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### Technical Performance Analysis of Greco-Roman and Freestyle Categories in Wrestling

Dedi Supriadi

STKIP Pasundan, Indonesia, Street Permana No.32B, Citeureup, City of Cimahi, West Java 40512, Indonesia

\*e-mail: [dedis25121960@gmail.com](mailto:dedis25121960@gmail.com)

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#### Abstract

This research aims to analyze the techniques often used in *Greco Roman* and *Freestyle* wrestling matches in the *2019 Word Championship* international match event held in Kazakhstan. The method in this study used a non-experimental descriptive design. Data collection used video analysis of four athletes' performance at the event's time. The results showed that: 1) An athlete named Tamas Lorincz in the 77 kg Greco roman style category performed waist roll, push, kayang and susupan techniques by 16.7%; 2) An athlete named Fumita Kenichiro in the Greco roman style category of the 60 kg class performed the technique of waist slamming, force, and dance da suey by 33.3%; 3) An athlete named Uguev Zabur in the 57 kg freestyle category performed a push, take up, nelson technique of 17.6%; 4) An athlete named Hasan Yazdanichara in the 86 kg freestyle category performed a 37.5% foot roll, screw and nelson technique. From the results of these data, each athlete shows specific techniques related to performance; this study can be a recommendation for coaches in providing technical exercises for the preparation of large competitions.

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✉ Alamat korespondensi: Street Permana No.32B, Citeureup, City of Cimahi

E-mail: [dedis25121960@gmail.com](mailto:dedis25121960@gmail.com)

## INTRODUCTION

Wrestling is a fighting sport contested at the Ancient Greek Olympics and is one of the most influential martial arts sports included in the Modern Olympics (Emirkan et al., 2015). Wrestling consists of a physical fight between

two opponents with the same body mass to gain and maintain the highest position over the rival. Fights include wrestling-type techniques such as clinch fights, throws, releases, joint locks, and other grappling positions with the ultimate goal of throwing and pinching opponents (Chaabene et al., 2018).

Greco-Roman style wrestlers are only allowed to use their upper body during fights, and holding below the waist is prohibited. However, the freestyle modality allows the use of the whole body during combat. Wrestling is a unique martial art that emphasizes using hands, feet and waist as a subject of movement (Chow et al., 2016). A wrestling athlete must be skilled in performing some basic technical movements with the aim of having a greater chance of achieving achievements. With the perfection of basic techniques, the contribution made by an athlete to achievement is being able to develop the game with the right tactics and strategies in the face of his opponent (Tünnemann, 2016). Likewise, in wrestling, mastery of basic techniques is the principal capital for achieving achievements because it can make it easier to carry out attacks and defences and implement strategies.

In the attacking technique, there is one basic technique: the slam technique. Slam is a technique in which athletes lift and slam opponents and is commonly found in the Roman Greek style (Baić & Curby, 2017). The implementation of slams consisting of several moves makes many mistakes, especially when lifting where the body position is often incorrect so that the opponent often counters, which can result in the opponent getting points. In freestyle wrestling, athletes can catch the opponent's legs and use all limbs to perform techniques to obtain a two from their opponents. In contrast, in Roman Greco-style wrestling, athletes are strictly forbidden to catch the bottom of the opponent's waist or actively use the legs to get a score.

Wrestling is one of the most popular martial arts today. Achievements in wrestling can be achieved by changing several high-performance criteria, namely physical strength, physiological strength, technical ability, tactical mentality, experience and motivation (Erkin & Mayda, 2017). Performance ability is essential to achieving success by combining mental abilities and strengths. The characteristics of the best wrestling can be determined by technical and tactical analysis in achieving success at international and world events. Coaches should pay attention to the characteristics of a group of wrestling athletes (Kuznetsov et al., 2020). If coaches know effective techniques for winning a competition, they can train their wrestlers better. In addition to physical and anthropometric characteristics, the number and ratio of techniques applied in the competition are also essential.

Performance analysis is a scientific field that was designated for a wrestling coach (Tünnemann, 2016). More and more international-level coaches realize its importance as a coaching strategy through a rational examination of the performance of athletes (López-González, 2015). Today, the analysis of the notation from the video is considered the best method for the determination of the target performance model; this procedure involves recording such "important events" as techniques, actions and various situations during a wrestling fight so that the quantitative (frequency) and qualitative (tactics and strategies) aspects of the performance can be identified consistently

and reliably. This information can create a database easily accessed through portable devices and online video storage. However, no studies have analyzed the tactical performance of athletes participating in the 2019 Word Championship international competition events as recommendations for coaches and athletes in compiling training programs.

