

Monitoring the psychological state of hockey players in the pre-competitive period

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Abstract

Objective of the study was to substantiate the effectiveness of the use of express methods for monitoring the individual state of athletes in order to improve performance through timely correction of conditions.

Methods and structure of the study. An experimental study of the assessment of the psychological state of athletes specializing in hockey was carried out using express methods for monitoring the state. The contingent of the study was 27 people - young men in 2007, involved in hockey, members of the national team of the Ural Federal District. Testing was carried out with the help of psychodiagnostic methods of the computer complex AKME LLC "Scientific and applied center "AKME" (LLC "SAC "AKME"). The composition of the methods is determined by the specifics of sports activities.

Results and conclusions. The indicators of the individual psychological state of athletes were calculated: the total deviation from the autogenous norm, the vegetative coefficient, anxiety and performance factors. The indicator of unproductive tension of athletes is characteristic of only 7.4% of the sample. 88.9% of athletes show a tendency towards even use of energy costs. An increased level of anxiety was found only in 7.4% of the subjects. The level of stability of the individual psychological state is typical for 92.6% of the sample. The conducted research confirms the adequacy of the selection of test material for the monitoring system, taking into account the specifics of the implemented sports activities.

Keywords: sport, athlete, monitoring, individual psychological state of the athlete.

Introduction. At the present stage of sports development, high demands are placed on the optimization of control in the structure of athletes' training. One of the effective components of the sportsmen's condition management system is the monitoring of preparedness for participation in competitive activities [4].

To implement the monitoring of the state of athletes in the pre-competitive period, an effective, not time-consuming, but informative data collection tool that meets the requirements for the quality of measurements is needed.

Objective of the study was to substantiate the effectiveness of the use of express methods for monitoring the individual state of athletes to improve performance through timely correction of conditions.

Methods and structure of the study. An experimental study was conducted, in which young hockey players, members of the national team of the Ural Federal District in 2007, participants of the Sirius Cup tournament, the hockey program of the Sirius Educational Center, took part (n=27 people). Test samples were carried out in the pre-competition period from 11/03/2021 to 11/05/2021 in the morning free from training sessions. One of the days was a rest day.

Diagnostics was carried out using the computer program AKME LLC "SAC "AKME" (Laboratory of psychophysiological support, Novouralsk). The composition of the methods was determined by the specifics of sports activities: 1. To study the individual psychological tendency of the personality of athletes, the method of color test M. Luscher. 2. To determine the speed of



the visual-motor reaction - the technique "Simple visual-motor reaction (SVMR)". 3. To identify the speed of information processing and the dynamics of the formation of the speed of decision-making - "Reaction of choice". 4. Express-method "Tapping- test" by E.P. Ilyina - to assess the overall performance and endurance of the nervous system [3].

Results of the study and their discussion. In accordance with the obtained results of monitoring the color choice, indicators of the individual psychological state of athletes were taken into account and calculated: the total deviation from the autogenous norm, the vegetative coefficient, anxiety and performance factors. Average group results of experimental data are presented in table one.

According to Gorbunov G.D., Karpov D.A. and others, a typical condition in sports is unproductive neuropsychic tension (UPNT) [4]. The greater the deviation, the more the athlete's strength is spent on overcoming fatigue, which directly affects the level of

performance [1, 3]. In our study, the indicators of only two athletes (7.4%) indicated a reduced level of performance, characterized by a low degree of activity.

When analyzing the results of the "Vegetative Coefficient" indicator, it was found that for athletes whose indicators correlate with an insignificant level of UPNT (59.26%, 16 people), the dominance of the sympathetic division of the autonomic nervous system in the manifestation of optimal mobilization of physical and mental resources is typical. In extreme situations of competitive activity for such athletes, one can predict a high speed of orientation, speed of decision-making, expediency and success of action [1, 2].

