



Research Article/Araştırma Makalesi

Technical analysis of the 2023 NCAA Wrestling Championships

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Abstract

In order to score points in Olympic and folk wrestling, it is always important for wrestlers to develop good techniques. This study was conducted to analyze the techniques used in the 2023 NCAA Wrestling Championship and to develop effective training methods for wrestlers. The study consists on NCAA Division I wrestling competitions between universities in the United States. It provides a technical analysis of 30 wrestling matches, including semifinals and finals, across 10 weight classes in the 2023 NCAA Wrestling Championship. The semifinal and final matches from the 2023 NCAA Wrestling Championship were repeatedly viewed on the NCAA website. The collected data were evaluated statistically, and frequency and percentage distributions were calculated. The study found that the 50% of the single-leg technique was the most frequently used in the first period across all weight classes. Additionally, 93% of wrestlers preferred to start the second period in the bottom position, and 75% chose the bottom position to begin the third period. A total of 68 points were scored using the ground escape technique across all weight classes, emphasizing its importance in regaining control and 112 points were scored with the takedown technique. In wrestling competitions, the victory occurred with a 93% by point score. As a result, it is thought that wrestlers will gain an advantage if they develop their single leg and double leg takedown techniques as well as their escape technique, especially in the first period.

Keywords: 2023 NCAA Championship, College Wrestling, Technical Analysis

2023 NCAA Güreş Şampiyonasının teknik analizi

Öz

Olimpik ve halk güreşlerinde puan alabilmek için güreşçilerin her zaman iyi teknik geliştirmeleri önemlidir. Bu çalışma 2023 NCAA güreş şampiyonasında yapılan tekniklerin analizleri yapılarak güreşçilere doğru antrenman yöntemleri oluşturmak amacıyla yapılmıştır. Çalışma Amerika Birleşik Devletleri'nde üniversiteler arasında faaliyet yürüten Ulusal Kolej Liginde (NCAA) güreş branşında Lig 1'de yapılan müsabakalardan oluşmaktadır. 2023 NCAA güreş şampiyonasında 10 sıklıkta yapılan yarıfinal ve final olmak üzere toplam 30 güreş müsabakasının teknik analizlerini kapsamaktadır. 2023 NCAA güreş müsabakalarında yarıfinal ve final maçları NCAA web sayfasında bulunan video sekmesinde tekrar tekrar izlenerek yapılmıştır. Elde edilen veriler istatistiksel olarak değerlendirilerek frekans ve yüzdelik dağılımları alınmıştır. Güreş müsabakalarında bütün kilo gruplarında ilk devre özellikle tek dalma tekniği en fazla uygulanan teknik olmuştur. Güreşçiler tarafından ikinci devre seçiminde %93 oranında yerde, üçüncü devrede %75 oranında yerde başlama seçilmiştir. Bütün kilo gruplarında yerde kaçış tekniğinden toplamda 68 puan ve yere indirme tekniğinden 112 puan toplanmıştır. Güreş müsabakalarında %93 sayı puanı ile yenme meydana gelmiştir. Sonuç olarak güreşçilerin özellikle ilk devrede, tek dalma, çift dalma tekniklerini ve bununla birlikte kaçma tekniğini geliştirmeleri onlara avantaj sağlayacağı düşünülmektedir.

Anahtar Kelimeler: 2023 NCAA Şampiyonası, Üniversite Güreş, Teknik Analiz

INTRODUCTION

Wrestling is one of the oldest combat sports dating back to the ancient Greek Olympic Games (Zaccagni, 2012). Wrestling has continued to grow in popularity and volume since the first National Collegiate Athletic Association (NCAA) Championships. Many theories have been put forward to help athletes win their matches in NCAA wrestling competitions. Wrestling is considered one of the most physically demanding sports, and large numbers of United States high schools and universities (Yard et al., 2007). Strength and endurance are crucial for successful performance in wrestling. Wrestlers also need technical skills, in addition to strength and endurance, to perform well. Unlike many other sports, wrestling also involves weight control and weight loss (Martin & Margherita, 1999).