The purpose of this study is to characterize the differences between the technical and tactical performances of world wrestlers who participated in the 2019 Word Championship international match event held in Kazakhstan through a video analysis method related to the technical performance of Grecco Roman and Freestyle styles carried out by athletes in winning a competition.

## METHODS

The study sample consisted of 4 wrestling athletes who participated in the 2019 International Word Championship event, which was held in Kazakhstan. One match was analyzed through video media of the athlete's performance (n=4) during the match.

The analysis includes a technical appraiser of all actions and situations performed during a wrestling match that results in an appraisal moment according to the criteria of technical points attributed to the technical action, by the rules of the current wrestling match, and according to the score approved by the refereeing body.

To analyze the technical performance of each wrestler, variants of movement classification are used (Mykola et al., 2017).

This variant was conceived based on feedback provided by several national teams of wrestling coaches and scientists worldwide. A database is built with data grouped as follows: (a) wrestler data (name, team, weight category, place), (b) results (place, number of wins, and losses due to point differences, falls, and technical falls), (c) technical profiles (frequency of each classified technique) and d) activity performance indicators (diversity, effectiveness, productivity, and efficacy of defence/attack).

The data of each athlete is obtained from the results of the games. Activity performance indicators are calculated based on classifying the different elements of each Grecco Roman and Freestyle style in the assigned score and the group of elements (i.e. the performance of the technique used). Data collection is carried out to analyze the results of the match to make observations during the match (Ransone et al., 2019). The steps of this research are (1) Recording matches using a video recording device, (2) Conducting analysis using a video player application that can be slowed down or accelerated and (3) Determining the techniques analyzed, namely Grecco Roman and Freestyle style techniques. Furthermore, the technique will be calculated in the percentage of techniques that athletes often use in one match (Fujiyama et al., 2019).

## FINDINGS AND DISCUSSION

### Findings

The data obtained will be analyzed with a video player application to perform the game and analyze the stages of movement of the

subject. The data analyzed in the results of this study are *Grecco Roman* and *Freestyle* style techniques. The focus of this study to be analyzed was four athletes. From the results of the matches that followed in the *Grecco Roman* and *Freestyle* wrestling matches in the *Word Championship 2019* international match event held in Kazakhstan, the following data were obtained:

#### 1. Tamas Lornicz

Tamas Lornicz's performance at the *2019 World Championship* international match in Kazakhstan resulted in 8 out of 12 points, by making four mistakes.

Table 1. Tamas Lornicz Athlete Performance Analysis Results

| TOTAL          |    |           |          |               |                    |
|----------------|----|-----------|----------|---------------|--------------------|
|                |    | Frequency | Per cent | Valid Percent | Cumulative Percent |
| Valid          | 1  | 1         | 8,3      | 12,5          | 12,5               |
|                | 2  | 1         | 8,3      | 12,5          | 25,0               |
|                | 3  | 2         | 16,7     | 25,0          | 50,0               |
|                | 4  | 2         | 16,7     | 25,0          | 75,0               |
|                | 6  | 1         | 8,3      | 12,5          | 87,5               |
|                | 23 | 1         | 8,3      | 12,5          | 100,0              |
| Total          |    | 8         | 66,7     | 100,0         |                    |
| Missing System |    | 4         | 33,3     |               |                    |
| Total          |    | 12        | 100,0    |               |                    |

According to the results of the calculation of the table above, the technique often used by athletes (Tamas Lorincz) in the 77 kg class is the technique of waist roll, push by, kayang and susupan by 16.7%.

#### 2. Fumita Kenichiro

Fumita Kenichiro's performance at the *2019 World Championship* international match in Kazakhstan resulted in 8 out of 12 points, by making four mistakes.

Table 2. Fumita Kenichiro Athlete Performance Analysis Results

| TOTAL          |    |           |          |               |                    |
|----------------|----|-----------|----------|---------------|--------------------|
|                |    | Frequency | Per cent | Valid Percent | Cumulative Percent |
| Valid          | 1  | 4         | 33,3     | 50,0          | 50,0               |
|                | 2  | 1         | 8,3      | 12,5          | 62,5               |
|                | 3  | 1         | 8,3      | 12,5          | 75,0               |
|                | 9  | 1         | 8,3      | 12,5          | 87,5               |
|                | 16 | 1         | 8,3      | 12,5          | 100,0              |
| Total          |    | 8         | 66,7     | 100,0         |                    |
| Missing System |    | 4         | 33,3     |               |                    |
| Total          |    | 12        | 100,0    |               |                    |

According to the calculation of the table above, the technique often used by athletes (Fumita kenichiro) is the technique of

slamming the waist, force, and milk da suey by 33.3%.

