

Selection of option of pregame warm-up in handball taking into account features of force of the nervous system of sportsmen

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Purpose: to develop recommendations about the organization of warm-up for handball players of 13–14 years old taking into account force of the nervous system (NS) of players.

Material & Methods: 28 handball players of 13–14 years old of Kharkov and Ternovka took part in the research; methods were used: analysis of scientific and methodical literature, technique of “Tapping-test”.

Results: need of the search of new ways of the increase of efficiency of the competitive activity of young handball players is proved theoretically. Psychological characteristics of handball players of 13–14 years old with a different force of the nervous system are provided. Practical recommendations about the organization of pregame warm-up of handball players of 13–14 years old taking into account force of nervous system of sportsmen are developed.

Conclusions: handball players of 13–14 years old can be divided into five groups, concerning force of their nervous system by the results of the conducted research: strong NS (28,57%), average (21,43%), weak (17,86%) and average and weak (14,29%), average and strong (17,86%). Recommendations about the organization and carrying out pregame warm-up of handball players of 13–14 years old, taking into account force of the nervous system of sportsmen were developed, considering the results of the psychological research of sportsmen.

Keywords: pregame warm-up, handball players, force of the nervous system.

Introduction

One of the relevant issues of sports science remain the search of ways of increase of efficiency of the competitive activity of sportsmen. It is shown in the researches, which were conducted on the basis of Kharkiv state academy of physical culture that it is necessary to improve constantly techniques of physical preparedness of sportsmen for success in the competitive activity [2–4; 8; 11], to pay attention to mental conditioning [5–6] and to place emphasis on the correct creation of the training process [1; 8; 11] and so forth.

At present it is proved by number of researches that typological features in manifestation of the main properties of the nervous system (NS) played a very essential role in the achievement of high level of sports skill. Sportsmen with different combinations of the main properties of NS can achieve the identical success in sport, but come to them in the peculiar way, with different degree of expense of time, forces, energy [9].

The analysis of the last researches and publications

It is shown in works of Ye. P. Ilyina, that anatomic, morpho-functional and biological features are the cornerstone of individual differences, the level of physical development and phenotypical physical qualities are caused. The properties of NS lie at the heart of typological features which define dynamics of adaptation to the environment [9], which combination is especially individually. M. N. Ilyina, Ye. P. Ilyin in their works claim that not only the absolute force of property of NS at this

or that moment is essential, but also as far as it remains to constant, that is the degree of dynamic firmness. At the considerable firmness, force of reactions in each separate case depends on changeable circumstances in which a sportsman occurs, and it adequate to them: the stronger external irritation causes the stronger reaction, the weaker irritation, – the weaker reaction. The strong irritation can cause either very strong or very weak reaction at individuals with the bigger instability, depending on very changeable condition of the personality, on the contrary; as well the weakest irritation can sometimes cause also very strong reaction. Most of authors confirm the fact that uniform pedagogical influence, that they are applied to different persons, leads to different results, and different forms of pedagogical influence, lead to identical results [9; 10]. Therefore, it is obvious that knowing features of NS of sportsmen, the opportunity to regulate duration and extent of their inclusion in the training -competitive process appears at coaches [3; 6].

Despite the numerous researches, which are directed to studying both physical, and psychological techniques of training of sportsmen, the question of the correct creation of pregame warm-up in handball is almost not studied, taking into account features of force of NS of sportsmen, that is caused the relevance of our work.

Communication of the research with scientific programs, plans, subjects

The research was conducted according to the subject of the plan of the RW of Kharkiv state academy of physical culture

2.8. "Improvement of the educational-training process in sports" (number of the state registration is 0111U003126).

Purpose of the research

Proceeding from the aforesaid, the purpose of our work – to develop recommendations concerning the organization of warm-up for handball players of 13–14 years old taking into account force of NS of players. The following tasks were solved according to the stated purpose:

1. To define perspective directions of improvement of pre-game warm-up of handball players taking into account force of NS of sportsmen on the basis of the analysis of scientific-methodical sources.
2. To define individual properties of NS of handball players of 13–14 years old.
3. To develop recommendations concerning carrying out pre-game warm-up for handball players of 13–14 years old taking into account force of their of NS.

