Comparative analysis of the scientific views of Russian and foreign scientists on the problem of training skilled judo wrestlers

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Abstract: We performed a comparative analysis of the scientific views of Russian and foreign scientists on the training activities of judo. Results were taken from scientific research performed by Russian and foreign scientists over the last 12 years. Using a structural analysis of important research work (articles and dissertations), we identified the main research directions of Russian scientists. We compared the results obtained with the scientific ideas of foreign experts. Our comparative analysis of the data showed that for some areas of wrestler training the views of Russian and foreign scientists significantly differ. There is a significant divergence of scientific views between Russian and foreign specialists in the sport of judo. This involved the problems of training athletes for competitive activities and the principles for selecting children and youths for judo during the initial stage of judo preparation.

Key words judo; scientific base; research; structural analysis; training process; competitive activity; sports selection.

Introduction

Experts say that the development of sports science requires a search for new, effective approaches to optimize sports training of athletes. These requirements apply to the judo, training and competition preparation which are in need of significant changes (Bocioaca, 2014; Peset, Ferrer-Sapena, & Aleixandre-Benavent, 2013). In the scientific literature there are many works related to various aspects of the preparation of judo fighters in competitive activityHowever, experts believe that the increase of sportsmanship of athletes and the development of the scientific base dictate the need for further research in the field of combat sports (Pryimakov, Iermakov, & Juchno, 2016), and especially judo (Challis, Scruton, & Pierantozzi, 2015).

Significant attention, according to experts, should be given to technical and tactical training to the judokas competitive activities (Osipov, Kudryavtsev, & Plotnikova, 2016). L. Bocioaca claims that technical and tactical preparedness of athletes are fundamental factors for successful performance in competitions in judo (Bocioaca, 2014).

M. Malliaropoulos believes that there is a lack of research on injuries in judo. The frequency and severity of injuries received by athletes should be the subject of in-depth scientific analysis (Malliaropoulos, Callan, & Johnson, 2014). E. Pocecco, claims that a comprehensive knowledge about the causes of injury are the basis for the development of effective injury prevention strategies in judo (Pocecco, Ruedl, & Burtscher, 2013).

Some experts suggest to pay more attention to the problem of using effective control methods over the functional state of the wrestlers (Qiang, 2015; Osipov, 2007). In modern conditions the sports training process of preparation of of athletes should be based on the access to objective and timely information about the level of their physical state. Receiving this information makes it necessary to organize permanent monitoring over the training activities of the fighters (Osipov, Kudryavtsev, & Zakharova, 2016; Tron, Ilyin, & Bitsyura, 2013).

A literature analysis reveals that modern judo, in spite of the existing scientific knowledge about this form of combat sports, still offers professionals a vast field for research. The aim of research of article's authors was to analyze the existing scientific views of Russian and foreign experts (coaches, athletesand scientists) on the main aspects of quality training judo to competitive activity.

Material & methods

Dissertations and scientific articles by Russian and foreign scientists on various aspects of the preparation of judoists were studied by methods of structural and system analysis. For a detailed study, authors have taken the time interval from 2004 to 2016 (3 Olympic cycle training athletes). During this period, Russian

scientists have published 41 dissertation and more than 200 articles in peer-reviewed scientific journals. The entire volume of Information was structured according to areas of research. Then, using the scientific comparison method, the authors attempted to determine the similarities and contradictions in the views of Russian and foreign experts on various aspects of the training of qualified of judo wrestlers.

Results

Analysis of the scientific works of Russian scientists during the monitoring period allowed the authors to highlight three important areas of research. The first and the most significant area is training and competitive activities of athletes. In this area presented 38 dissertations and more than 150 articles in peer-reviewed scientific journals. Researches affect the planning of the training process, the technical and tactical training of judoists, physical and psychological preparation of fighters. Most Russian experts agree on the need for individualization of training process in judo. It is proposed to take into account the level of physical (Poleva, Zagrevskiy, & Podverbnaya, 2012; Maksimov, 2009; Mitskevich, 2009) and the technical and tactical training of fighters in the planning of training capacity (Koptev, 2016; Pashuta, & Vavilkin, 2013). A number of studies devoted to the control of the psycho-emotional state of athletes (Bliznevsky, Kudryavtsev, & Jagiełło, 2016; Buchnev, & Nazarenko, 2012). There are works involving problematic use of objective control methods over functional state of athletes (Andronova, 2010; Osipov, 2007). Existence of such research is a necessary part of improving the quality of training and competitive activity of judoists.