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Collegiate wrestling, also known as folk-style or scholastic wrestling in the United States, involves participants competing in 10 different weight classes, ranging from 125 pounds to 285 pounds (heavyweight) (USA Wrestling, 2025). In March, the NCAA Division I Wrestling Championships determine the top wrestlers of the season. In this highly anticipated event, 33 wrestlers compete for victory in each of the 10 weight classes, with the top eight finishers in each class earning the prestigious title of "All American" (Biggsby & Ohlman, 2017). The competitive season in collegiate wrestling lasts approximately four months, from November until the NCAA championships in March. Wrestlers face significant physiological stress throughout the season due to aerobic and anaerobic training, weight loss, calorie restriction, competition, and the potential for injury (Ratamess et al., 2013). The training and preparation of a good wrestler are based on the skillful application of certain movements and methodological principles. These include: 1. The principle of consciousness and activity; 2. The principle of universality; 3. The principle of regularity; 4. The principle of accuracy; 5. The principle of stability (Akramovich & Alidjanovna, 2022).

Technical analysis in sports involves evaluating the performance of athletes and coaches to identify their strengths and weaknesses. Wrestling has continued to grow in popularity and volume since the first NCAA Championships (Ortega et al., 2006).

Wrestling requires the integration of many attributes, such as physical characteristics, mental abilities, quick thinking, visual memory, attention distribution, and the ability to quickly switch between tasks. Wrestlers who have not developed these qualities will find it difficult to succeed. As a wrestler's experience in the sport grows, the demand for their mental abilities increases significantly, because these qualities are key factors in the athlete's success (Akramovich & Alidjanovna, 2022). The interaction between physical and mental factors in national wrestling sports makes the actions in the sport complex, tactics unpredictable, and matches emotionally intense (Akramovich & Alidjanovna, 2022).

In individual contact sports such as wrestling and judo, athletic performance is closely linked to physical factors like muscle strength, power, and skill. The trunk muscles are thought to significantly influence athletic performance (Iwai et al., 2008). Trunk movements are very important in wrestling. Wrestlers need to maintain a low stance and strengthen sagittal movements like flexion and extension to catch and lift opponents during training and competitions (Iwai et al., 2002; Iwai et al., 2004).

In high-stakes championships like the NCAA, wrestlers' technical ability is one of the most important factors in their success. Therefore, it's essential to analyze the wrestlers' technical skills. This study was conducted to analyze the techniques used in the final competitions of the 2023 NCAA Division I wrestling category, aiming to determine the proper training methods for wrestlers.

METHOD

The study covers Division I wrestling competitions held in the 2023 NCAA among universities in the United States. Technical analysts were conducted on $n=30$ wrestling matches, including semi-finals and finals, across 10 weight classes at the 2023 NCAA Wrestling Championship. The evaluated weight categories include wrestlers in the 125, 133, 141, 149, 157, 165, 174, 184, 197, and 285-pound classes. Technical analysts have observed techniques that contribute to points and influence the outcome of wrestling matches. These techniques include single leg, double leg, takedown point, escape point, near fall point, and reversal point. The study found a significant correlation between the percentages of techniques performed by wrestlers in the light, medium, and heavy weight categories between rounds ($p<0.05$).

In the study, the researchers prepared a technical analysis information form and watched the specified wrestling videos. The semifinal and final matches from the 2023 NCAA wrestling competitions were watched via the video tab on the NCAA website. The video has a resolution quality of approximately 720p for visual clarity and level of detail. Wrestling matches were watched on the internet between 1-10 June 2023. Interclass Correlation Coefficient (ICC) was used to analyze inter-rater reliability for quantitative data. The ICC determined the 95% confidence interval for one-way randomly selected data. The obtained data were statistically analyzed, and frequency and percentage distributions were calculated.

Research group (population-sample)

This study applied a purposive sampling technique using observational research. This technique is used in research to select a specific individual or group of units for analysis. In observational studies, a sample size of 20% is expected. Spearman correlation power analysis was performed; $n=30$, $\alpha = 0.05$ and Power = 0.80, $r \geq 0.50$ was determined as strong.

