

A comprehensive approach to special physical training for experienced judo athletes aged 19-21: minimizing health risks

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Abstract

Background and Study Aim The physical training of experienced athletes is essential to maintain their high level of performance. However, excessive physical exertion can lead to negative consequences on the athletes' health. The aim of this research is to identify the specific influence of physical exertion in the special physical training process of experienced judo athletes aged 19-21 and to provide recommendations for improving their training process, with a focus on ensuring athlete safety and maintaining their health level.

Material and Methods A questionnaire survey was conducted with 20 trainers-teachers, including four experienced coaches from Ukraine, to obtain information on the features of special physical training of judo athletes aged 19-21. The questionnaire included questions related to the trainers' opinions on individualization of the training process and the connection between special physical training and technical training.

Results The study found that the trainers-teachers emphasized the importance of individualization of the training process and the tendency towards narrow specialization. They also closely connected the process of special physical training of highly qualified judo athletes with technical training, while taking into account the athletes' individual capabilities to ensure their safety and health.

Conclusions In planning the educational and training process of experienced judo athletes, it is necessary to prioritize the athletes' safety and health level through individualization of physical activity. The study recommends a combination of special physical training with technical training, while taking into account the athletes' individual capabilities, to improve the performance of experienced judo athletes aged 19-21.

Keywords: special physical training, experienced judo athletes, health risks, individualization of training, narrow specialization, technical training, athlete safety, physical exertion, questionnaire survey

Introduction

In recent years, there has been growing concern about the long-term health risks associated with high-impact sports like judo. Understanding the features of special physical training for experienced judo athletes aged 19-21 is therefore critical to ensure the health and safety of athletes in this sport.

Numerous studies have investigated the impact of physical training on the health and performance of judo athletes [1, 2, 3, 4]. Qian et al. [5] found that the 12-week plyometric training program improved the judo-specific performance of youth judo athletes, as measured by the Yama-arashi test and the Kuzushi test. It was also found that the plyometric training program reduced the risk of injury, as measured by a decrease in the number of injuries and the severity of injuries. Similarly, Soares et al. [6] found that the 12-week aerobic training program improved the physiological and psychological parameters of judo athletes, as measured by an increase in maximal oxygen uptake, muscular endurance, and self-esteem, and a decrease in anxiety and depression.

Imamura et al. [7] found that resistance training can reduce the risk of injury in judo athletes, particularly when the training focuses on the lower extremities and involves exercises such as squats, lunges, and leg presses. Choi et al. [8] found that the 12-week judo-specific exercise program improved the physical fitness and throwing ability of junior female judo athletes, as measured by an increase in grip strength, muscle endurance, and throwing distance. Kruszewski et al. [9] found that judo training had a positive effect on the body composition, physical fitness, and selected blood count parameters of youth judo athletes. The study found that judo training led to a decrease in body fat percentage and an increase in lean body mass, as well as improvements in cardiovascular fitness, muscular endurance, and hemoglobin concentration.

These studies highlight the importance of special physical training programs in improving the health and performance of judo athletes. However, it is also important to consider the potential risks associated with such training, particularly for experienced judo athletes.

Several other studies have explored the role of

special physical training in judo athletes [10, 11, 12, 13]. For example, Eklund et al. [14] investigated injury rates and profiles of elite competitive judo athletes and found that high levels of physical fitness can reduce the risk of injuries. Additionally, Konczak et al. [15] conducted a review of physical training methods and their impact on performance and health of athletes, highlighting the importance of individualized training programs for athletes. They also emphasized that specific training methods should be chosen based on the athlete's strengths and weaknesses. Franchini et al. [16] also investigated the special physical preparation of judo athletes in the competitive period and concluded that special physical training should be given priority during the training process. They emphasized the importance of developing the necessary physical qualities in judo athletes to minimize health risks and improve athletic performance.