Material and Methods of the research

The research of individual indicators of force of NS is carried out at 28 handball players of 13–14 years old of the cities Kharkiv and Ternivka. The theoretico-methodological analysis of the problem is carried out for the foundation of relevance of the subject. The technique "Tapping-test" was used for studying of indicators of force of NS of handball players of 13–14 years old [12].

Results of the research and their discussion

By the results of the conducted research, handball players can be divided into five groups, by force of NS: strong NS, average, weak and average-weak. The results of distribution of sportsmen by force of NS are presented in tab. 1.

Table 1

Distribution of handball players by force of NS

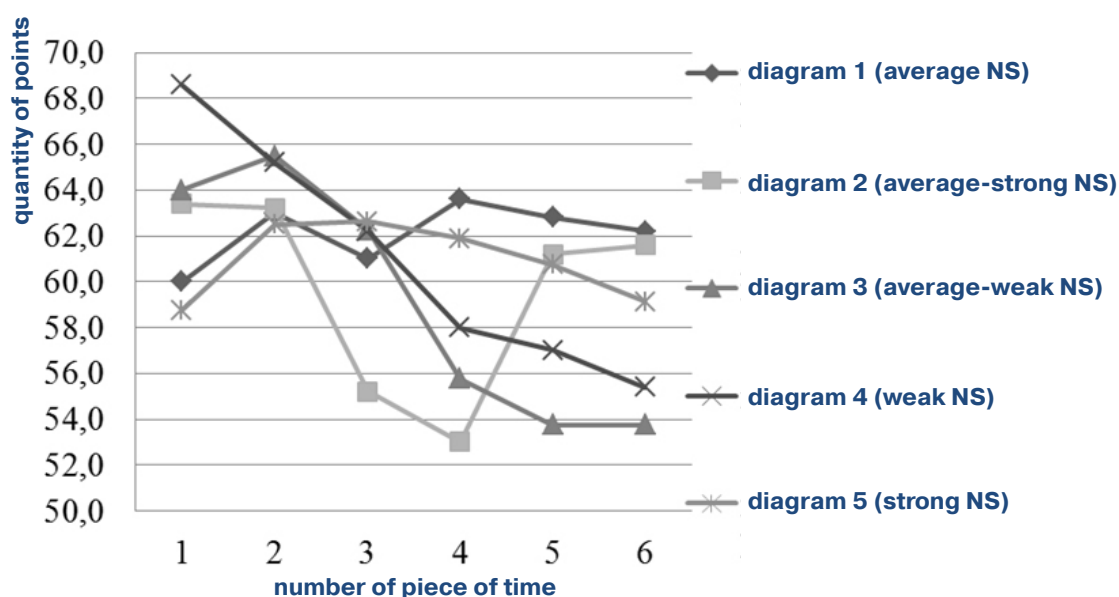
Force of NS	Handball players (n=28)	
	Abs. val.	%
Strong	8	28,57
Average	6	21,43
Weak	5	17,86
Average-weak	4	14,29
Average-strong	5	17,86

As shown in tab. 1, average force of NS is at 6 (21,43%) examined handball players of 13–14 years old. Speed at them increases to maximum in the first 10–15 s of work; it can decrease below the initial level in the following 25–30 s in work with "Tapping-test". Persons with strong NS (28,57%) have practically the same maximum frequency of movements, as well as at persons with average-weak NS, however it is reached only on the second five-second piece of work. In this regard handball players with strong NS concede in speed to sportsmen with average NS in the first 5 s of work. Having begun to work almost at the same speed, as well as persons with average force of NS, handball players with strong NS due to the will, can increase speed whereas others cannot make it.

Handball players with weak NS (17,86%) are characterized by inability of nervous cells to maintain the long and concentrated excitement or braking at action of strong irritants. As such players are not capable to put up with strong and long tension, the coach has to consider it in the training competitive process, it is correct to dose loading in warm-up and so forth.