Data collection tools / Processing method / Data analysis

Prior to the study, an observation form was prepared to determine the winning strategy, successful and unsuccessful techniques, techniques used in each round, coach challenge, and the most frequently used techniques in NCAA Division 1 wrestling matches. The opinions of expert academics in the field were taken into account for this form. Each wrestling match was monitored using the provided link (NCAA, 2023). Percentage, frequency, and correlation values were obtained from the resulting data using the SPSS statistical program.

Table 1. Distribution of weights in 10 weight categories as light, medium and heavy weights

Light Weight Group	Middle Weight group	Heavy Weight Group
125 lb.	157 lb.	184 lb.
133 lb.	165 lb.	197 lb.
141 lb.	174 lb.	285 lb.
149 lb.		

FINDINGS

This section presents the evaluation of the techniques used by wrestlers in the light, middle, and heavyweight groups, presented in the form of tables and figures.

Table 2. Distribution of coach challenge, wrestler win type, 2nd and 3rd round wrestling start position, escape point

Match positions	Variables	F	%
Coach Challenge	Lost	12	84
	Won	2	16
	Total	14	100
Wrestler Win Type	By point	27	93
	By fall	2	6
	By technical fall	1	1
	Total	30	100
2nd round wrestling start position	Top	1	3.5
	Bottom	27	93
	Neutral	1	3.5
	Total	29	100
3rd round wrestling start position	Top	7	24
	Bottom	22	76
	Neutral	-	-
	Total	29	100
Escape Point	1st round	12	18
	2nd round	29	42
	3rd round	27	40
	Total	68	100

Table 2 Objections made by coaches challenging referee decisions were lost in (84%) of the cases. In 93% of the matches, wrestlers won by points. For the second period, 93% of wrestlers started in the bottom position, while in the third period, (76%) started in the bottom position. The most escape points were scored in the second period (42%).

Table 3. Distribution of light, middle and heavy weight near fall points

Light, Middle, Heavy Weight Near Fall Points	Variables	F	%
Light Weight Near Fall Point	1st round	3	24
	2nd round	5	38
	3rd round	5	38
	Total	13	100
Middle Weight Near Fall Point	1st round	1	50
	2nd round	-	-
	3rd round	1	50
	Total	2	100
Heavy Weight Near Fall Point	1st round	4	67
	2nd round	2	33
	3rd round	-	-
	Total	6	100

Table 3 In the light weight group, the highest number of near-fall points was scored in the second and third periods, each with (38%). In the middle weight group, the highest near-fall points were scored in the first and third periods, each with (50%). In the heavy weight group, the highest near-fall points were scored in the first period (67%).

Table 4. Distribution of light, middle and heavy weight takedown points

Light, Middle, Heavy Weight Takedown Points	Variables	F	%
Light Weight Takedown Point	1st round	10	42
	2nd round	5	21
	3rt round	9	37
	Total	24	100
Middle Weight Takedown Point	1st round	5	38
	2nd round	2	16
	3rt round	6	46
	Total	13	100
Heavy Weight Takedown Point	1st round	9	53
	2nd round	5	29
	3rt round	3	18
	Total	17	100

Table 4 Wrestlers in the light weight group scored the most takedown points (42%) in the first period. Wrestlers in the middle weight group scored the most takedown points (46%) in the third period. Wrestlers in the heavy weight group scored the most takedown points (53%) in the first period.

Table 5. Distribution of light, middle and heavy weight reversal points

Light, Middle, Heavy Weight Reversal Points	Variables	F	%
Light Weight Reversal Point	1st round	2	16.6
	2nd round	8	66.6
	3rt round	2	16.6
	Total	12	100
Middle Weight Reversal Point	1st round	2	33.3
	2nd round	-	-
	3rt round	4	66.6
	Total	6	100
Heavy Weight Reversal Point	1st round	-	-
	2nd round	2	100
	3rt round	-	-
	Total	2	100

Table 5 Wrestlers in the light weight group scored the most reversal points (66.6%) in the second period. Wrestlers in the middle weight group scored the most reversal points (66.6%) in the third period. Wrestlers in the heavy weight group scored the most reversal points (100%) in the second period.

