



A novel strategy for assembling youth national teams

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Abstract

Objective of the study was to create a groundbreaking method for selecting national youth teams.

Methods and structure of the study. A group of 52 young athletes, aged 16, from hockey schools in the Ural Federal District, took part in the assessment. They had been playing hockey for 11 to 12 years. The assessment was conducted between July 2024 and December 2025.

Results and conclusions. The advanced methodology for assembling youth hockey teams emphasizes the importance of considering the fundamental aspects of a player's abilities and their psychological and physical condition. The novel approach to team building incorporates a systematic process that combines modern techniques for sports selection and monitoring the psychological and physical state of athletes, utilizing observation and gradual evaluation of their performance in competitive events. This approach also considers the necessary and sufficient indicators of an athlete's psychological and physical condition, as well as their individual and potential capabilities. By analyzing the promising attributes of an athlete, we can determine whether they meet the selection criteria for the national team.

Keywords: athlete, hockey, selection system, individual profile, functional state.

Introduction. Modern trends in the development of science, the possibilities of new technologies, the level of world sports dictate the need to improve the systems and technologies for staffing national youth teams. The problem of the topic under consideration is to improve the selection system for staffing national teams in order to achieve high sports results. Based on the fact that the development of new trends in any field of knowledge dictates the processing of accumulated scientific and practical information every 5-10 years, it seems relevant to consider the stated topic in a new aspect. A. Yu. Bukatin in his research pays special attention to selection and defines it as a set of organizational and methodological measures aimed at choosing from a group of candidates those persons from whom high and stable achievements in future gaming activities can be expected with the greatest probability.

Objective of the study was to create a groundbreaking method for selecting national youth teams.

Methods and structure of the study. A team of 16-year-old athletes (n=52) participated in the testing. They represented hockey schools of the Ural

Federal District. Their hockey experience was 11-12 years. Test samples were conducted from July 2024 to December 2025. The recruitment criteria were determined by the specifics of the activities being implemented and consisted of a comprehensive assessment of the competitive activities and functional diagnostics of the athletes. Diagnostic equipment: Wattbike exercise bike; NS-Psycho Test computer complex (Neuro Soft, Russia); Simona 111 integrated cardiac monitoring system (Medtekhnik, Russia), Co-Reaction neuromuscular warm-up system (Russia, Taiwan), TensoJump 4000 tensoplatform (Marathon-Electro, Russia), Svetofon hardware and software (Svetofon, Russia).

Results of the study and discussion. Successful implementation in hockey predetermines special conditions for the morphofunctional characteristics, psychophysiological features, physiological performance of the athlete and gives rise to a number of questions:

- To whom and on the basis of what criteria should preference be given at a similar level of training?



- What is the compatibility of future members of the national team?

- How to organize objective control of the functional state of the athlete with the least time expenditures?

The developed technology does not contain contradictions with the proposed selection methods, but is more specific, taking into account the stability of the individual-typological characteristics of the athlete, and includes:

1. Determination of objective selection criteria capable of predicting the success of the candidate in the upcoming competitions.

2. Conducting stage control in order to determine the stability of the results.

3. Analysis of individual profiles of athletes using their visualization and determining the compatibility of team members.

4. Correlation of the assessment of competitive activity and functional readiness.

Based on the work performed, the following selection criteria were identified:

1. Evaluation of the sports component:

- observation of competitive activity in the current sports season; observation of training activities during training camps; effectiveness of participation in competitions and test matches (video analysis).

2. Evaluation of the functional state of athletes:

- assessment of speed-strength and coordination abilities: Wingate test, Visual-motor coordination (Wattbike, Co-Reaction); determination of individual characteristics of athletes and psychofunctional state: PZMR, SZMR, RDO (NS-Psychotest); diagnostics of the functional readiness of the cardiovascular system (adaptation reserve) integral balance, adaptation reserve (Simona 111).

In order to assess the sports component, a comprehensive approach was used, including independent expert and coaching assessments using an identical methodology with a description of the necessary indicators depending on the athlete's role, on a scale from 0 to 10 points.

In addition to expert and coaching assessments, a statistical analysis of competitive activity was conducted using scales from 0 to 10 points developed by us.

All of the above-described methods for assessing players are combined into a formula reflecting a summary assessment of a hockey player in all positions:

$$\Sigma = 0,3 \text{ EA} + 0,3 \text{ CA} + 0,4 \text{ ACS},$$

where: EA – expert assessment; CA – coaching assessment; ACS – assessment of competition statistics.

The significance coefficients were proposed by us based on practical experience and are experimental, currently being tested.

The next stage of the work was the formation of an individual hockey player profile based on the assessment of the functional state of athletes.

Modeling an individual athlete profile and assessing the compatibility of profiles: the results of numerous studies of athletes prove that the obtained parameters do not always correlate with each other and the same athlete may have different levels for different indicators. To obtain a more accurate representation of the current status of an athlete, it is recommended to create an individual profile, by which we mean the optimal combination of the necessary functional characteristics of an athlete that are significant in the sport being implemented.