The results of the research of force of NS (mental working capacity) of handball players of 13–14 years old by the technique of «Tapping-test» are presented graphically in pic. 1.

As shown in pic. 1, speed of handball players with strong NS increases at the beginning of activity and then gradually de-



Pic. 1. Average indicators of results of "Tapping-test" and graphics of mental efficiency of handball players of 13–14 years old

creases (pic. 1, diagram 5). Sportsmen, usually, do not begin to work with strong NS at full capacity, and situations of additional motivation allow them to join in activity as much as possible. Such players are organized by reinforcement on warm-up in time, can show phenomenal results at the beginning of the game, but they also are quickly exhausted.

The maximum rate of working capacity decreases practically at once from the moment of activity and remains decreased to the end of work at handball players with weak force of NS; the difference between the best and worst result is essential (pic. 1, diagram 4). Players with weak force of NS cannot expect or suffer, they are not capable to put up with superstrong irritants. But such handball players own hypersensitivity, high sensitivity, ability to distinguish superweak signals, their advantage consists in it at players with strong NS. It is necessary to remember in the work with such sportsmen that players begin to work with weak force of NS quickly, also quickly blow up their power reserves and therefore continue to work expensively. If to intimidate such handball players by complexity or volume of future works, they can make the resource psychologically or morally by the beginning of the competitive activity (previously having scrolled "all horror" of the future test in the head).

The decrease in rate of work practically at the beginning of activity and preservation its low or the periodic growth and fall during the whole work also characteristic to players with average weak force of NS, but the difference between the best and worst result will be insignificant here (diagram 3).

Nearly 21,43% of players from the group of the surveyed showed low lability, that is slow rate of work by the technique of "Tapping-test" (pic. 1, diagram 1). It means that these sportsmen are inclined to work at slow speed, and slow speed of their nervous processes is their individual characteristic.

Thus, individual differences in representation of force of their NS are found in handball players of 13–14 years old. The gradation of individual representation of force of NS – from weak till strong – appear in opportunity to maintain short-term, but intensive loadings – both physical, and psychological. It should be noted that characteristics of the tapping-test, changing at fatigue, can serve as the indicator of functional condition of handball players of 13–14 years old. Sportsmen with weak NS show the smaller speed to tapping at the action of stressful factors whereas persons with strong – much higher. The knowledge of these regularities allows coaches to resolve more strictly issue of diagnostics of resistance to stressful factors and to formulate individual recommendations from the organization of the training and competitive activity of handball players of 13–14 years old, pregame warm-up and so forth.

Considering the above-mentioned psychological characteristics of sportsmen with different force of NS, we offered two options of warm-up. The first option of warm-up – for sportsmen with strong NS, the second option of warm-up connected handball players with weak and intermediate types of NS.

It is necessary to remember at the organization and carrying out pregame warm-up of handball players of 13–14 years old with strong NS: sportsmen with strong NS need the certain time for inclusion in work at full capacity, it is necessary to begin to build warm-up with simple cyclic exercises. Gradually

exercises have to gather speeds, difficulties when performing. To finish warm-up trace with such exercises which as if throw down a challenge to the handball player and will force it to be mobilized. The character of exercises must have mainly specific orientation, that is competitive exercises in warm-up has to be more in comparison with exercises of the general orientation. If the coach needs to make the remark, it needs to be done by the quiet and strong tone, without offending the player, but without leaving him the place for doubts.

Thus, it is necessary to distinguish from recommendations for warm-up for handball players of 13–14 years old with strong NS: to begin warm-up trace from kinds of walking and smooth run at slow speed; farther than exercise on the place: stretch-exercises, relaxation exercises; then exercises get big power (swing and jumping exercises); to finish exercises on the place trace with difficult coordination exercises.

The part of special warm-up (exercise with balls): it is necessary to perform exercises, constantly being in the movement, that is legs of handball players should not stand still even when performing close passes at warm-up with passes. To finish this part of warm-up trace with passes with increased requirements to coordination opportunities of sportsmen (reception and pass in jump, pass after turn on 360°, and so forth).

