

METHODIC OF COORDINATION'S PERFECTION OF JUNIOR THAEQUANDOISTS AT STAGE OF PRE-BASIC TRAINING

Pashkov I.N.

Kharkov State Academy of Physical Culture

Abstract. *Purpose:* experimental substantiation of effectiveness of coordination training methodic of junior thaequandoists at stage of pre-basic training. *Material:* in the research 30 thaequandoists of 12-14 yrs age, who composed control and experimental groups, participated. *Results:* we determined means and methods of training of thaequandoists' coordination abilities. Correlation of exercises for sense of space, muscular sense, sense of time took from 15 to 25% of total time of training. During 5 seconds' work quantity of repetitions was from 8 to 12-15 times. Rest pauses between exercises were from 1 to 1-2 minutes. The offered methodic facilitated improvement of coordination fitness indicators of thaequandoists: keeping of static balance with open eyes – by 5.08 % and with closed eyes – by 5.63 %; Romberg's test on left foot – by 11,4% and on right – by 8.22%; response of choice – by 15.9%; high jump from the spot – by 11.39%; shuttle run – by 5.8%. *Conclusions:* in the process of perfection of thaequandoists' coordination it is necessary to solve the following tasks: master more and more complex coordination structures of motor tasks; master quick re-switching of motor functioning, depending on change of situation; improve accuracy of required motor actions; develop stability of space orientation.

Key words: coordination abilities, methodic, load, thaequando.

Introduction

Coordination is one of the most important components of thaequandoist's motor training. High level of coordination is a foundation of success, in which final result is conditioned by high technical fitness; it also facilitates mastering of technique of movements.

V.N. Platonov says that achievement of high sport results in motor functioning is possible under condition of mastering of ability to assess and accurately regulate time and space parameters of movements. As it is known, the highest results are achieved by those sportsmen, who have highly developed sensor and perceptive abilities [3, 8, 9].

Technical and tactical level on battle field is conditioned by stability of motor skills as well as by ability to build and coordinate movements with supreme manifestation of this ability – motor coordination [1, 2, 6, 9, 10].

Alongside with it, different authors' views on determination of place and role of coordination training in system of sportsman's training are rather variable. It is recommended to train coordination in integrated way in course of technical training [4, 5, 10, 11, 13, 14]. Training of coordination cannot be reduced to one of sides of general training but is the core of all its content [7–9, 19]. That is why it is possible to affirm that up to the present time there has existed a deficit of scientific-theoretical and methodic publication in the field of methodic of coordination training in thaequando.

Purpose, tasks of the work, material and methods

The purpose of the research is to experimentally substantiate effectiveness of methodic of coordination training of junior thaequandoists of 12-14 yrs. age at stage of pre-basic training.

The tasks of the research: 1. Basing on scientific methodic literature study level of development and structure of coordination abilities of 12-14 yrs. age thaequandoists at stage of pre-basic training. 2. Work out and experimentally prove methodic of coordination abilities' training at stage of pre-basic training, considering individual potentials.

Participation in experiment was organized on voluntary basis. 30 sportsmen participated: 15 persons in experimental and 15 persons in control groups. Groups were analogous by age, height and body mass of sportsmen. The program of our methodic was oriented on training of adequate responding to sudden situations, improvement of space orientation, increasing of resistance to irritators of vestibular analyzer at account of rotating movements, coordination of movements, formation of ability to assess and regulate dynamic and space-time movements' parameters.

Results of the research

The methodology of our researches was based on theoretical knowledge and generalized experience of children's sport training, described in scientific works [1, 3–5, 7–9, 13, 19]. In the course of study of junior thaequandoists physical condition's structure we used fundamental principles of theory of physical qualities' training and theory of adaptation to specific loads [1, 3, 8–12, 14–18, 20].