The figures show visualized profiles in accordance with the selected criteria (Figure 1).

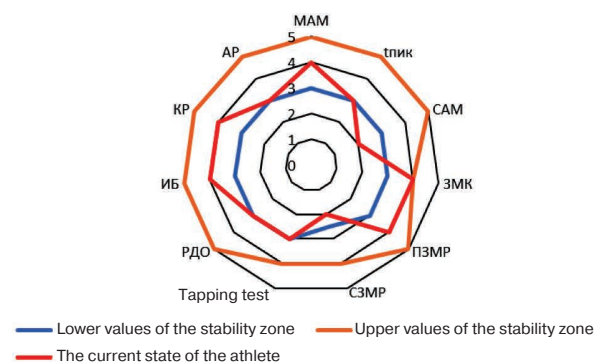
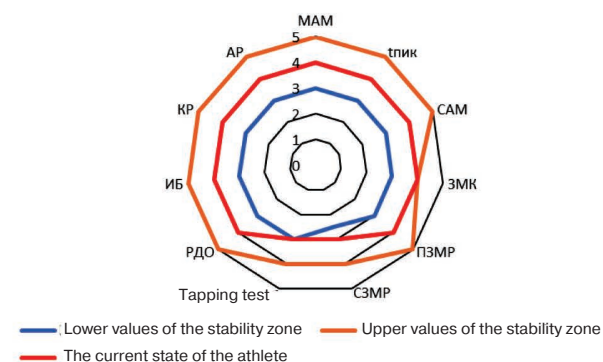


Figure 1. Examples of individual athlete profiles



The upper limit reflects the athlete's potential and his or her ultimate capabilities. The lower limit of the zone shows the level of reliability, i.e. the minimum results that he or she is capable of demonstrating even in the most unfavorable circumstances. If the lower limit is higher than the current one, this indicates a deviation in the functional state and requires more in-depth diagnostics. The width of this zone reflects the level of stability of the results.

It was also noted during the observation process that such profiles can be useful when deciding on the compatibility of candidates in game links. Thus, in the event of injuries, the inability to continue playing in unforeseen cases, or the disqualification of an athlete, a rotation of athletes with similar profiles can be performed.

The main idea during the period of staffing the national team is to monitor the current state of the athlete at different stages of preparation for the competition and assess the success of his or her competitive activity on a ten-point scale. In each period, a correlation is determined between his or her current functional state (individual athlete profiles) and success in the activity being implemented (trend lines). Visualization of the current state of the athlete and success in competitive activity at different stages of preparation for the main competitions is presented in Figure 2.

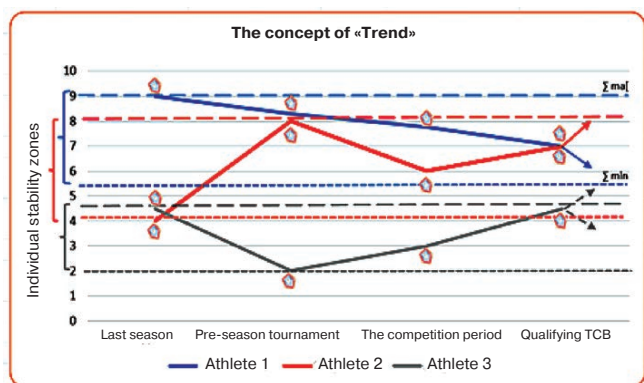


Figure 2. Visualization of the current state of the athlete and success in competitive activities at different stages of preparation for the main competitions

The technology of the solved problem of staffing the national team looks like this:

1) if the athlete's indicators tend to decrease over several stages of preparation, then preference will be given to the candidate: demonstrating an upward trend; having the highest potential in competitive activity; having the smallest range of the stability zone;

2) in parallel, the problem of determining the individual profile of athletes is solved, with which the team can show the highest sports result;

3) formation of an individual profile of a hockey player corresponding to his highest level of competitive activity (peak of sports form) by adjusting the training process, medical-biological and psychological support during the training camp.

Conclusions. The developed technology for staffing youth hockey teams should be based on the main criteria of a hockey player's skill and his psychofunctional state. The innovative approach to staffing national teams includes an algorithm of modern methods of sports selection and monitoring of the athlete's psychofunctional state based on observation and stage-by-stage control of the effectiveness of participation in competitive activities; necessary and sufficient indicators of the athlete's psychofunctional state, his individual and potential capabilities; analysis of the athlete's promising characteristics allowing to draw a conclusion about the applicant's compliance with the criteria for selection to the national team.

Monitoring the individual profile of a hockey player during periods of sports training allows to determine the relationship between his effectiveness in competitive activities and his functional state, to predict the trend of his sports activities, as well as to adjust and manage his individual trajectory. The integral indicator for assessing competitive activities is a summary assessment expressed in a formula reflecting the expert, coaching and statistical indicator for all positions. The result of this work is the ability to conduct a correlation between the change in individual functional indicators of a hockey player and the sports result, which, ultimately, will allow us to form a trend and predict the success of athletes' performance in upcoming competitions, as part of the selection and preparation of athletes for national teams.

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