

Training of motor rhythm in students, practicing football

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Abstract

Purpose: to test the methodic of students' motor rhythm training at physical culture lessons based on application of football means.

Material: in the research full time 1st year students of main health group (n=40) participated. After short warming up (10-15 minutes) they fulfilled exercises for rhythm feeling during 15 minutes at every lesson. Assessment of rhythm feeling was carried out with the help of test "Ball pulling by foot". Shuttle run 3x10 m was used for assessment of general coordination level. Besides, complex test for football player's technical fitness (juggling, dribbling, dribbling around stands and kicking goal) was used.

Results: we found that it is necessary to selectively train football player's ability for motor rhythm. It also concerns training of students' coordination. We presented new opportunities of application of methodic of students' motor rhythm's development. These opportunities were realized at physical culture lessons, based on football means.

Conclusions: when mastering and practicing new and complex exercises for coordination we used the method of standard-repeated exercise. The method of variable exercise was used, when it was necessary to change the mean of movements' fulfillment. Game and competition methods were used only, when the trained motor action became automatic.

Keywords: students, coordination abilities, rhythm, physical education, technical fitness.

Introduction

The questions, connected with coordination training and its structure's determination are the objects of many scientific researches [1, 3, 4].

General coordination abilities are abilities to purposefully and rationally solve complex motor tasks [6, 14, 15]. Such abilities are the foundation for development of specific coordination. For achievement high results in motor activity it is necessary to have high level of specific coordination [16]. For training motor rhythm it is necessary to consider and use the following:

- Didactic laws of motor actions' formation [25, 37];
- Individual and group models of motor actions' construction [23, 26];
- Modern technologies of education and training [22, 31];
- Adequate forms of pedagogic control [27, 30];
- Models of successfulness prediction [24, 32];
- Correlation of anthropometric and functional indicators [21, 33];
- Criteria of motor coordination structure [19, 29, 33];
- Psychological indicators of reaction to physical load [20, 28] considering health level [35, 36].

Specific for football coordination abilities are those, which ensure optimal control of specific motor tasks' fulfillment. Such tasks simulate separate sides of competition activity in football [16].

Among numerous specific coordination abilities we can mark out 7 the most important (basic) abilities, which influence on football player's technical skillfulness [12, 18]:

- 1) motor rhythm feeling;
- 2) kinesthetic differentiation of motor parameters (feeling of ball);
- 3) orientation in space;
- 4) coordination (combining) of movements;
- 5) quick reaction;
- 6) adaptation and reconstruction of movements;
- 7) keeping balance in dynamic and static conditions.

In our opinion, from the enlisted above abilities ability to feel motor rhythm is of special importance for football player's technical training. It implies correct and accurate reproduction of preset rhythm of motor action or its adequate varying, depending on changing conditions [12].

Thus, ability for motor rhythm is one of components of football player's technical fitness. Importance of this task's solution is underlined in most of works, devoted to coordination problems.

Hypothesis: it is assumed that with the help of motor rhythm training means and methods it is possible to improve coordination indicators and technical fitness of students, who practice football at physical culture lessons.

The purpose of the research is to substantiate and experimentally test the methodic of students' motor rhythm training at physical culture lessons, based on application of football means.

Material and methods

Participants: in the research full time 1st year students of main health group (n=40), (17-18 years age) participated.

Organization of the research: the researches were conducted on the base of Vyatka State University, (Kirov, Russia).

Experimental group (EG) was completed by method of random sampling [2]. CG was trained by traditional physical education program [17]. EG trainings included exercises for rhythm. In both groups training were conducted twice a week (two academic hours each). In total we conducted 64 academic training hours in every group.

Specificities of experimental methodic of EG students:

1) After short warming up (10-15 minutes) they fulfilled exercises for rhythm feeling during 15 minutes at every lesson.

2) Load was increased gradually. Rising of intensity was at the account of increase of exercises' quantity and shortening of rest intervals between exercises and (or) series of exercises.

3) The most effective means for football players' rhythm feeling are: dribbling with changing of temp and direction; Jumps between irregularly laid sticks; slalom dribbling; running hurdles; running with preset time of segments' run 10, 20, 30 meters; kicking ball after rebound from wall (or after partner's pass) [7, 9, 15].

4) When training and fulfilling new and complex coordination exercises we used the method of standard repeated exercise. The method of variable exercise was used, when there was need in changing of mean of these exercises' fulfillment. Game and competition methods were used, when the trained action became automatic.

We also used the method of pedagogic testing and determined the following indicators: ability for rhythm, general coordination abilities; technical fitness (all tests were fulfilled on site for mini-football:

1) Assessment of rhythm feeling was carried out with the help of test "Ball pulling by foot".

Initial position is stance with both feet on floor. By signal it is necessary to pull ball backward by sole as quick as possible. After every contact with ball sole shall touch the floor (10 times). After tenth contact of sole with ball student shall touch the floor with foot. After it, stopwatch is switched off. Results: the best from two attempts is registered with accuracy up to 0.01 sec. [12].