The second direction of research are devoted to the problems of sports selection of young and novice fighters in judo section. In this area presented 2 dissertations and 28 scientific articles. Almost all scientific works are united by a common idea. Russian experts propose to consider the main criterion of selection in section judo level of physical development of future athletes (Pautkin, 2009; Mindiashvili, Savchuk, & Dvorkin, 2007).

Third, the most insufficiently studied research area devoted to the problems of effective training of qualified coaches in judo. In this area during 12 years in Russia represented only 1 dissertation and 15 scientific articles. The works are mainly dedicated to the activities of educational problems of coaches and their personal growth (Pasmurov, 2011). The basic idea is necessity of establishing close interpersonal relationships between coach and athlete, which should positively affect the outcome of performances of wrestlers (Purakhin, 2013).

Comparison of scientific views of Russian and foreign experts on the first line of research has shown that the optimal approach to the construction of the training process of fighters are slightly different in judo. Most Russian scientists consider as a priority the individualization (the development of the individual characteristics that determine the level of physical, technical and tactical training) training process for the formation of competitive readiness of wrestlers. Foreign experts have focused their research on ways to increase the number of attacking technical actions (Adam, & Wolska, 2016), and control over the mass of athletes body (Rađević, 2012; Artioli, Franchini, & Lancha Junior, 2010). It should be noted that in matters of the need to use objective methods of control over the load level obtained by athletes in training, the opinions of Russian scientists and their foreign colleagues are the same. Experts point out the importance of continuous monitoring over workout activities of judoists, based on modern methods of functional diagnostics (Osipov, Kudryavtsev, & Zakharova, 2016; Zebzeev, & Zdanovich, 2013; Radovanovic, 2013). The similarity of the scientific views of Russian experts and their foreign colleagues identified and the issue of implementation of the psychological preparation of athletes. Scientists have agreed on the purposeful development of motivation to sports activity at the fighters, from the very early age (Bliznevsky, Kudryavtsev, & Jagiełło, 2016; Guedes, & Missaka, 2015). The systematic use of means of sports training, should, according to scientists, have a beneficial psychological effect on the athletes and create in them a sense of psychological stability and security (Chermit, 2005).

The discrepancy between the views of Russian and foreign scientists found on the methodology of selection of promising teenagers in Judo section. The overwhelming majority of Russian scientists would take a determining factor in the level of physical fitness of young people (Pautkin, 2009; Dvorkin, 2008). D. Challis expresses the opinion of the majority of foreign experts, arguing that the selection of children in judo sections should be integrated physiological and psychological testing. The special attention in the selection process should be given to dealing with psychological compatibility (Challis, 2013)

In the preparation of the coaching staff the position of Russian and foreign experts is the same. All the experts consider importance to the development capacities highest quality of interaction between the coach and athletes. The most affordable way to achieve this goal is the development of emotional intelligence of coaches and continuous pedagogical growth (Pasmurov, 2011; Collins, 2009). This should facilitate the establishment of close interpersonal relationships between coaches and athletes (Purakhin, 2013), which has a positive effect on the process of preparing for a competition. However, it should be noted that foreign experts is encouraged to give the quality of training of trainers as much attention as the quality of the preparation of elite athletes (Santos, Fernandez-Rio, & Callan, 2015). It should be admitted that in this area is revealed a significant lack of research in the Russian Federation.

Results comparing the scientific views of Russian and foreign specialists on the main directions of training of qualified of judoists are presented in Table 1.

Table 1. Comparative analysis of the scientific views of Russian and foreign scientists on the main aspects of the preparation of judoists to the competitive activity.