Fig 1 shows that in the lightweight group, the majority of single-leg attempts failed, with 28 unsuccessful attempts in the first period. Single-leg attempts were the most common technique in the lightweight group. In the middleweight group, unsuccessful single-leg attempts were also the most frequent, with 13 failed attempts in the first period. Similarly, in the heavyweight group, single-leg attempts were the most common technique, with 18 failed attempts in the first period.

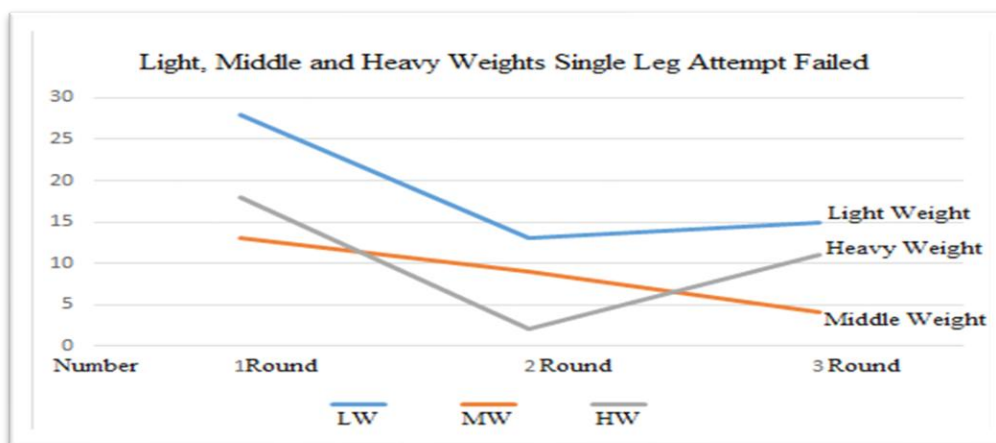
**Fig 1.** Distribution of light, middle and heavy weights single leg attempt failed

Fig 2 shows that in the lightweight group, unsuccessful double-leg attempts occurred 8 times in the first period and 3 times in the second period. In the middleweight group, very few double-leg attempts were made in each period. In the heavyweight group,

group, unsuccessful single-leg attempts were the most common technique, with 18 failed attempts in the first period. Additionally, double-leg attempts were among the least frequently performed techniques in every period for the heavyweight group.

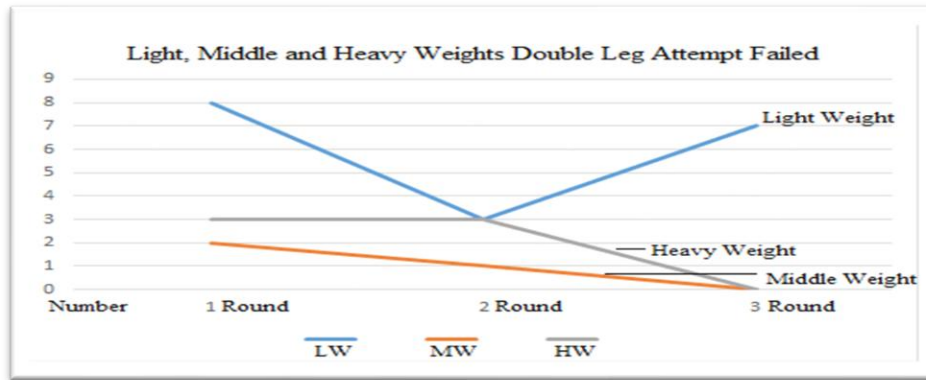


Fig 2. Distribution of light, middle and heavy weights double leg attempt failed

Fig 3 shows that in the lightweight group, the most escape points were scored in the third period, with 13 points. Wrestlers in the lightweight group accumulated the highest total of escape points, with 30 points in total. Wrestlers in the middleweight group scored a total of 16 escape points across the second and third periods. In the heavyweight group, the most escape points were scored in the second period. Overall, wrestlers in the heavyweight group were the second highest group in terms of escape points, accumulating a total of 21 points.