Questionnaires are a popular research method in the field of judo, as they allow for the collection of large amounts of data on various aspects of the sport, such as training methods, injury rates, and psychological factors. Feito et al. [17] used questionnaires to investigate the relationship between pre-competition mood states and performance in elite judo athletes. Jardim et al. [18] employed questionnaires to assess the perceptions and motivations of Brazilian judo athletes towards physical activity and sports practice. Similarly, Romar et al. [19] utilized questionnaires to examine the factors influencing the motivation of Spanish judo athletes to continue training and competing. These studies demonstrate the usefulness of questionnaires in exploring various aspects of judo, including performance, motivation, and psychological states.

Other researchers in the field of judo have also emphasized the significance of utilizing questionnaires as a research method to address various training-related issues. Almeida Neto et al. [20] focused on the relationship between judo experience, personality traits, and resilience. Gómez-López et al. [21] examined the relationship between motivational climate and psychosocial development. Sánchez-Muñoz et al. [22] explored athletes' perceptions of parental behavior, self-esteem, and resilience. Ferreira et al. [23] investigated burnout prevalence and its relationship with stress and coping strategies in elite judo athletes. Waryasz et al. [24] surveyed collegiate judo athletes' knowledge and attitudes towards concussion prevention and management.

From these studies, it can be concluded that questionnaires are a useful research tool in the field of judo, providing valuable insights into various aspects of the sport, such as personality traits, resilience, motivation, parental behavior, burnout, and concussion prevention. By using questionnaires,

researchers can gather data from a large number of participants in a relatively short amount of time, making it an efficient and cost-effective research method.

Overall, these studies suggest that specialized physical training programs can have a positive impact on the performance and health of judo athletes, particularly when they focus on specific aspects of physical fitness and injury prevention.

Our study further contributes to this literature by providing insights into the perspectives of trainers and teachers on the importance of individualized training programs and the use of various training methods to improve specific physical abilities in judo athletes.

This study aims to identify the specifics of the influence of physical exertion in the training process of special physical training of experienced judo athletes aged 19-21, with a focus on minimizing health risks.

Materials and Methods

Participants

A questionnaire survey was conducted with 20 trainers-teachers, including four experienced coaches from Ukraine, to obtain information on the features of special physical training of judo athletes aged 19-21. The questionnaire included questions related to the trainers' opinions on individualization of the training process and the connection between special physical training and technical training. Numerous studies on judo have demonstrated the reliability of using questionnaires to obtain valuable insights [25, 26, 27, 28]. Informed consent was obtained from all participants before they participated in the study.

Research Design

The research design was descriptive. The study was designed as a cross-sectional observational study. A questionnaire was developed and distributed among the coaches to gather information on their training history, injury history, and current training and competition schedule, training methods and approaches to injury prevention.

Statistical Analysis

The statistical analysis was performed using percentages. Descriptive statistics were calculated to summarize and describe the responses of the trainers-teachers regarding the features of special physical training of judo athletes aged 19-21. The data was analyzed using Microsoft Excel. The percentages were used to present the results of the survey questions.

Results

The study analyzed the results of a survey conducted with trainers-teachers regarding the

special physical training of experienced judo athletes aged 19-21. The following results were obtained:

- 100% of the trainers-teachers believed that a high level of general physical fitness is the basis for special physical fitness of judo athletes.
- 100% of the trainers-teachers agreed that it is appropriate to increase the percentage of special physical training at the stage of maximum realization of individual capabilities. Moreover, 83% of respondents believed that means of special physical training should increase to 70% of the total training time.
- 62% of trainers-teachers believed that it is necessary to observe the principle of individualization of the training process partially at the stage of maximum realization of individual

capabilities. Meanwhile, 38% of respondents stated that it is advisable to do this at the next stages of training.

- 82% of trainers-teachers pay attention to weight categories when improving special physical training of judo athletes, while 18% do not.