Indicators	Training activity	Control of the capacity	Psychological training	Sports selections	Preparation of coaches
Russian scientists	Different	Similar	Similar	Different	Similar
Foreign scientists					

Discussion

An analysis of scientific publications show that there are significant differences in the views of Russian and foreign scientists to organize training activities of judoists. Russian experts suggest to train athletes for the competitive activity through targeted development of individual (strong) features of fighters. It is noted that many coaches plan training capacities to ensure rapid development of the athletes' physical strength and speed (Manolachi, 2015). Foreign authors pay attention to the need to increase the number of attacking technical actions and improve the efficiency of carried methods of wrestling (Jagiello, Dornowsky, & Wolska, 2014). Analysis of technical and tactical actions of superstar of modern Judo - Teddy Riner shows that in this competitive fight the athlete performs a large number of attacking technical actions than his opponents (Adam, & Wolska, 2016). Only a large number of attacking moves can bring success to athlete in modern judo, says I. Segedi (Segedi, Sertic, & Rozac, 2014). Unfortunately, the most of the Russian judokas achieve success in the competition not by performing a large number of combat techniques but at the expense of advantages in physical and functional training, as indicated by G. Parkhomovich (Parkhomovich, 1993). Foreign experts say that the development of physical force fighters, even though it is an important part of preparation for a successful competitive activity, should not be separate from the technical readiness of wrestlers (Blais, & Trilles, 2006). However, it should be noted that some Russian scientists express opinion about the necessity of correction the training process in judo. Necessity of increasing amount of time allocated directly to the study and improvement of the techniques of judo and reduce the time allotted for the development of physical qualities is reflected in the works of A. Osipov, G. Parkhomovich and other (Osipov, 2013; Podoruev, 2009; Parkhomovich, 1993).

An analysis of the scientific data has revealed a significant lack of research papers of Russian scientists concerning the regulation of body weight athletes during training and competitive activity. It is well known that most fighters tend to lower body weight before the competition to gain an advantage over rivals lighter (Artioli, Franchini, & Lancha Junior, 2010). Consequently, the priority for the athletes and coaches will be the use of adequate and not harmful to health method for controlling body weight (Rađević, 2012). Unfortunately, the authors did not reveal any significant scientific papers of Russian scientists devoted to the problems of recruiting and weight loss in judo fighters during the monitoring period.

Significant lack of research concerning injury problems have been identified when practicing judo at a high level. In the sport judo injury may be frequent and severe enough (Kasahara, Martin, & Nakamura, 2015). The treatment and recovery period can take a long time. Special consideration should be paid to the prevention of injuries of the head and neck, getting which is associated with a greater risk for the life of athletes (Kamitani, Nimura, & Tomatsu, 2013). Therefore, knowledge about the causes of sports injuries, their prevention and effective treatment will be crucial for the organization and planning of an extended cycle of judo wrestlers prepare for the achievement of high sports results.

Principles of sports selection of children and adolescents in the judo section at the Russian and foreign experts are also quite different. In selecting the most Russian scientists offer to guide physical development of young people. It should be noted that such proposals have been criticized by some Russian scientists and their foreign colleagues. D. Akkuin found out that one of the main reasons for dropping out of young sportsmen from the schools and judo clubs are significant physical activity, do not comply with level of readiness of many young people (Akkuin, 2011). Researches of A. Osipov show that firstly in the selection of children wrestling section should take into account the level of development of coordination abilities, and the ability of young athletes to the rapid mastery of techniques of fight (Osipov, 2013). D. Challis believes that in identifying children's ability to achieve high sports results in judo it is necessary to conduct a physiological and psychological testing of future athletes, to evaluate the performance of some of the art methods of fights, as well as to evaluate the level of psychological compatibility engaged (Challis, 2013).

It is necessary to admit the lack of research of Russian scientists in the area of training of qualified coaches in judo. All experts suggest that a qualified trainer should establish a high-quality interaction with the athletes, in close interpersonal relationships and moral authority, (Purakhin, 2013; Pasmurov, 2011; Collins, 2009). However, foreign experts point out the importance of the physiological knowledge of people engaged in sports training in judo (Torres-Luque, Hernandez-Garcia, & Nikolaidis, 2016). S. Sterkowicz believes that one of the most important aspects of the professional activity of the trainer is to plan the training process and control of the level of technical education of competitors (Sterkowicz, Garcia, & Lerma, 2007). According to R. Veloso, an important aspect of the success of the coach should be a gradual training of young athletes, consistent compliance with all stages of the formation of high-quality motor and technical skills of wrestlers (Veloso, Botelho, & Aranha, 2016). This postulate today is neglected by many Russian coaches, unnecessarily boosting the process of preparation of competitive athletes, hoping to get a quick athletic performance, as indicated by G. Parkhomovich (Parkhomovich, 1993). Therefore, Russian scientists should pay more attention to the issues of quality training of coaching staff. An indirect confirmation of this circumstance can be an invitation to a foreign specialist - E. Gamba in the national judo team of Russian Federation in 2008

