

Summary

General and detailed analysis of Ju-Jitsu Fighting System fights during the world championships with regard to all competitors, medalists, and the Polish National Team.

Introduction

Ju-jitsu is a martial art in which practitioners learn fighting techniques and their perfect mastery, implementing actions based on philosophy and religious connections that modify the athletes' lifestyle. Such activities can also be expressed as sport, a form of noble competition that follows certain rules. Sports performance is based on proper strength and conditioning programs, and winning a fight brings fame and prestige. Over the years, many researchers have analyzed the course of fights of combat sports players. In the beginning, they were mostly judokas; over time, other fighting systems of Japanese origin were added to this group.

Aim of the Study

The aim of the thesis was to present a general and detailed fights in Ju-Jitsu Fighting System during world championships. An additional aim was to determine the level of physical fitness of the Polish National Team members, with a special focus on medalists.

Material and Method

The main research material was a video recording of the 2016 Ju-Jitsu World Championships, held in Wroclaw from November 25 to November 26, 2016. The competition was attended by 132 athletes from 49 countries, who fought a total of 229 bouts in seven weight categories in the men's Fighting System. Ten players of the Polish National Team, who fought a total of 48 bouts, of which 30% are medalists, were analyzed in detail. Indicators of technical and tactical skills were analyzed, calculating activeness of the attack, efficiency of the attack, effectiveness of the attack, and efficiency of penalties announced by referees. On the other hand, detailed analysis was carried out on Polish national team players using general and special fitness tests, body composition analysis, and physiological measurements. Statistical analysis of the collected material was carried out using Statistica software. Basic descriptive statistics were calculated: arithmetic means, medians, minimum and maximum values, first and third quartile,

standard deviations, and coefficients of variation. The following tests were used to assess the significance of differences and correlations: Mann-Whitney's U test, Kruskal-Wallis ANOVA, and Spearman's rank correlation.

Results

The analysis demonstrated that the mean values of the indices of technical and tactical skills differ in each phase of the ju-jitsu bout. Diversity also extends to the division into weight categories and the ranking of the competition. Statistical analysis confirmed the relationships between the various indices of technical and tactical skills. Statistically significant differences in the special fitness test were found and the physiological consequences of a sports fight were indicated. Based on the research conducted using correlations, no statistically significant relationships were found between athletes' body composition and indices of technical and tactical skills.

Conclusion

The contestants were characterized by a high level of technical and tactical skills during the tournament. The players mostly committed light forbidden acts punished by a minor penalty *shido*. The most common forbidden act occurring throughout the tournament was passivity in Part 2. The medalists of the Polish National Team differed from the other athletes in their level of activeness, efficiency in all parts of the fight, effectiveness in Part 1 and Part 3, and showed a lower tendency to break the rules in the course of the fight. The total fighting time was 256 seconds, of which 112 seconds were breaks, while 144 seconds was effective fighting. Total fighting time is correlated with the efficiency of the attack in Part 1 and Part 2, and the mean of the three parts, and the effectiveness of the attack in Part 1. Furthermore, effective fighting time was correlated with the efficiency of the attack in Part 1 and Part 2, and the mean of the three parts, and the effectiveness of the attack in Part 1. The relationship also concerned break time in relation to the average efficiency of the attack in Part 1. There were no statistically significant correlations between various indices of technical and tactical skills, regardless of the phase of the fight. Furthermore, there were no statistically significant correlations of physical fitness with activeness in various parts of the fight and body composition. Significant correlations were shown between individual body composition parameters and efficiency and effectiveness in Part 3 of the fight. Most of the correlations were positive. Only in the case of the percentage water was the correlation negative. The correlation was inversely proportional, meaning that as the body water content increased,

the efficiency in Part 3 decreased. Lactate levels were statistically significantly different before and after the bout in all the athletes studied. There was a statistically significant correlation between lactate concentration and effectiveness in the first phase of the fight, and the sum of overall effectiveness of the attack in the Polish team members. There were statistically significant differences between the National Team's medalists and the other tournament medalists in terms of non-scoring techniques in Part 2, non-scoring techniques in Part 3, and the efficiency of penalties announced by referees.