Athletes whose performance corresponds to a reduced level of the vegetative coefficient (7.4%, 2 people) are characterized by a set to inactivity, often associated with overwork. The results of only one person (3.7%) from the group of subjects indicated an over-excitation of the processes of the nervous system and the required normalization of the regime of work and

Table 1. Indicators of the individual psychological state of athletes with different levels of unproductive neuropsychic tension (UPNT) according to the results of the M. Luscher test ($M \pm SD$, number of subjects (%), $n=27$)

Index	Minor level UPNT	Average level UPNT	Enhanced Level UPNT
Total deviation from the autogenous norm (points, % of subjects)	16,25±2,20 59,26	12,56±6,07 33,33*	29,6±1,41 7,41**
Vegetative coefficient (points, % of subjects)	1,18±0,8 88,9	0,43±0,01 7,4*	2,46±0,002 3,7
Anxiety factor (points, % of subjects)	0,59±0,023 92,6	-	2,5±0,007 7,4
Overall Health Factor (points, % of subjects)	20,1±1,05 92,6	8,9±0,65 7,4*	-

Note: * - the differences are significant in relation to the indicators with a slight level of UPNT, $p < 0.05$; ** - the differences are significant in relation to the indicators of the average level of UPNT, $p < 0.05$.

Table 2. Correlation matrix of individual typological indicators and the psychological state of athletes with different levels of unproductive neuropsychic tension (UPNT)

Index	Deviation from the autogenous norm	Vegetative coefficient	Significance level (r)
Speed of a simple visual-motor reaction	0,69*	0,57*	< 0,05
Speed of a complex sensorimotor reaction	0,54*	0,49*	< 0,05
Information processing speed	0,37	0,29	> 0,05
Stability and concentration of attention	0,59*	0,61*	< 0,05
Nervous system endurance coefficient	0,61*	0,75*	< 0,05

Note: correlation coefficients (r) with the level of statistical significance are indicated: * - $p < 0.05$; ** - $p < 0.001$.



rest. The psychological state of such athletes has a direct correlation with an increased level of unproductive neuropsychic tension.

To determine the possible relationship between the studied indicators, a correlation analysis of individual typological indicators and the psychological state of athletes with different levels of unproductive neuropsychic tension was carried out (Table 2). The presented data indicate a direct relationship between the level of neuropsychic stress of the individual and the speed of response ($r=0.69$; 0.54). An increase in the level of tension entails a decrease in the stability of attention ($r=0.59$). And although the fact of the connection of the selected indicators with the speed of information processing has not been confirmed, nevertheless, the results indicate that the most effective activity is observed with an optimal balance of energy supply, corresponding to a not too high or low level of activation of the nervous system.

Conclusions. The conducted study confirms the adequacy of the selection of test material for monitoring the condition of athletes, taking into account the specifics of the implemented sports activities. The prospect of research in this direction is the development of a model of the state of athletes before important competitions, not only from a psychological point

of view, but also from the side of biochemical processes occurring in the body of an athlete.

References

1. Ilyin E.P. Psikhofiziologiya sostoyaniy cheloveka [Psychophysiology of human states]. St. Petersburg: Piter publ., 2005. 415 p.
2. Kiselev Yu.Ya. Psikhologicheskaya gotovnost sportsmena: puti i sredstva dostizheniya [Psychological readiness of an athlete: ways and means of achievement]. Moscow: Sovetskiy sport publ., 2009. 276 p.
3. Runenko S.D., Talambum E.A., Achkasov E.M. Issledovaniye i otsenka funktsionalnogo sostoyaniya sportsmenov [Research and assessment of the functional state of athletes]. Study guide. Moscow: Profil publ., 2010. 172 p.
4. Safonov V.K. Psikhologiya sportsmena: slagayemye uspekha [Psychology of an athlete: components of success]. Moscow: Sport publ., 2018. 288 p.
5. Morgan W.P., Brown D.R. et al. Psychological monitoring of overtraining and staleness. Br. J.S. Sports Med. 1987. No. 21. pp. 107-140.