2) Shuttle run 3x10 m was used for assessment of general coordination level.

Two parallel lines are drawn on the floor at 10 meters' distance on start and finish. Student stands behind start line. By command "Go" he runs to finish line, touches it with fingers of one hand and return to start line. Then, he repeats this exercise 3 times. Results: the best from two attempts is registered with accuracy up to 0.01 sec. [11].

3) Complex test for football player's technical fitness implies juggling, dribbling, dribbling around stands and kicking goal.

The exercise is started with juggling (three ball touches with foot). Than – "snake" dribbling: it means dribbling around 4 stands (distance between stands – 2.5 meters) and kick goal (not entering penalty box). The time is

registered from the moment of start to ball's crossing the line of goal. If goal is not hit – exercises is failed. Result: the best from two attempts is registered with accuracy up to 0.01 sec. [17].

Statistical analysis: For determination of pedagogic experiment's results' confidence the data were processed with the help of mathematical statistic methods. We used parametrical criterion (Student's t-test). Statistical processing was carried out with Microsoft Excel 2007 standard statistical programs. Results at $P > 0.01$ were considered to be confident.

Results:

At the beginning of experiment testing did not show confident differences between all tested indicators of EG and CG ($P > 0.05$). After pedagogic experiment we received the following results, presented in table 1.

Analysis of table 1 showed that there happened some changes during pedagogic experiment. In test "Ball pulling by foot (sec.)" normal is result, not exceeding 4.5 sec. [4].

Before experiment both EG and CG indicators were below norm. After experiment EG indicators improved from 5.0 ± 0.1 to 4.3 ± 0.2 ($P < 0.01$); in CG indicators also improved but insignificantly – by 0.1 ± 0.1 ($P > 0.01$); that is below norm of ability to motor rhythm.

For 1st year students in test "Shuttle run 3x10" norm is period from 7.3 sec. to 8.2 sec. 7.3 sec. means "excellent", 8.0 – "good" and 8.2 – "satisfactory" [17].

Before experiment results of both groups were "satisfactory". After experiment, CG indicators improved up to "good" – 7.9 ± 0.2 ($P > 0.01$).

Indicators of EG after experiment showed significant positive increment by 1.0 ± 0.2 ($P < 0.01$) that corresponded to "excellent".

"Test passed" was put for complex test for technical fitness, if result did not exceed 8 sec. [17].

Before experiment both EG and CG students did not receive "test passed".

After experiment EG indicators noticeably improved:

Table 1. EG and CG students' indicators from the beginning and up to the end of experiment

Indicators	Group	Before	After	P
Ball pulling by foot (sec.)	EG	$5,0 \pm 0,1$	$4,3 \pm 0,2$	$P < 0,01$
	CG	$4,9 \pm 0,1$	$4,8 \pm 0,1$	$P > 0,01$
	P	$P > 0,01$	$P < 0,01$	-
Shuttle run 3x10 (sec.)	EG	$8,2 \pm 0,2$	$7,2 \pm 0,2$	$P < 0,01$
	CG	$8,1 \pm 0,2$	$7,9 \pm 0,2$	$P > 0,01$
	P	$P > 0,01$	$P < 0,01$	-
Test for technical fitness (sec.)	EG	$8,3 \pm 0,2$	$7,2 \pm 0,2$	$P < 0,01$
	CG	$8,1 \pm 0,2$	$7,9 \pm 0,1$	$P > 0,01$
	P	$P > 0,01$	$P < 0,01$	-

up to 7.2 ± 0.2 ($P < 0.01$). In CG indicators also improved but not so significantly: only to 7.9 ± 0.1 ($P > 0.01$)

It should be noted that before experiment there were no confident between EG and CG ($P > 0.01$). After experiment EG students were ahead of CG by all indicators ($P < 0.01$).

Discussion

Technical fitness of football player is influenced by his coordination abilities [5, 7, 12]. The authors underline key importance of specific coordination abilities of different sportsmanship and age athletes.

Coordination abilities are rather diverse and classified in different ways [4, 10, 12]. Most of authors [4, 8, 13] recommended training equally all known abilities, including ability for motor rhythm.

Analysis of researches points at demand in selective training of football player's motor rhythm. It relates also to development students' coordination abilities.

The novelty of the research is that we present new opportunities for methodic of students' motor rhythm training. These opportunities were realized at physical

culture lessons, based on football means. We received positive results of this methodic application.

However, there are some prospects in studies of coordination abilities. For example, they are: influence on football players' technical fitness, ability for quick reacting and orientation in space. Besides, it is possible to conduct complex functional and anthropometric assessment of students. Such approach will permit to monitor students' health condition; correct training process; achieve high health related or sport results.

Conclusions:

The used means and methods of motor rhythm abilities' development improved students', practicing football, coordination abilities and technical fitness.

The received data are of practical interest for coaches and teachers of higher educational establishments.

Conflict of interests

The author declares that there is no conflict of interests.

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