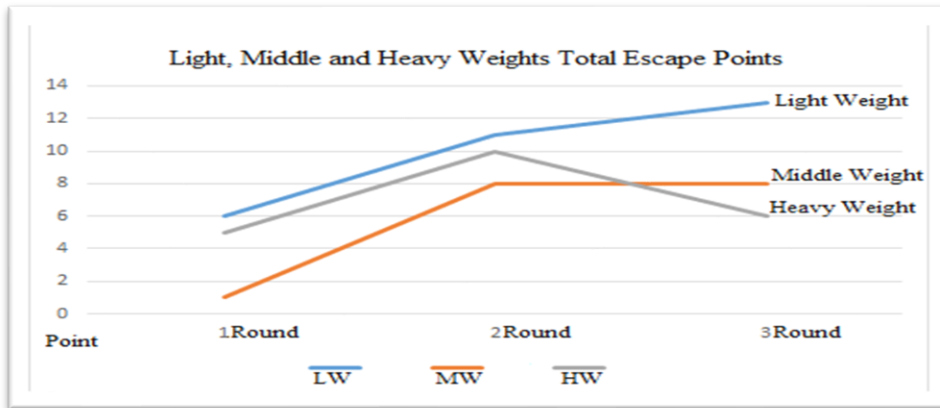


Fig 3. Distribution of light, middle and heavy weights total escape points

Fig 4 shows that in the lightweight group, the highest number of takedown points (20 points) were scored in the first period. The lightweight group also accumulated the highest total of takedown points, with 48 points in total. In the middleweight group, the most takedown points were scored in the first and third periods. Compared to the other groups, the middleweight group had the fewest takedown points, with a total of 26 points. In the heavyweight group, the most takedown points (18 points) were scored in the first period. A total of 34 takedown points were scored by the heavyweight group, which was fewer than the lightweight group but more than the middleweight group.

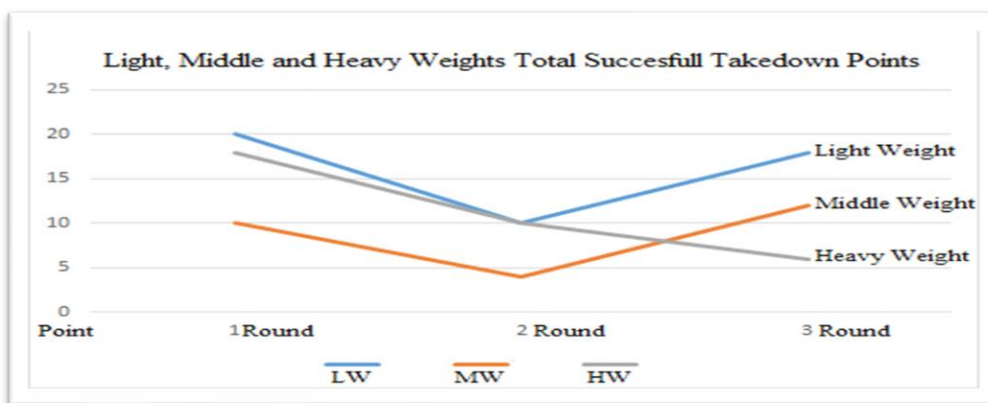


Fig 4. Distribution of light, middle and heavy weights total successful takedown points

Fig 5 shows that in the lightweight group, the highest number of near-fall points (18 points) were scored in the third period. The lightweight group also accumulated the highest total of near-fall points, with a total of 34 points. In the middleweight group, the fewest near-fall points were scored, with a total of 4 points. In the heavyweight group, the most near-fall points (16 points) were collected in the first period. Overall, the heavyweight group scored the second-highest total near-fall points compared to the other groups, with a total of 20 points.