It is necessary to use more shots on goal in jump after performance of various feints at warm-up of the goalkeeper and goal-shots to sportsmen. It is necessary to finish this part of warm-up with throws against the active defender or even two that for high-quality realization of throws will demand from the sportsman of mobilization of all his efforts.

It is necessary to remember at the organization and carrying out pregame warm-up of handball players of 13–14 years old with weak, average, average-weak and average-strong force of NS: such at once on full get into gear and are very quickly exhausted therefore it is necessary to create in pregame warm-up conditions of preservation of their maximum potential by the beginning of game. It is necessary not to allow exhaustions of their nervous-mental state for the necessary time earlier and to keep their working capacity at the high level as it is possible longer; at creation of pregame warm-up it is necessary to use more exercises of nonspecific orientation, exercises, for the general development and exercises that leave very well at such sportsmen; when performing exercises these handball players need to get support from the coach, to finish each part of warm-up with exercises which perfectly come out that will support their confidence in the forces on due levels before the game.

It is necessary to allocate among recommendations for warm-up for handball players of 13–14 years old with weak, average, average-weak and average-strong force of NS: to begin warm-up trace with run and kinds of walking; exercises for the general development should be begun, being in the movement, then to pass to performance of stretch-exercises on the place. Warm-up with balls – when performing kinds of passes it is necessary to adhere to slow speed, filling interval after performance of pass to its technique with the nonspecific movements (trunk bending forward, back, performance of set and so forth). It is necessary to avoid difficult coordination movements when performing passes. All types of interaction with the partner have to be very familiar and "on forces" to sportsmen not to cause additional overstrain of NS.

Kneading the goalkeeper and carrying out goal-shots, sportsmen have to apply more often throws in basic situation or from the course. Carrying out throws from angular positions, it is necessary to increase firing angle of gate and to carry out them without obstacle of the defender who will facilitate task for the forward. It is necessary to avoid falling on platform surface.

It is necessary to avoid difficult conditions of performance of throws, that is to carry out them without the rival's resistance. The last goal-shot has to achieve the purposes, that is the sportsman needs to throw ball in gate surely.

Therefore, if players prevail with weak, average, average-weak and average- strong force of NS in the team, after the general part of warm-up, it is possible to give a motor game which distracts sportsmen from thoughts of competition which will be initiated soon. If the goalkeeper has the weak force of NS, then the last throws have to happen from sportsmen with strong NS who will carry out attack of gate, counteracting defenders that will increase chances of the goalkeeper to return ball and will maintain his self-confidence. In case when the goalkeeper has strong NS, handball players need to finish part of team warm-up with throws with weak NS in the conditions of free performance to throw which increases chances of the sportsman to throw ball in gate. If players had time before the game after the obligatory parts of warm-up, then players settle down in attack and defense, imitating competitive actions. If at association of team players to two parts (2 options of carrying out warm-up) in everyone there is number of players not multiple 2, then warm-up with balls can be done also in the three.

Conclusions

1. The analysis of scientifically-methodical literature on questions of the increase of efficiency of the game of handball players demonstrates that this problem remains relevant, and among priority and few studied directions are the accounting of features of NS of players when carrying out pregame warm-up.
2. By the results of the conducted research, handball players of 13–14 years old can be divided into five groups according to force of their NS: strong NS (28,57%), average NS (21,43%), weak NS (17,86%) and average-weak NS (14,29%), average-strong NS (17,86%).
3. Recommendations concerning the organization and carrying out pregame warm-up of handball players of 13–14 years old, taking into account force of NS of sportsmen were developed on the basis of results of the psychological research of handball players of 13–14 years old. The observance of the above-stated recommendations from the organization and carrying out pregame warm-up will allow handball players to begin game in optimum condition of mental working capacity which can act as guarantee of effective participation in competition.

The prospect of the subsequent researches consists in the experimental foundation of efficiency of the offered recommendations, taking into account features of force of NS of handball players of 13–14 years old in the course of pregame warm-up which will allow recommending their use to coaches.

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