

Model characteristics of sensory-motor reactions and perceptions of specific wrestlers of different styles of confrontation

¹*Yuriy Tropin*
¹*Vyacheslav Romanenko*
²*Viktor Ponomaryov*

¹*Kharkiv State Academy of Physical Culture, Kharkiv, Ukraine*
²*Judicial training institute for the SBU, Kharkiv, Ukraine*

Purpose: to develop model characteristics of sensory-motor reactions and perceptions of specific wrestlers of different styles of conducting fight.

Material & Methods: theoretical analysis and generalization of scientific and methodological literature, modern competitive activity, generalization of best practices, psycho-physiological research methods, methods of mathematical statistics. The investigations, which were attended by 46 athletes engaged in different kinds of wrestling (freestyle, Greco-Roman wrestling, judo, sambo) with expertise from 1 to discharge the master of sports of international class, different ages (from 18 to 35 years).

Results: based on the test results determined pedagogical level of psychomotor reactions and perceptions of specific wrestlers basic styles of conducting fight.

Conclusions: it determined that the level of development of those or other psychomotor reactions and specific perceptions of athletes has a certain relationship with the typical style of the match.

Keywords: wrestlers, models, individual characteristics, styles of confrontation.

Introduction

One of the most pressing problems of modern sports science is the search of effective ways of achievement of good results on condition of the harmonious development of sportsmen and preservation of their health. The successful solution of this problem significantly is at a loss in connection with intensive professionalizing of sports activity, noticeable tendency of increase in volumes and intensity of loading [3; 6; 8; 12; 15].

Modern elite sport places great demands on all parties of readiness of a sportsman, besides the main problem of elite sport – is impossibility of infinite increase of volume and intensity of training loads which results in need of the further search of new pedagogical means and methods for system of training of sportsmen of high qualification [4; 9; 10; 14]. One of ways of achievement of good results in sport is accurate management, planning and purposeful use in the educational-training process of the advanced technique of training of both domestic, and foreign experts taking into account specific features of sportsmen [1; 11; 13; 16].

The problem of individualization has a special value in single combats, the high sports result can be achieved in various ways of maintaining a fight. Experts mark out three main styles of maintaining a fight: game, power and tempo [1; 4; 5; 16].

Psycho-physiological functions of a person depend on features of the highest nervous system, characterizing the process of formations and improvement of special movement skills in the conditions of sports activity [2; 7].

Objective criteria of the current functional state of CNS are indicators of sensomotor reactions of various degree of complexity [7].

Time of sensomotor reactions is one of the simplest, available and at the same time enough exact neurophysiological indicators, reflecting the dynamics of speed of the nervous processes and their switching, motor coordination, general working capacity and activity of CNS during various periods of sports preparation [2; 7].

Training and competitive activity in single combats promotes the formation of the whole complex of specific reactions and impressions at sportsmen. The threshold of impression of the irritations coming to various touch systems is the cornerstone of them. The main role is played at the same time by levels of musculomotive, visual, vestibular and acoustical feelings. The level of sports skill of a sportsman is higher, the level of value of psycho-physiological functions for achievement of competitive result is higher [2; 7].

Purpose of the research

To develop model characteristics of sensomotor reactions and specific impressions of wrestlers of various styles of maintaining a fight.

Problems of the research:

1. To reveal specific features of wrestlers of standard styles of an antagonism on the basis of the analysis of methodical lit-

erature, modern competitive activity and synthesis of the best practical experience.

2. To define model indicators of sensomotor reactions and specific impressions of wrestlers of various styles of maintaining a fight.

Material and Methods of the research

46 sportsmen who are engaged in different types of wrestling (free-style wrestling, Greek-Roman, judo, sambo), having qualification from the 1 category to the master of sports of international class (MSIC), various age (from 18 to 35 years old) took part in the researches.

Research methods: theoretical analysis and generalization of scientific and methodical literature, psycho-physiological methods of research, methods of mathematical statistics.