The coaches-teachers prioritized the use of means for all physical qualities as follows:

Exercises with opposition from the opponent (31%); exercises with the opponent's weight (22%); exercises with harnesses (12%); exercises with a Bulgarian bag, dummy (16%); a fight with a physically stronger opponent (19%) (Fig. 1).

Speed throws are used to improve speed abilities (31%); a fight with a faster opponent (30%); exercises with harnesses for speed (16%); "spurts" (12%); signal exercises (11%) (Fig. 2).

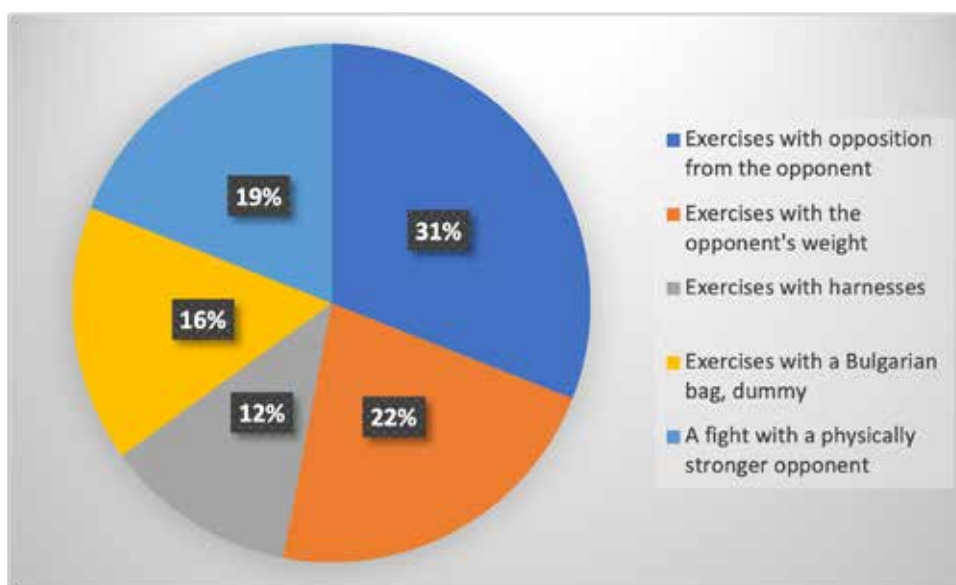


Figure 1. Strength training exercises for judo athletes recommended by trainers and teachers.

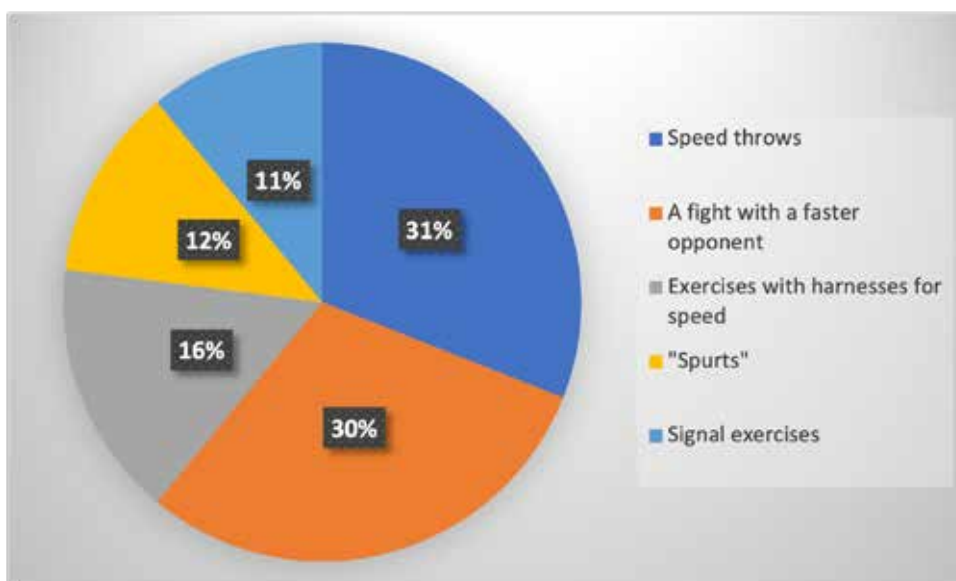


Figure 2. Speed training exercises for judo athletes recommended by trainers and teachers.