Conclusions

Research has identified that, despite the significant amount of scientific works of Russian scientists on various aspects of training and competitive activity of judokas, there is a lack of objective scientific data in several areas. To understudied areas should be added: weight control of athletes in preparation for competitive activity and the training of qualified coaching staff. A significant discrepancy between scientific views Russian and foreign specialists have been identified in the area of sport of judo in the problem of training athletes for competitive activities and the principles of sports selection of children and of young men in the section of judo at the initial stage of preparation of fighters.

The authors believe that the review of significant research Russian experts in area of sports in judo and a comparison of the results of existing research of foreign scientists will significantly enrich the modern sports science and will be the starting point for further research in the area of wrestling.

Conflicts of interest - If the authors have any conflicts of interest to declare.

References

Adam, M., & Wolska, B. (2016). The general individual technical-tactical profile of the multi-medallist judo athlete Teddy Riner's. *Archives of Budo. Science of Martial Arts Extreme Sport, 12*. 37-44.

Akkuin, B. (2011). Causes of the dropouts during the long-term training at children and youth sport judo schools. *Uchenye zapiski universiteta imeni P.F. Lesgafta, 5*(75). 11-15.

Andronova L.B. (2010). Osobennosti funktsional'nogo sostoyaniya yunykh sportsmenov, zanimayushchikhsya edinoborstvami [Features of the functional status of young athletes involved in martial arts]. Moscow. 121 p. [In Russian]

Artioli, G., Franchini, E., Nicastro, H., Sterkowicz, S., Solis, M., & Lancha Junior, A. (2010). The need of a weight management control program in judo: a proposal based on the successful case of wrestling. *Journal of the International Society of Sports Nutrition, 7*. 15. DOI: 10.1186/1550-2783-7-15

Blais, L., & Trilles, F. (2006). The progress achieved by judokas after strength training with a judo-specific machine. *Journal of Sports Science and Medicine, 5*. 132-135.

Bliznevsky, A.A., Kudryavtsev, M.D., Iermakov, S.S., & Jagiełło, W. (2016). Formation of active-effective attitude of 12-13 year judo athletes to sports functioning in competition period. *Archives of Budo, 12*, 101-115.

Bocioaca, L. (2014). Technical and tactical optimization factors in judo. *Procedia – Social and Behavioral Sciences, 117*. 389-394. DOI:10.1016/j.sbspro.2014.02.233

Buchnev, A.A., & Nazarenko, L.D. (2012). Pedagogical conditions of judoka's actions efficiency improvement. *Pedagogics, psychology, medico-biological problems of physical training and sports, 4*(25). 17-22.

Challis, D., Scruton, A., Cole, M., Callan, M., & Pierantozzi, E. (2015). A time-motion analysis of lightweight women's judo in the 2010 World Championships. *International Journal of Sports Science & Coaching, 2-3*. 479-486. DOI: http://dx.doi.org/10.1260/1747-9541.10.2-3.479

Challis, D. (2013). Talent Identification in judo. Unpublished data. Anglia Ruskin University Judo Research Group on behalf of the International Judo Federation. https://judobob.files.wordpress.com/2011/08/talent-identification-in-judo.pdf

Chermit, Z. (2005). Formirovanie sotsial'no-psikhologicheskoy zashchishchennosti lichnosti yunykh sportsmenov: Na primere dzyudo [Formation of social-psychological security of personality of young athletes: the case of judo]. Krasnodar. 208 p. [In Russian]

Collins, M. Beliefs and attitudes in judo coaching: toward a new model coaching. A thesis submitted in partial fulfilment of the requirements of the University of Wolverhampton for the degree of Doctor of Philosophy. 2009. 237 p.