Results of the research and their discussion

Features of each style of fighting against were established on the basis of the analysis of data of scientific and methodical literature [1; 4; 5; 16] about modern competitive activity and syntheses of the best practical experience:

1. "Weightlifter" has a rather low height, short extremities, an extended trunk, a wider foot. Physical qualities: a high level of development of force, both maximum, and explosive, thus special endurance is more often poorly developed. He carries out fights mainly on average speed at a near distance. Attacking incidentally, single techniques with preliminary preparation.

2. "Temper" has a height above an average, he has a long

trunk, long hands and legs. Special endurance is most developed from physical qualities. The most weakness in physical fitness – is coordination. Tactics of a fight is directed to the rival's "hassling" due to pressure and a large number of sham and real attacks, mainly from an average and long range.

3. "Player" has an average height or above an average; trunk, hands and legs are of average sizes. Coordination abilities are most developed, special force is developed most poorly, as a rule, from physical qualities. Sportsmen of this type apply a wide range of technical and tactical actions, creatively, originally resolve problem situations in a fight.

Belonging of this or that sportsman to a certain style of maintaining a fight is defined on the basis of poll of sportsmen and conversations with trainers.

The assessment of sensomotor reactions and specific impressions is carried out by complex of the tests developed for tablet personal computers [3].

Tests were divided into three groups:

- assessment of simple sensomotor reactions;
- assessment of difficult sensomotor reactions;
- assessment of specific impressions.

Model characteristics of sensomotor reactions and specific impressions of wrestlers of various styles of maintaining a fight are developed On the basis of the received results of testing (table 1).

It is established that indicators of "player" are better than indicators of "weightlifter" and "temper" practically in all tests, comparing indicators of sensomotor reactions and specific impressions of examinees. The greatest differences from re-

Table 1
Model indicators of sensomotor reactions and specific impressions of wrestlers of standard styles of an antagonism (n=46), X±δ

| № | Indicators of sensomotor reactions and specific impressions | Player (n=16) | Weightlifter (n=18) | Temper (n=12) |
|-----------------------------|--|---------------|---------------------|---------------|
| Simple reactions | | | | |
| 1 | Simple motility, number of pressing for 10 s | 28,15±1,32 | 26,15±1,84 | 25,7±1,47 |
| 2 | Resistance to the forcing-down factors, % | 82,61±3,84 | 82,06±4,78 | 79,83±5,37 |
| 3 | Simple visual and motor reaction, ms | 219,98±10,54 | 231,34±16,24 | 235,16±18,13 |
| 4 | Simple hearing-motor reaction, m | 213,21±11,48 | 213,39±16,8 | 219,54±14,12 |
| Difficult reaction | | | | |
| 5 | Reaction of the choice from static objects, ms | 550,83±37,65 | 648,48±64,49 | 652,53±66,31 |
| 6 | Reaction to the moving object, ms | 16,55±3,85 | 19,34±4,95 | 20,69±6,6 |
| 7 | Reaction of distinction, ms | 267,69±23,73 | 288,73±15,11 | 288,62±24,19 |
| 8 | Reaction of the choice from dynamic objects, ms | 327,21±21,14 | 355,46±22,25 | 376,34±48,33 |
| Specific impressions | | | | |
| 9 | Assessment of feeling of speed (80 bpm ⁻¹), ms | 29,63±8,79 | 36,31±13,84 | 41,39±18,02 |
| 10 | Assessment of reproduction of accuracy of the set line, mm | 0,38±0,1 | 0,4±0,07 | 0,49±0,15 |
| 11 | Speed of reproduction of the set line, mm s ⁻¹ | 73,26±23,0 | 69,19±20,75 | 87,63±21,11 |
| 12 | Assessment of impression of change of the extent of object, ms | 742,94±48,72 | 858,22±51,9 | 1027,92±52,96 |