Acrobatic exercises are used to improve coordination abilities (26%); combinations of techniques (23%); counter throws (20%); a fight in unusual conditions (eyes closed, poorly lit, reduced limits of the working area) (18%); exercises with reduced resistance (13%) (Fig. 3).

Exercises with a partner for a long time are used to improve endurance (throw-ups, abseiling, etc.) (32%); fight for a long time (26%); partner throws for a long time (16%); contractions with a decrease in rest time between them (15%); exercises with a harness for a long time (11%) (Fig. 4).

To improve flexibility, exercises on the wrestling bridge (26%); exercises with a partner to get out of abstinence (23%); special simulated swing exercises (21%); exercises near the g/wall, wall

(18%); twine (12%) (Fig. 5).

Answering the last question “What type of training is closely related to the special physical training of highly qualified judo athletes?” The majority of respondents (73%) marked technical training and 28% - technical and tactical training (as single parts).

The above results suggests that the study has found evidence that practicing judo can be done in a way that does not harm the health of the athletes. This can be helpful for coaches, trainers, and athletes themselves, who may be concerned about the potential risks of physical activity, including injuries or other health problems. By following guidelines for safe and healthy training, judo athletes may be able to minimize their risk of harm

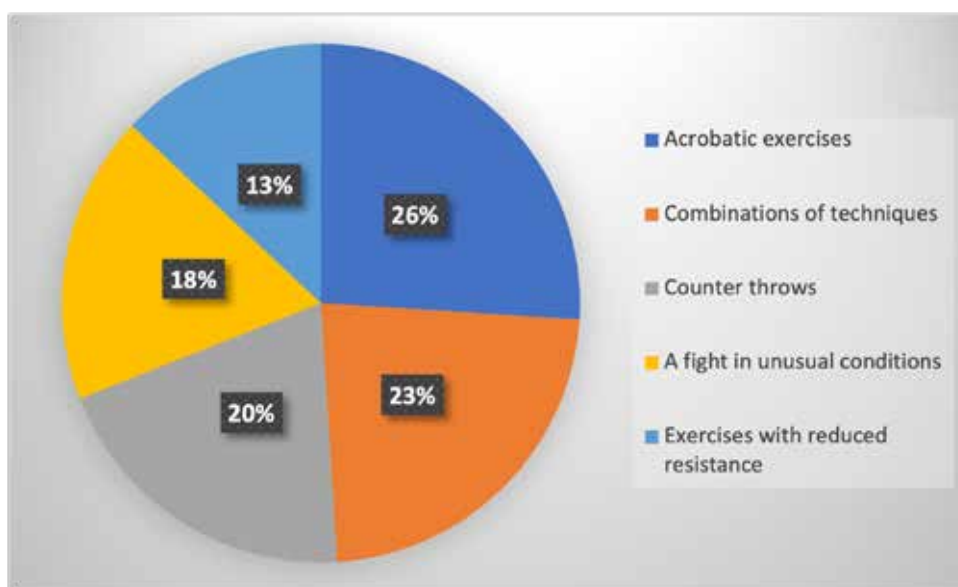


Figure 3. Coordination training exercises for judo athletes recommended by trainers and teachers.

