. Next, imagine that it is precisely with this that the tension of all the muscles of the body begins, and then you can begin to feel how the muscle tension decreases as the muscles move into a relaxed state. Then try to feel how waves of muscle contraction and relaxation pass through the entire body.

The above 15-minute daily bedtime exercises facilitate mental and nervous tension. In nine cases out of ten, the athlete falls into a deep refreshing sleep, because an exit will be found for the excited brain, muscle tension will decrease and the body overflowing with blood will restore the normal dynamic blood flow in all blood vessels.

The proposed system of exercises to achieve the desired results requires an athlete great willpower and self-discipline. Our experience has shown that these exercises are worked out better by the way they are used by others, that they provide good control over the stress that arises, and if they are regularly performed by an athlete, the harmful and unpleasant effects of nervous tension disappear.

Conclusions

Special physical exercises developed by us contributed to the optimization of pre-start conditions in the test groups of subjects, which had a positive effect on their sporting achievements. So, rower E.A. at the four-seater kayak (500 m) at the 18-year-old Asian Games in Jakarta won the gold medal; brothers TE and S.E. won a silver medal on a canoe double (1000 m); rower T.H. on a canoe double (200 m) won a bronze medal. The subjects of the control group, who trained according to the generally accepted methodology, did not even get into the national team of Kazakhstan.

Conflict of interest

The authors state no conflict of interest.

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