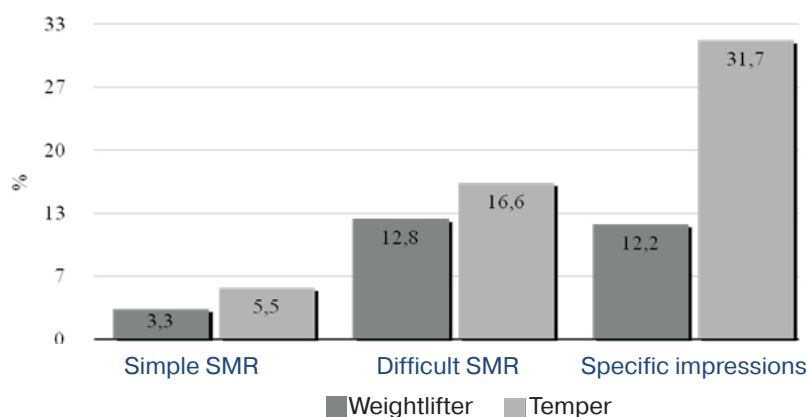
sults of an assessment of level of sensomotor reactions and specific impressions of “player” are noted at “temper” at an assessment of specific impressions (31,7%) and at an assessment of difficult reactions (16,6%). The smallest differences are recorded in estimates of simple sensomotor reactions, they made 3,3% – at “weightlifter” and 5,5% – at “temper” (pic. 1).

All aforesaid demonstrates that both “weightlifters”, and “tempers” compensate shortcomings of the level of development of coordination abilities for the account of the most of strengths, “weightlifter” at the expense of the level of development of high-speed and power abilities, “tempers” at the expense of the level of development of special endurance for successful maintaining a sports fight that the results of researches confirm, which were conducted by V. G. Olenik, N. N. Kargin, P. A. Rozhkov (1985) about psychomotor features of wrestlers of standard styles of confrontation.

Conclusions

1. It was defined that the problem of individualization has a special value in wrestling, the high sports result can be achieved in various ways of maintaining a fight on the basis of the analysis of methodical literature, modern competitive activity and synthesis of the best practical experience.
2. Specific features of wrestlers of standard styles of confrontation are revealed. It is established that it is necessary to consider style of maintaining a fight of each sportsman when training wrestlers.
3. Model characteristics of sensomotor reactions and specific impressions of wrestlers of standard styles of maintaining a fight are developed.

Further researches will be directed to identifications of mechanisms of determination of styles of maintaining a fight that will allow planning and carrying out the training process of wrestlers more effectively.



Pic. 1. Differences of results of an assessment of level of sensomotor reactions and specific impressions of “weightlifters” and “tempers” from results of “players”

Conflict of interests. The authors declare that there is no conflict of interests.

Financing sources. This article didn't get the financial support from the state, public or commercial organization.

References

1. Ananchenko, K. V. 2008, [Determining individual driving style tactical judo bout in high quality], *Slobozans'kij naukovno-sportivnij visnik*, Kharkiv: KSAPC, No 4, pp. 53–57. (in Ukr.)
2. Ashanin, V. S. & Romanenko, V. V. 2015, [The use of computer technology to assess sensorimotor reactions in martial arts], *Slobozans'kij naukovno-sportivnij visnik*, Kharkiv: KSAPC, No 4, pp. 15–18. (in Russ.)
3. Boychenko, N. V., Tropin, Yu. M. & Panov, P. P. 2013, [Technique and tactics in wrestling], *Fizicheskoye vospitaniye i sport v vysshikh uchebnykh zavedeniyakh: Sbornik statey IKh mezhdunarodnoy nauchnoy konferentsii, 23–24 aprelya 2013 goda* [Physical education and sport in higher education: Collection of articles IX International Scientific Conference, 23–24 April 2013], Belgorod – Kharkov – Krasnoyarsk – Moskva: BGTU im. Shukhova, pp. 52–56. (in Ukr.)
4. Yermakov, S. S., Tropin, Yu. N. & Ponomarev, V. A. 2015, [Ways to improve the technical and tactical skill of Greco-Roman style different manner of conducting a duel], *Slobozans'kij naukovno-sportivnij visnik*, Kharkiv: KSAPC, No 5, pp. 46–51. (in Russ.)
5. Olenik, V. G., Kargin, N. N. & Rozhkov, P. A. 1985, [Specificity skill fighters different manner of conducting a duel], *Sportivnaya borba* [Wrestling], Moscow: Fizkultura i sport, pp. 43–47. (in Russ.)
6. Panov, P. P., Tropin, Yu. N., Ponomarev, V. A. & Biletskiy, S. V. 2015, [Survey results presentation teams in wrestling at the European Nations Cup 2015], *Slobozans'kij naukovno-sportivnij visnik*, Kharkiv: KSAPC, No 6, pp. 120–124. (in Russ.)
7. Rovnyy, A. S. & Romanenko, V. V. 2016, [Model characteristics of sensorimotor reactions and perceptions of specific qualifications combat sports], *Problemy i perspektivy razvitiya sportivnykh igr i yedinoborstv v vysshikh uchebnykh zavedeniyakh: Sbornik statey KhII mezhdunarodnoy nauchnoy konferentsii, 5 fevralya 2016 goda* [Problems and prospects of development of sports and martial arts in higher education: Collection of papers III international scientific conference, February 5, 2016], Kharkov: KhGAFK, pp. 54–57. (in Russ.)
8. Tropin, Yu. N. & Boychenko, N. V. 2014, [Analysis of technical and tactical readiness of Greco-Roman style after the change in competition