In fulfillment of coordination exercises we gradually, from training to training, increased load at the account of the following:

- Increase of coordination complexity by increasing of exercise; variability;
- Raising of requirements to accuracy, quickness, purposefulness, economic character and stability of techniques' fulfillment at one and the same time;
- Shortening of pauses between exercises and, accordingly, between series of exercises;

- Accent on “coordination” in fulfillment of exercises, for other physical qualities;
- Fulfillment of exercises for coordination after physical loads.

At stage of pre-basic training for junior thaequandists intensity levels and coordination complexity of fulfilled exercises increased (see table 1).

Table 1

Components of load with fulfillment of coordination exercises by junior thaequandists

Components of load						
Age (years)	Duration of exercise	Intensity of exercise	Rest intervals between exercises	Character of rest	Quantity of repetitions of exercise	Coordination complexity of exercise
12–14	From several seconds to 1-2 minutes	From low to sub-maximal	From several seconds to 3-5 minutes	Passive, active	From 5 to 20 times in series, quantity of series 2–6	Low and moderate

Correlation of exercises for prevailing development of space sense, coordination, muscular sense, sense of time and speed-power qualities takes from 15 to 25% from total time of one training.

At stage of pre-basic training, for thaequandists training of coordination is naturally connected with technical-tactic perfection, with training of speed-power qualities, endurance in conditions of specific training and competition loads. That is why intensity of work to large extent was determined by demand in complex solution of tasks of sportsman’s special training at stage of pre-basic training (see table 2).

Table 2

Intensity of training loads of junior thaequandists

Main indicators of trainings		General preparatory stage	Special preparatory stage	Stage of preliminary training
Zones	Heart beats rate			
3	170–180	20 %	30 %	30 %
2	150–170	40 %	35 %	40 %
1	130–150	40 %	35 %	30 %

In the process of coordination’s perfection of junior thaequandists duration of continuous work in any one exercise, (series of repetitions of one and the same movements) or task (continuous fulfillment of different interconnected movements) varied in wide range, determined by task of every certain case.

In training of balance, like in other cases, we can mark out basic and special directions (see table 3).

Table 3

Exercises for balance

№	Basic exercises	Special exercises
1	Jumps on the spot and in motion, with turns by 90°, 180°, 270°, 360°, attention to be paid at accuracy of fulfillment and landing.	Exercises for balance: fencing with arms, standing on floor or on gymnastic bench, at the spot or in movement.
2	Exercises for balance: standing on one foot, moving on little support, gymnastic bench (forward, backward, sideward), rotations of torso, arms, standing on one or two feet.	Fulfillment of strikes by signal with sharp stoppage of movement (with keeping of posture) and sharp change of strike’s trajectory or character of movement.
3	Sharp turns, bends and head rotations, standing on one or two feet, with arms, torso or free leg in different positions or their rotations.	Fulfillment of combinations (including formal exercises for technique of movements) in accelerated temp, with closed eyes.

4	Running or walking of certain distance with closed eyes.	Fulfillment of combinations (series) after rolls.
---	--	---

Duration of continuous work was clearly determined and did not exceed 10-20 seconds. With not long work in every exercise (up to 5 sec.), quantity of repetitions was rather great: from 8 to 12-15 times. With more durable exercises quantity of repetitions was proportionally reduced and did not exceed 2-5 sec. It permitted to support high activity of trainees and their interest to certain task.

If coordination had to be trained in conditions of tiredness, quantity of repetitions increased: up to 20-25 times in short and up to 2-12 times in long tasks.

Pauses between exercises were rather long – from 1 to 2 or 5 minutes and ensured restoration of workability. When it was required to fulfill a task in conditions of tiredness, rest pauses were significantly shortened (sometimes up to 10-15 seconds) that ensured conditions of progressing tiredness.

For coordination we used general and special exercises:

- Acrobatic exercises (forward, backward and over shoulder rolls, rolls in jumps, stance on head);
- Actions by special signals (including fight with shadow and sparring);
- Duel in unusual stance with different opponents;
- Duel on small-size site;
- Kicking with arms behind back;
- Basketball, football;
- Duels with different sparring partners;
- Fulfillment of technical elements with weights (0.5 kg) and (0.5 kg) and rubber ropes.