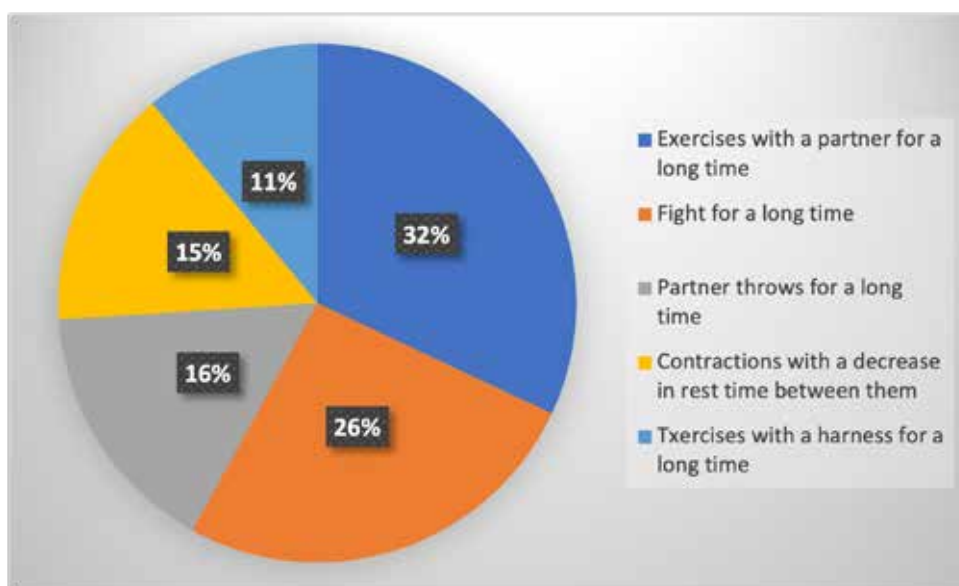


Figure 4. Endurance training exercises for judo athletes recommended by trainers and teachers.

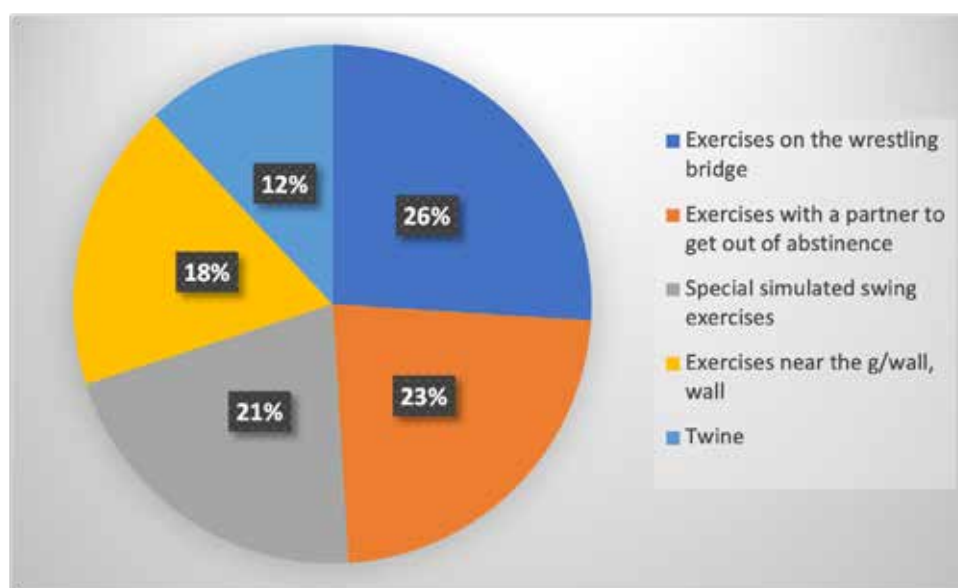


Figure 5. Flexibility training exercises for judo athletes recommended by trainers and teachers.

while still enjoying the benefits of the sport.

