



The results of a linear regression analysis between the independent variable-athlete age (predictor) and the dependent variable, PI-ov, 43 years old

29 years old) indicate a fairly good approximation of the MAP dependence on the age of the athletes. The coefficients in the presented linear regression equations are statistically significant at $p < 0.05$ and above.

To confirm the trend of dependence of the increase in MAP with the age of hockey players, we conducted a Pearson correlation analysis. The results of the correlation analysis and some statistical values are presented in Table 2.

The results of the correlation analysis showed a close relationship between the growth dynamics of the desired indicators, with a high degree of reliability $p < 0.01$ for all athletes. The initial age differences of the studied athletes from 15 to 30 years (Table 1) and various individual relative values of MAP from 11.3 ± 1.58 to 14.6 ± 1.85 W/kg (Table 2) for the dynamics of the results of the increase in speed-strength abilities had no effect. We have found that with age, the athlete increases the speed-strength readiness of the muscles of the lower extremities. It can be assumed that this relates to the strength component to a greater extent, due to the number of recruited muscle fibers, the number of myofibrils, and the average ATPase activity of myosin in them [6].

Presented in table 2 values of R2 in a paired linear relationship can be interpreted as coefficients of determination, which characterize the share of change in one of the indicators when the other changes. Therefore, in our case, it can be argued that changes in the age of athletes by more than 0.5 (50%) determine changes in MAP indicators. That is, an adequate construction of the training process for athletes under the age of 40 contributes to an increase in the indicator of maximum alactic power (MAP).

Conclusions. Testing of the index of maximum alactic power of highly qualified field hockey players conducted over 14 years allows us to speak about the dynamics of an increase in the level of speed-strength fitness of the muscles of the lower extremities in the process of ontogenesis in all the studied athletes, which

is confirmed by the results of regression (an increase in R2 from 0.51 to 0.80) and correlation ($p < 0.01$) analyses.

The initial age of the studied athletes was 15-30 years and the individual relative MAP values of hockey players of various roles during the first tests did not affect the subsequent dynamics of the results of the increase in speed-strength abilities.

Adequate construction of the training process for athletes under the age of 40 contributes to an increase in the indicator of maximum alactic power.

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Anticipation as a conscious acceleration of response time under conditions of initiative and counteraction with the enemy

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Abstract

Objective of the study was to consider the effect of anticipation on the performance of certain mental functions aimed at: reducing the response time to the enemy's influences; to reduce the time for the use of combat actions (methods) due to earlier determination of the moment of the start of an attack and automation of responses to a trigger signal.

Methods and structure of the study. The study of the influence of ideomotor representations of the performance of deliberate combat actions led to the understanding of anticipation as a phenomenon characteristic of almost all mental processes of controlling motor actions. Anticipation allows, before the appearance of a favorable situation or a pre-launch and trigger signal, to already carry out mental and motor preparation for combat.

Results and conclusions. As a result of the use of impromptu combat actions, anticipation makes it possible to reduce the time of the launch reaction to enemy actions, to change the temporal structure and duration of mental processes that accompany the response in combat (competitive) countermeasures. Understanding the patterns of controlling the speed of one's own reactions in combat interaction allows the athlete to respond most quickly to the trigger signal.

Keywords: anticipation, self-order, starting reaction, moment of attack start, anticipation, pre-launch and starting signal.

Introduction. The concept of anticipation as a mental function of the brain found its justification in the works of N.A. Bernstein as a model of the required future and in the works of A.K. Anokhin as an acceptor of the result of an action.

Anticipation is an anticipatory projection of situations and actions and, accordingly, all mental functions associated both with the acceleration of "self-order" (a conscious trigger command) to apply actions, and with the performance of response actions on a trigger signal.

Anticipation acts as a universal brain function that allows an athlete in conflict interaction with an opponent to anticipate his actions with some lead in time before

they are performed [2, 4]. The manifestation of anticipation in psychomotor actions (by analogy with reactions that are response actions, psychomotor actions are opposite to them and are initiative actions) allows the athlete to anticipate not only the impact of the opponent, but also mentally unfold his intentions in the future, which, in fact, is the initial problem timing research in the field of accelerating arbitrary response in conflict situations. In the process of improvement, timing is automated and applied both intuitively and consciously when solving mental problems in micro time intervals [3].

Under timing (from English timing - timing - timing; timing; regulation) in martial arts, we understand the



temporal structure of combat opposition, as well as the regulation and selection of temporal parameters for the use of combat (competitive) actions in conflict interaction with the enemy.

Timing allows you to solve two types of main tasks: 1) immediate - choosing the moment the attack begins; slowing down enemy responses; acceleration of own response; 2) indirect - simultaneous attack in several directions; using the inertia of the body, both one's own and the opponent's; use of positioning with the enemy.

In martial arts, the performance of combat actions at important competitions is most often carried out in micro-intervals of time and requires the athlete to respond as quickly as possible from the moment a favorable situation arises for the start of an attack to the starting start of the use of a combat action (reception). In a fight (duel), the time of performing motor actions is perceived by athletes in different ways, for some the movements seem slow, but for some they simply flicker "like in a movie". This is primarily due to the work of the brain, that is, with the arbitrary perception of martial arts with the enemy in micro-intervals of time, which ensures the transformation of sensory information into a perceptual image of the current conflict situation of the fight that is realized by the athlete [1]. At the same time, it is of great importance that interference can be introduced into this work of the opponent's brain, which disrupts his work and leads to slowdowns in the application of competitive actions or, in general, to the loss of the adequacy of these actions in the current conflict situation of the fight. At the same time, the work of your brain can be accelerated by certain techniques, mainly related to the anticipation of conflict interaction with the opponent during the fight.