Dvorkin, V.M. (2008). Obosnovanie integrativnoy metodiki otbora detey v gruppy nachal'noy podgotovki po dzyudo [Justification of the integrative techniques of selection of children in groups of initial preparation at judo]. Krasnoyarsk. 154 p. [In Russian]
Guedes, D., & Missaka, M. (2015). Sport participation motives of young Brazilian judo athletes. *Motriz. Revista de Educação Física, 21*(1). 84-91. DOI: 10.1590/S1980-65742015000100011
Jagiello, W., Dornowsky, M., & Wolska, B. (2014). Basic technical skills (throws) in 17-19-year-old judokas. *Physical education of students, 6*. 77-80. DOI: 10.15561/20755279.2014.0615
Kamitani, T., Nimura, Yu., Nagahiro, S., Miyazaki, S., & Tomatsu, T. (2013). Catastrophic head and neck injuries in judo players in Japan from 2003 to 2010. *The American Journal of Sports Medicine, 41*(8). 1915-1921. DOI: 10.1177/0363546513490662
Kasahara, Martin, D., Humberstone, C., Yamamoto, T., & Nakamura, T. Classification of sports injuries in Japanese university judo players and analysis of associated physical fitness characteristics. *Journal of Science and Medicine in Sport, 19*(Supplement). e50. DOI: http://dx.doi.org/10.1016/j.jsams.2015.12.495
Koptev, O.V. (2016). The most used and effective movements in judo. *Vestnik sportivnoy nauki, 1*. 9-15.
Malliaropoulos, N., Callan, M., & Johnson, J. (2014). Comprehensive training programme for judo players nine plus 9+: possible lower limb primary injury prevention. *Muscles, Ligaments and Tendons Journal, 4*(2). 262-268.
Maksimov, D.V. (2009). Individualizatsiya fizicheskoy podgotovki vysokokvalifitsirovannykh edinobortsev v podgotovitel'nom periode [Individualization of physical training of highly qualified martial artists in the preparatory period]. Moscow. 170 p. [In Russian]
Manolachi, V. (2015). Experimental argumentation of development of force and force-velocity abilities of judo players in the context of coaching process. *Journal of Physical Education and Sport. 15*(3). 582-584.
Mindiashvili, D.G., Savchuk, A.N., Dvorkin, V.M. (2007). Modern criteria of selection in sports wrestling. *Teoriya I Praktika Fizicheskoy Kultury, 7*. 34-35.
Mitskevich, E.A. (2009). Podgotovka vysokokvalifitsirovannykh sportsmenov-dzyudoistov na osnove upravleniya ikh funktsional'nym sostoyaniem [Preparation of highly skilled sportsmen-judoists on the basis of management of their functional state]. Moscow. 117 p. [In Russian]
Osipov, A., Kudryavtsev, M., Struchkov, V., Kuzmin, V., Bliznevsky, A., & Plotnikova, I. (2016). Expert analysis of the competitive level of young Russian judo athletes who train for active attack fighting. *Journal of Physical Education and Sport, 4.* 1153-1158. DOI:10.7752/jpes.2016.04185
Osipov, A., Kudryavtsev, M., Kuzmin, V., Salyamova, P., Gavrilyuk, O., Struchkov, V., Galimov, G., & Zakharova L. (2016). Methods of operative and informative control of the muscle loading level used during the training of sambo wrestlers. *Journal of Physical Education and Sport, 4.* 1247-1252. DOI:10.7752/jpes.2016.04198
Osipov, A.Yu. (2013). Increasing level of technical skills of young wrestlers of sambo and judo. *Bulletin of Krasnoyarsk State Pedagogical University named after V.P. Astafiev, 2*(24). 93-95.
Osipov, A.Yu. (2013). Selection criteria beginners in wrestling. *Bulletin of Krasnoyarsk State Pedagogical University named after V.P. Astafiev, 4*(26). 155-157.
Osipov, A.Yu. (2007). Estimation of athletes' condition on basis of ECG-control. *Teoriya I Praktika Fizicheskoy Kultury, 7*. 46-49.
Parkhomovich, G.P. (1993). Osnovy klassicheskogo dzyudo [Fundamentals of classical judo]. Perm'. 302 p.
Pasmurov, G.I. (2011). Pedagogical conditions of formation of professional etiquette of judo coaches. *Omsk scientific bulletin, 5*(101). 202-205.
Pautkin, A.V. (2009). Opredelenie sportivnoy prigodnosti podrostkov na etape nachal'noy sportivnoy spetsializatsii v edinoborstvakh [Definition of sports fitness adolescents at the stage of initial sports specialization in martial arts]. Tambov. 174 p. [In Russian]
Peset, F., Ferrer-Sapena, A., Villamón, M., Gonzalez, L., Toca-Herrera, H., & Aleixandre-Benavent, R. (2013). Scientific literature analysis of Judo in Web of Science®. *Archives of Budo, 2*. 81-91. ICID: 883883
Pocecco, E., Ruedl, J., Stankovic, N., et al. (2013). Injuries in judo: a systematic literature review including suggestions for prevention. *British Journal of Sports Medicine, 47*(18). 1139–43. DOI: 10.1136/bjsports-2013-092886.
Podoruev Yu.V. (2009). Korrektsiya dvigatel'nykh orientirov tekhniki broskov dzyudo i osobennosti ee formirovaniya v usloviyakh ranney spetsializatsii [Correction of motional guidance techniques judo throws and features of its formation in the conditions of early specialization]. Krasnodar. 189 p. [In Russian]
Poleva, N.V., Zagrevskiy, O.I., & Podverbnaya, N.I. (2012). Physical readiness model characteristics of judo wrestlers of various sports qualifications. *Vestnik Tomskogo gosudarstvennogo universiteta, 355*. 136-139.
Pryimakov, O., Iermakov, S., Kolenkov, O., Samokish, I., & Juchno, J. (2016). Monitoring of functional fitness of combat athletes during the precompetitive preparation stage. *Journal of Physical Education and Sport, 2.* 551-561. DOI:10.7752/jpes.2016.02087