rules], *Slobozans`kij naukovo-sportivnij visnik*, Kharkiv: KSAPC, No 2, pp. 117–120. (in Russ.)

9. Bromber, K., Krawietz, B. & Pttrov p. 2014, Wrestling in Multifarious Modernity. *The International Journal of the History of Sport*, vol. 31, no. 4, pp. 391–404. doi:10. 1080/09523367. 2013. 869217.

10. Bardamov, G. B. 2008, [Improving individual combinational style of conducting fights fighters], *Uchenye zapiski universiteta im. P. F. Lesgafta* [Scientists notes Lesgaft], vol. 2, no. 36, pp. 22–24.

11. Gonzalez, D. E. L. 2014, Technical-Tactical Performance in Greco-Roman Wrestling : Analysis of 2013 Senior World Championships Through Multivariate Analysis. *International Journal of Wrestling Science*; Vol. 4 Issue 1, 94–99.

12. Kruszewski, A. & Branka, S. 2005, Analysis of the structure of a wrestling bout at the junior European championships, Wrocław 2005, 5th International Conference. *Movement And Health*, 394–399.

13. Ryan, T. & Samson, J. 2006, *Elite Wrestling*. New York: McGraw-Hill, 224 p.

14. Tropin, Y. M. 2013, [Comparative analysis of technical and tactical preparedness Greco-Roman style wrestler at the Olympic Games – 2008 and the Olympic Games – 2012], *Fiziceskoe vospitanie studentov* [Physical education students], T. 4.

15. Tropin, Y. M. 2013, [Analysis of technical tactical training of highly skilled fighters of Greco-Roman wrestling], *Fiziceskoe vospitanie studentov* [Physical education students], T. 2.

16. Tropin, Y. N. & Pashkov, I. N. 2015, Features of competitive activity of highly qualified Greco-Roman style wrestler of different manner of conducting a duel. *Pedagogics, psychology, medical-biological problems of physical training and sports*, No 3, S. 64–68.

Received: 22.04.2016.

Published: 30.06.2016.

Yura Tropin: *Kharkiv State Academy of Physical Culture: Klochkovskaya st., 99, Kharkov, 61058, Ukraine.*

ORCID.ORG/0000-0002-6691-2470

E-mail: tropin.yurij.82@mail.ru

Vyacheslav Romanenko: *PhD (Physical Education and Sport), Associate Professor; Kharkiv State Academy of Physical Culture: Klochkivska st., 99, Kharkov, 61058, Ukraine.*

ORCID.ORG/0000-0002-3878-0861

E-mail: slavavromash@gmail.com

Viktor Ponomaryov: *Judicial training institute for the SBU; Mironositskaya 71, Kharkiv, 61023, Ukraine.*

ORCID.ORG/0000-0003-1261-4053

E-mail: vap5@ua.fm