Objective of the study was to consider the effect of anticipation on the performance of certain mental functions aimed at: reducing the response time to the enemy's influences; to reduce the time for the use of combat actions (methods) due to earlier determination of the moment of the start of an attack and automation of responses to a trigger signal.

Methods and structure of the study. The study of the influence of ideomotor representations of the performance of deliberate combat actions led to the understanding of anticipation as a phenomenon characteristic of almost all mental processes of controlling motor actions. This allows, before the appearance of a favorable situation or a pre-launch and trigger signal, to already carry out mental (entering the state of starting readiness) and motor (for example, creating a starting position with the enemy, favorable capture) preparation for combat (competitive) action [2].

The use of a self-order (in which, as it were, you give yourself a "go-ahead", that is, a command to start applying an action) a pre-expected signal, read by characteristic information features (objects of attention), to identify the right moment to launch a trigger signal to perform a competitive action, allows you to do anticipation of a controlled one and apply a motor action (initiative) in a timely manner or even ahead of the moment of the beginning of counteraction [2]. Characteristic information features (objects of attention), as a rule, are determined in the process of preliminary observation of the competitive activity of a potential opponent.

The speed capabilities of an athlete, manifested in combat counteractions and interactions, to a large extent depend not only on the timely recognition of the moment of application of attack and defense actions, but also on those mental processes, the totality of which is carried out in his mental activity during the fight.

The first in importance for the successful conduct of a fight is the prediction of the development of a conflict situation in a duel, its anticipation and entry into a heightened response associated with the implementation of a certain intention when recognizing a trigger signal for the application of a competitive action.

When using deliberate actions, athletes in the course of the latent period of reaction undergo a long and complex mental activity, which includes: perception and analysis of the current situation of the fight, decision making (selection of a motor program), choice of the moment, self-order, trigger reaction, etc. Beginning athletes are characterized by a long sequence of implementing their intentions to perform deliberate competitive actions (techniques): perception and analysis of the current situation of the fight, recognition of a favorable situation, decision-making when choosing the use of one or another tactical and technical action, determining the moment of attack, self-order. At the same time, beginner athletes often lack the mental state of entering the starting readiness and motor pre-adjustment to the start position and the execution of the technique. It is the choice of combat actions in a favorable situation that takes a lot of time, in contrast to the recognition of a trigger signal by means of anticipation for the application of a specific tactical and technical action. It should be noted that psychomotor reactions differ from sensorimotor reactions primarily in that they are triggered not by a sensory signal, but by the image of a combat (conflict) situation.

However, all this mental activity before the emergence of a favorable situation, which prolongs the reaction, can proceed not only in such a consistent and fully

developed form, but also in a collapsed form, which is typical for highly qualified athletes. In the latter case, the athlete's response time will be shorter. At the same time, for timing, the mental mechanisms of anticipatory entry into a heightened response and starting readiness even before the moment the trigger signal is recognized are of key importance.

When carrying out impromptu actions, a highly skilled athlete can foresee a favorable situation in advance during the fight, and the appearance of a perceptual signal (image) becomes a trigger signal, which allows you to achieve the fastest possible response - up to 100 ms. Prior to the use of impromptu actions, the athlete carries out: correlation of a favorable situation with intentions, anticipation of the starting signal. The athlete, having entered the combat (starting) readiness and starting position, performs presetting for action and, upon recognition of the starting signal, attacks in a timely manner.

The pre-signal, as an orientation in the situation, makes it possible to anticipate the starting signal and, being in the starting readiness, perform presetting for the implementation of the starting reaction. It is the pre-signal for the use of combat action by the enemy that is the main factor in the manifestation of anticipation and allows for an early entry into the start (starting position) and attack.

In a trained athlete, the number of components of mental activity is reduced to a starting start (signal) due to the anticipation of the image as a starting signal, which is typical for impromptu actions.

Conclusions. In timing, the reaction time is reduced by recognizing and foreseeing the pre-launch and starting positions of the enemy. In deliberate actions, this is the prediction of favorable situations for the start of an attack for the use of combat (competitive) actions. In terms of consciously accelerating the implementation of impromptu actions to a trigger signal, this means having time to complete all the mental processes that are part of the structure of both psychomotor reactions and psychomotor actions, before entering the starting position, while being in starting (combat) readiness. The athlete reacts with maximum speed to the start signal. Anticipation acts as a mechanism for accelerating psychomotor processes in both the attacking and counterattacking athletes.

The main factor of an athlete's psychomotor readiness is the reduction of reaction time based on anticipation in various conflict interactions in a duel with an opponent. Of particular value is the anticipation of the

perceptual image of the triggering signal, which allows you to speed up the process of perception and recognition of the ongoing changes in the current conflict situation of the fight and timely perform tactical and technical actions.

The success of timing training in martial arts is primarily determined by the athlete's sense of micro-intervals of time. It allows the athlete to manage conflict interaction with the opponent in a duel, providing a predictable result of his actions. It depends on the mental abilities of the athlete, since not all of them have the ability to operate with micro time intervals. It is better to teach such athletes tactical actions based on false movements.

In the presented work, extreme cases of building a response (structure (maximum and minimum) of mental activity in the process of response) of athletes in conflict interaction in a duel of combatants are considered: the full structure of a deliberate combat action and the most reduced structure of an impromptu combat action. However, the practice of martial arts is characterized by the existence of a fairly wide range of individual reactions and psychomotor actions, which are due to a different combination and effectiveness of the mental processes involved in the course of the reaction and, accordingly, the time of their implementation.

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