#### 3. Ugev Zabur

Ugev Zabur's performance at the 2019  
*World Championship* international match in

Kazakhstan resulted in 8 out of 17 points, by  
making eight mistakes.

Table 3. Performance Analysis Results of Ugev Zabur Athletes

| TOTAL          |    |           |          |               |                    |
|----------------|----|-----------|----------|---------------|--------------------|
|                |    | Frequency | Per cent | Valid Percent | Cumulative Percent |
| Valid          | 1  | 1         | 5,9      | 11,1          | 11,1               |
|                | 2  | 3         | 17,6     | 33,3          | 44,4               |
|                | 3  | 1         | 5,9      | 11,1          | 55,6               |
|                | 5  | 1         | 5,9      | 11,1          | 66,7               |
|                | 8  | 2         | 11,8     | 22,2          | 88,9               |
|                | 31 | 1         | 5,9      | 11,1          | 100,0              |
| Total          |    | 9         | 52,9     | 100,0         |                    |
| Missing System |    | 8         | 47,1     |               |                    |
| Total          |    | 17        | 100,0    |               |                    |

According to the results of the calculation of the table above, the technique often used by athletes (Ugev Zabur) is the technique of pushing, taking up, nelson by 17.6%.

#### 4. Hasan Yazdanichara

Table 4. Hasan Yazdanichara Athlete Performance Analysis Results

| TOTAL   |        |           |          |               |                    |
|---------|--------|-----------|----------|---------------|--------------------|
|         |        | Frequency | Per cent | Valid Percent | Cumulative Percent |
| Valid   | 1      | 3         | 17,6     | 37,5          | 37,5               |
|         | 2      | 1         | 5,9      | 12,5          | 50,0               |
|         | 3      | 1         | 5,9      | 12,5          | 62,5               |
|         | 4      | 1         | 5,9      | 12,5          | 75,0               |
|         | 7      | 1         | 5,9      | 12,5          | 87,5               |
|         | 19     | 1         | 5,9      | 12,5          | 100,0              |
|         | Total  | 8         | 47,1     | 100,0         |                    |
| Missing | System | 9         | 52,9     |               |                    |
|         | Total  | 17        | 100,0    |               |                    |

According to the calculation of the table above, the technique often used by athletes (Hasan Yazdanichara) is the technique of rolling, stacking and nelson by 37.5%.

## Discussion

In this study, four athletes from various countries who participated in the 2019 *Word Championship* international competition in Kazakhstan analyzed using video performance in one match to find out the tactical

Hasan Yazdanichara's performance at the 2019 *World Championship* international match in Kazakhstan resulted in 8 out of 17 points, by making nine mistakes.

performance of wrestling athletes using *Grecco Roman* and *Freestyle* style techniques.

In the analysis of wrestling matches, there has previously been a systematic categorization of techniques. Based on the categorized offensive and defensive techniques, previous studies have reported that two-handed tackles and double foot strikes are often performed as offensive techniques, and stepping back and pulling the legs back as

defensive techniques (Soyguden & Imamoglu, 2017). Also investigated whether any structure-related differences in offensive and defensive techniques could be observed depending on the heavyweight, and found that in heavyweight, there were far fewer double-leg attacks than in light-weight and that ground-holding defensive techniques were strongly linked to the offensive techniques of element-wrench and double-footed attacks (Kaynar & Bilici, 2017).

Based on the results of data analysis obtained by researchers, it was shown that from the Greco roman style of the 77 kg class with the name of the athlete (Tamas Lorincz) doing waist roll, push, kayang and susupan techniques by 16.7%. Based on the results of the analysis of matches (Kurnia, 2014) states that A struggle can be won by: falls, injuries, absences, disqualifications, absolute numbers and technical numbers ". In the sport of wrestling, there are several techniques commonly used by wrestlers in matches, such as pulling, push, force, slam, catch, hook, kayang, and combination. The results obtained from the findings in the field show that the Greco roman style of the 77 kg class has the opportunity to get points that are often done and get the most points, namely using the technique of waist roll, push, kayang and stacking.