Discussion

The present study aimed to identify the specifics of the influence of physical exertion in the training process of special physical training of experienced judo athletes aged 19-21 and propose a comprehensive approach to minimize health risks. The results of the survey showed that all trainers-teachers unanimously agreed that the basis of special physical fitness of judo athletes is a high level of general physical fitness. The majority of respondents believed that means of special physical training should increase to 70% of the total training time.

Furthermore, the coaches-teachers prioritized the use of means for all physical qualities to improve strength, speed, coordination, endurance, and flexibility. It was found that the trainers-teachers closely connect the process of special physical training of highly qualified judo athletes with technical training.

It is essential to note that in planning the educational and training process, individual capabilities of athletes must be taken into account. The principle of individualization of the training process should be observed at the stage of maximum realization of individual capabilities. Therefore, a combination of special physical training with technical training is recommended.

The findings of the present study are consistent with previous research in which the importance of individualization and a comprehensive approach to training were highlighted [29, 30, 31, 32]. It is necessary to pay attention to the health level of athletes and minimize the risks associated with high levels of physical exertion.

Several studies have investigated the influence of physical exertion on the health level of athletes, particularly in the context of special physical training [33, 34, 35]. Our study supports the findings of previous research that individualization of the training process is important for minimizing health risks among athletes [14]. Additionally, our results suggest that a combination of special physical training with technical training is recommended, which is consistent with the findings of other studies [15, 16].

Our findings also indicate that trainers-teachers prioritize the use of various means to improve physical qualities, with a particular emphasis on improving strength, speed, coordination, endurance, and flexibility. These findings are consistent with the results of previous studies that have identified the importance of using a variety of training methods to improve different physical qualities [15, 16].

Overall, our study provides insights into the specifics of the influence of physical exertion in the training process of special physical training of experienced judo athletes aged 19-21, and highlights the importance of individualization of the training process and a combination of special physical training with technical training for minimizing health risks among athletes.

Several other studies have investigated the special physical training of judo athletes, and their findings are consistent with the results of our study. For example, Franchini et al. [16] found that a high level of general physical fitness is necessary for the special physical fitness of judo athletes. Similarly, our study found that all trainers-teachers unanimously agreed that a high level of general physical fitness is essential for judo athletes.

Injury rates and profiles of elite competitive judo

athletes were also investigated by Eklund et al. [14]. While their study focused on injuries, it is relevant to note that they found that injury rates were highest during competition, which underscores the importance of proper physical preparation for competitive judo athletes.

Konczak et al. [15] examined various physical training methods and their impact on performance and health of athletes. They found that individualization of training programs is crucial for optimizing athlete performance and minimizing health risks. This finding is consistent with our study, in which the majority of respondents believed that the principle of individualization of the training process should be observed at the stage of maximum realization of individual capabilities.

Overall, the results of our study, in conjunction with the findings of previous research, provide valuable insights into the importance of special physical training for experienced judo athletes aged 19-21, and how to minimize health risks associated with this type of training. The proposed approach includes prioritizing means of physical training, individualization of the training process, and a combination of special physical training with technical training.

Further research is needed to investigate the long-term effects of the training process on the health level of athletes, particularly in the context of special physical training. Additionally, future studies could explore the impact of different training methods and approaches on the physical performance and health level of athletes.

Conclusions

In conclusion, the results of our study confirm the importance of special physical training for experienced judo athletes aged 19-21, with the aim of minimizing health risks. Our findings suggest that trainers-teachers prioritize improving all physical qualities, with a focus on strength, speed, coordination, endurance, and flexibility. Additionally, the majority of respondents indicated that individualization of the training process is important, but with varying degrees of emphasis at different stages of training. Our study also supports the importance of paying attention to weight category in special physical training.

These findings provide valuable insights for coaches and trainers working with judo athletes at the competitive level. It is recommended that special physical training programs be individualized and include a balance of training methods to improve all physical qualities, while also considering weight category. Future research should further explore the specific training methods and intensity required to improve individual physical qualities in experienced judo athletes aged 19-21.

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