Purakhin N.F. (2013). Pedagogicheskaya diagnostika professional'nykh kachestv trenera po sportivnym edinoborstvam [Pedagogical diagnostics of professional qualities of the coach in sport martial arts].Moscow. 157 p. [In Russian]
Qiang, L.Y. (2015). Operative correction of judoists' training loads on the base of on-line monitoring of heart beats rate. *Physical Education of Students, 2.* 13-21. DOI: http://dx.doi.org/10.15561/20755279.2015.0203
Rađević, N. (2012). Effects of a specific model of training on body composition of judo athletes of younger senior age. *SportLogia*, *8*(1). 79-85.
Radovanovic, D. (2013). Towards endurance in sport. *Serbian Journal of Experimental and Clinical Research, 14*(1). 3-8. DOI: 10.5937/sjecr14-3890
Santos, L., Fernandez-Rio, J., Almansba, R., Sterkowicz, S., & Callan, M. (2015). Perceptions of top-level judo coaches on training and performance. *International Journal of Sports Science and Coaching*, *10*(1). 145-158.
Segedi, I., Sertic, H., Franjic, D., Kustro, N., & Rozac, D. (2014). Analysis of judo match for seniors. *Journal of Combat Sports and Martial Arts, 2*(5). 57-61.
Sterkowicz, S., Garcia, J., & Lerma, F. (2007). The importance of judo trainers' professional activities. *Archives of Budo, 3*. 57-61.
Torres-Luque, G., Hernandez-Garcia, R., Escobar-Molina, Garatachea, N., & Nikolaidis, P. (2016). Physical and physiological characteristics of judo athletes: An Update. *Sports, 4*(1). 20. DOI: 10.3390/sports4010020
Tron, R.A., Ilyin, V.N., & Bitsyura, R.V. (2013). Control of physical fitness of athletes specializing in combat sambo. *Pedagogics, psychology, medico-biological problems of physical training and sports, 10.* 80-83.
Veloso, R., Botelho, M., & Aranha, A. (2016). Judo teaching models in Portugal: For the knowledge and comprehension of the sporting training process in this discipline. *Revista de Artes Marciales Asiáticas, 11*(2s). 62-63. DOI: 10.18002/rama.v11i2s.4173
Zebzeev, V.V., & Zdanovich, O.S. (2013). Analysis of special fitness of junior judokas. *Teoriya I Praktika Fizicheskoy Kultury, 2.* 13.