Greco roman 60 kg class with the name of the athlete (Fumita kenichiro) performs waist slam techniques, force, and da suey by 33.3% according to the calculation results; the waist slam technique is a greek roman style wrestling technique (Greco roman) that is

often used in every practice or match, because if a wrestler manages to perform the waist slam technique in training or matches, then a wrestler easily outperforms his opponent (Martiani, 2018). The findings on the field show that fumita wrestlers in the 60 kg class tend to use the waist slam technique due to the many opportunities to perform the waist slam technique.

The 57kg freestyle class (Uguev Zabur) performs the technique of pushing, take up, and nelson by 17.6%. At the same time, the result of the match is according to (Kurnia, 2014), "In the sport of wrestling there are several techniques commonly used by wrestlers in matches such as pulling techniques, push techniques, force techniques, slam techniques, catch techniques, hook techniques, kayang techniques and combination techniques". In this freestyle match, the findings obtained indicate the weight conditions that make it possible to perform the technique.

The 86kg freestyle class with the name (Hasan Yazdanichara) performed a 37.5% foot roll, stacking and nelson technique. According to (Sudarjo, 2009), the technique often used by novice wrestlers in getting numbers in competing, in addition to the stacking technique, is the roll technique. One of the advantages of wrestlers using the reel technique is that wrestlers can directly perform three reels in a row to obtain 6 points and win the round. Based on the findings obtained for the 86 kg freestyle competition, it is stated that the techniques used, namely leg rolls, stacking and nelson, this is because, according to the

author's experience in the field of wrestling, it is stated that technology is easy to use in large classes considering that posture and weight are influential.

Wrestling competitions contain only numerical data of winning points, classification points and the duration of the fight. Based on these data, it is only possible to make a quality statistical analysis of important information regarding wrestling competitions. For the reasons mentioned above, a unified monitoring system for important wrestling competitions was proposed to make a performance data analysis of various parameters after the completion of the wrestling competition. Particular emphasis is placed on the analysis of points achieved based on the wrestling technique performed (Technical Points - TP) concerning the number of points achieved that are not the result of the performance of the wrestling technique (Other Points - OP). Another critical analysis is the number of points in the standings of the position about the number of points in the partner position. Critical data is also the number of points made in one minute of the match (WQ/min) (Kolodeznikova et al., 2020).

The purpose of this study was to provide a particular parameter of the sport that observes Greco-Roman wrestling at the *2019 Word Championship* international match event held in Kazakhstan, with an emphasis on showing data taken from one of the match numbers of the match. However, there are many variations of Greco-Roman wrestling techniques. It should be noted that the percentage of technical points scored exceeds

the number of other points, meaning that wrestlers most often perform techniques in search of the most outstanding value in terms of the technical performance of each athlete. In order to be able to apply the analysis of new performance data, it is necessary to develop software based on which data will be created automatically. The software will allow us to conduct quality analysis by base (analysis of all matches, analysis of weight categories, analysis by country, analysis of medal matches and analysis of the best wrestlers in the championship). The data obtained from the research can be beneficial for sports scientists, coaches, and athletes. To improve the monitoring of prestigious championships (Olympic Games, Continental Games, World Championships, Continental Championships, qualifying tournaments for the Olympics and tournaments of the Ranking Series), wrestling associations around the world should consider applying Performance Data Analysis in competitions. As a result, it can facilitate understanding and following wrestling matches. A more comprehensive range of data can be provided using Performance Data Analysis. However, the study presents only a tiny percentage of those deemed of interest to sports coaches and scientists.

## CONCLUSION

Based on the results of research that has been carried out, the data obtained by researchers shows that from the Greco roman style of the 77 kg class with the name of the athlete (Tamas Lorincz) doing waist roll

techniques, pushing, kayang and susupan by 16.7%, Greco roman class 60 kg with the name of the athlete (Fumita kenichiro) doing waist slam techniques, force, susupan da suey by 33.3%, The 57 kg class freestyle with the name (Uguev Zabur) did the push, take up, nelson by 17.6%, the 86 kg class freestyle by the name (Hasan Yazdanichara) did the foot roll, susupan and nelson technique by 37.5%. Technical performance is important for coaches because, after every major competition, coaches can have a clearer picture of all the wrestling techniques used for a single match. Thus, the coach will be able to work on the technical and tactical improvement of wrestlers for important upcoming competitions.

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