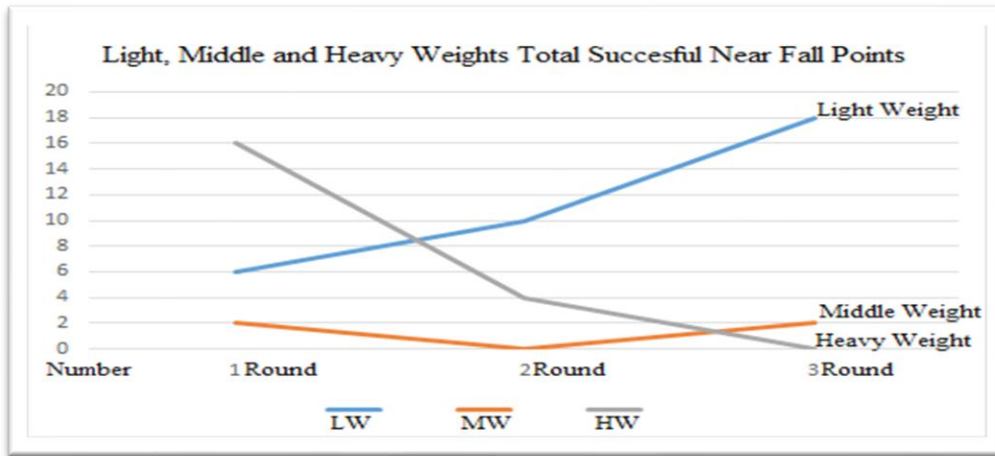


Fig 5. Distribution of light, middle and heavy weights total successful near fall points

Fig 6 shows that in the lightweight, middleweight, and heavyweight groups, the bottom position was most frequently chosen in the second period, with a total of 27 occurrences. In the third period, the bottom position was chosen a total of 22 times.

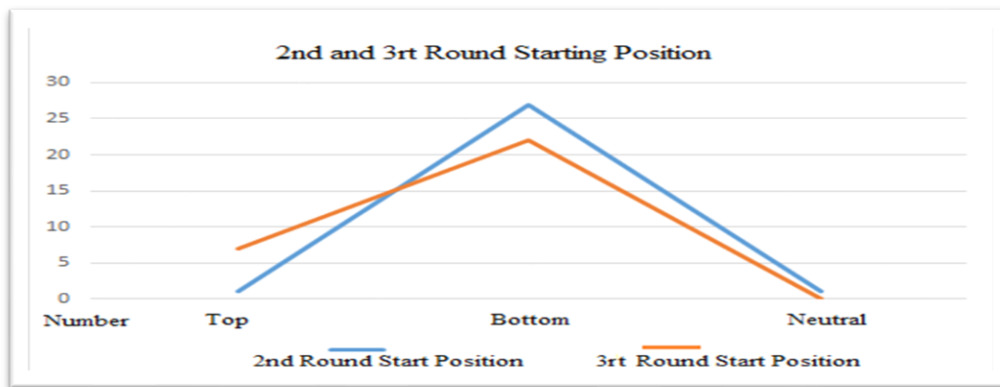


Fig 6. Distribution of light, middle and heavy weights 2nd and 3rd round start position

Fig 7 shows that 84% of the appeals made by coaches to challenge referee decisions were unsuccessful.

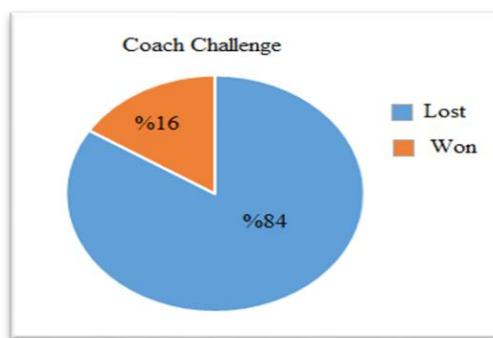


Fig 7. Distribution of coach challenge

Fig 8 shows that the wrestlers won the matches with 93% points, 6% with pins, and 1% with technical points.