The structure of training for coordination was worked out with consideration of individual potentials of experimental group members. Coordination abilities reflect general coordination conditions: static balance with open eyes – by 5.08 %, with open eyes – by 5.63 %; Romberg's test on left foot – by 11.4%, on right foot – by 8.22%; response of choice – by 15.9%; high jump from the spot – by 11.39%; shuttle run – by 5.8%.

Reproduction of time intervals for 1 sec. was as follows: in experimental group $\bar{X} - 0.25 \pm 0.02$, in control group $\bar{X} - 0.27 \pm 0.03$. Results of reproduction of time intervals for 5 sec. are the following: in experimental group – $\bar{X} - 0.49 \pm 0.08$, in control group – $\bar{X} - 0.5 \pm 0.08$. Indicators of time intervals' reproduction for 10 sec.: in experimental group – $\bar{X} - 1.07 \pm 0.08$, in control group – $\bar{X} - 1.16 \pm 0.19$.

In experimental group, in tests forward long jump from the spot indicator was: $\bar{X} - 178.6 \pm 3.51$ cm, in control group - $\bar{X} - 175.3 \pm 4.14$ cm.

In experimental group indicator of backward long jump from the spot was $\bar{X} - 126.3 \pm 2.44$ cm, in control group – $\bar{X} - 111.6 \pm 1.39$ cm. Differences between tests forward long jump from the spot and backward long jump from the spot were: in experimental group – $\bar{X} - 52.3 \pm 2.19$ cm, in control group – $\bar{X} - 63.7 \pm 4.47$ cm.

Discussion

Materials of our research *supplement* theoretical principles of structure and content of junior thaequandoists' competition and coordination fitness at stage of pre-basic training [1, 4, 9, 13] and *expand* knowledge about possibilities to selectively influence on special motor skills for increasing of coordination fitness; it, in its turn, influences on quality of technical actions' fulfillment in thaequando [5, 10, 15, 20].

Conclusions:

1. The received results permit to state that in the process of coordination's perfection in thaequando it is necessary to solve the following tasks: mastering of more and more coordination structures; raise quickness of re-switching of motor functioning, in compliance with changes of situation; increasing of accuracy of techniques fulfillment; increasing of thaequandoists' space orientation.
2. Level of coordination abilities is conditioned by sportsman's ability to process information, coming from sensor systems (visual, kinesthetic, vestibular and hearing analyzers). Correct perception of movements and sportsman's response to them are realized in thaequando on the basis of sensor information, which determine thaequandoists coordination skills' realization.
3. The worked out methodic of training for coordination facilitated improvement of fitness and formation of thaequandoists' different skills.

In further researches we are going to study the problems of training process's individualization and to work out technical means, oriented on perfection of taekwondoists' different sides of fitness at different stages of pre-basic training.

Conflict of interests

Author declares absence of conflict of interests.

References:

1. Babak Iu. M., Konstantinova E. A., Volkova Iu. A., Pashkov I. N., Mut'ev A. V. *Tkhekvondo* [Taekwondo], Kiev, 2010, 96 p. (in Russian)
2. Bojchenko N. V. *Sovershenstvovanie koordinacionnykh sposobnostej dziudoistov* [Perfection of judoists' coordination abilities], Kharkov, KSAPC, 2014, 36 p. (in Russian)
3. Volkov L. V. *Teoriia i metodika detskogo i iunosheskogo sporta* [Theory and methodic of children and junior sports], Kiev, Olympic Literature, 2002, 293 p. (in Russian)
4. Gorbenko V.P., Novikova E.V. Mesto koordinacionnykh sposobnostej v strukture special'noj fizicheskoj podgotovki iunykh tkhekvondistov [Place of coordination in structure of special physical fitness of junior taekwondo athletes]. *Molodaia sportivnaia nauka Donbassa* [Young sport science of Donbass], Donetsk, 2002, pp. 73-76. (in Russian)
5. Gorbenko V.P., Novikova E.V. Razvitie special'nykh dvigatel'nykh sposobnostej iunykh tkhekvondistov na nachal'nykh etapakh mnogoletnego sportivnogo sovershenstvovaniia [Training of special motor skills of junior taekwondo athletes at initial stages of many years' sport perfection]. *Aktual'ni problemi iunac'kogo sportu* [Urgent problems of junior sports], Kherson, KSU, 2003, pp. 47-51. (in Russian)
6. Klimenko A. I. Koordinacijni zbidnosti v strukturi special'noi rukhovoï pidgotovlenosti iedinoborciv [Coordination in structure of special motor fitness of martial arts' wrestlers]. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2010, vol.3. pp. 33-36. (in Ukrainian)
7. Pashkov I.N. Rol' sensornykh sistem pri razvitii koordinacionnykh sposobnostej [Role of sensor systems in training of coordination]. *Fiziceskoe vospitanie studentov tvorceskih special'nostej*, 2008, vol.1. pp. 38-43. (in Russian)
8. Platonov V. N. *Sistema podgotovki sportsmenov v olimpijskom sporte* [System of sportsmen's training in Olympic sports], Kiev, Olympic Literature, 2004, 808 p. (in Russian)
9. Rovnyj A. S., Romanenko V. V., Pashkov I. N. *Upravlenie podgotovkoj tkhekvondistov* [Management of taekwondo athletes training], Kharkov, 2013, 312 p. (in Russian)
10. Romanenko V. A. *Diagnostika dvigatel'nykh sposobnostej* [Diagnostics of motor abilities], Donetsk, DNU, 2005, 209 p. (in Russian)
11. Alricson M., Harms-Ringdahl K., Wermer S. Reliability of sports related functional tests with emphasis on speed and agility in young athletes. *Scand. J. Sci. Sports*, 2001, vol.11, pp. 229-232.
12. Gibson Adam. *Taekwondo Sparring Strategies: For the Ring and the Street*. Unique Publications, 2000, 261 p.
13. Hirtz P., Schnabel G., Harre D., Borde A. *Coordination training. Training science*. 1997, 225 p.
14. Hirtz P., Starosta W. Sensitive and critical periods of motor coordination development and its relation to motor learning. *Journal of Human Kinetics*, 2002, vol. 7, pp. 19-28
15. Kim Sang, Lee Kyong Myong, Jeong Kook Hyun. *Taekwondo kyorugi*. Turtle Press (CT), 1999, 219 p.
16. Kim Un Yong. *Taekwondo textbook*. Kukkiwon. Seoul, O-sung Publishing Co., 1997, 766 p.
17. Starosta W., Hirtz P. Sensitive and critical periods in development of coordination abilities in children and youths. *Biology of Sport*, 1989, vol.6(3), pp. 276-282.
18. Reiman M. P., Manske R. C. *Functional testing in human performance*. Champaign, IL. : Human Kinetics, 2009, 308 p.
19. Starosta W. *Global and local motor coordination in physical education and sport - and conditional volatility*, Poznan, AWF, 2006, 738 p.
20. Starosta W. *Motor coordination capacity*. Warsaw, Institute sport, 2003, 564 p.

Information about the author:

Pashkov I.N.: <http://orcid.org/0000-0002-7569-2115>; pashkovtkd@mail.ru; Kharkiv State Academy of Physical Culture; Klochkovskaya st., 99, Kharkov, 61058, Ukraine.

Cite this article as: Pashkov I.N. Methodic of coordination's perfection of junior taekwondo athletes at stage of pre-basic training. *Pedagogics, psychology, medical-biological problems of physical training and sports*, 2015, vol.5, pp. 27-31. <http://dx.doi.org/10.15561/18189172.2015.0505>

The electronic version of this article is the complete one and can be found online at: <http://www.sportpedagogy.org.ua/html/arhive-e.html>

This is an Open Access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited (<http://creativecommons.org/licenses/by/3.0/deed.en>).

Received: 16.04.2015

Accepted: 28.04.2015; Published: 28.04.2015