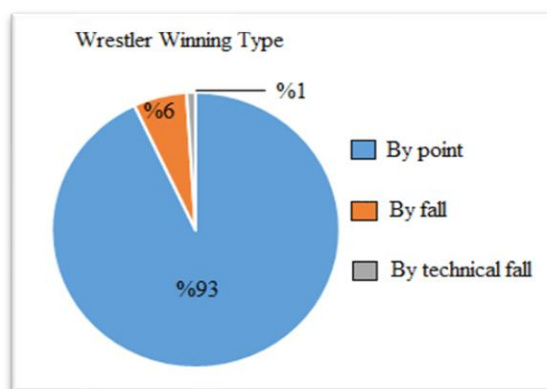


Fig 8. Distribution of wrestler win type

DISCUSSION AND CONCLUSION

In this study, which was conducted to determine the technical analysis in the NCAA wrestling championship, we found that the most takedown points across all weight groups were scored in the first period (Table 1). This result suggests that the first period is critical for gaining an early advantage. According to Ortega et al. (2006), technical analysis in sports involves evaluating the performance of athletes and coaches to identify their strengths and weaknesses. For example, many coaches believe that the wrestler who applies the first takedown technique gains an important advantage in winning the match. Additionally, depending on the coaching philosophy, using the takedown technique and other scoring techniques effectively in the final period is seen as crucial for winning the competition (Ortega et al., 2006). Several factors observed by university and wrestling coaches include the first takedown, the number of first takedowns, near-falls, reversals, cautions, stalling warnings/points, riding time advantage, goals scored in the first and last 10 seconds of a period, goals scored from the edge of the mat, winning the match by 8 or more points, leading in the first and second periods, unanswered points, and total points scored in the third period (Farwell, 2013). This finding is consistent with studies by Courneya (1990) and Farwell (2013).

The study also found that the majority of unsuccessful single-leg attempts (59 times) occurred in the first period (Fig 1). This indicates that in the opening period, wrestlers are more likely to try to score a point. Similarly, the most unsuccessful double-leg attempts (13 times) also occurred in the first period (Fig 2). This suggests that wrestlers generally preferred single-leg takedowns over double-leg attempts. Notably, heavyweight wrestlers made fewer double-leg attempts. The study showed that the majority of takedown points were collected from successful single-leg takedowns. Mirzaei et al. (2011) states that a prerequisite for wrestling performance is the high maximum power level of the upper and lower extremities. The primary goal of wrestling is the technical skills aimed at lifting an opponent, and the primary determinant of achieving this requires a high level of maximum strength.

Competing at the NCAA Division I collegiate level is extremely challenging, both physically and mentally. The level of commitment and performance expectations from coaches, institutions, and players are high. Athletes, especially wrestlers, dedicate considerable effort to maintain high-performance levels and improve their skills (Choma et al., 1998). Given that wrestling matches last for 7 minutes, this period requires exceptional performance and physical conditioning. According to the technical analysis, 93% of the wrestling matches ended with point superiority, 6% with pin fall and only 1% with technical superiority (Fig 8). According to these findings, it is understood that the matches were held with high competition.

Division I wrestlers undergo rigorous training programs, utilizing various exercises and techniques to enhance their performance (Gerardi et al., 2023). Wrestling is a sport that demands dynamic and isometric muscle strength, power, and endurance, and changes in body composition and hydration status can significantly affect performance (Horswill, 1992). In wrestling competitions, maintaining optimal levels of strength is crucial to maintain competitiveness throughout the match and promote recovery between periods. High anaerobic power and capacity are crucial for achieving success, especially at the highest level of wrestling. High-level wrestling performance is closely linked to maximum dynamic strength, isometric strength, explosive strength, and strength endurance (Chaabene et al., 2017). According to technical analyses, the rate of unsuccessful single-leg and double-leg attempts in the first period was generally high. Furthermore, the rate of successful takedowns in the first period was found to be high across all weight groups (Fig 1, 2, and 4). This highlights the importance of high anaerobic strength and capacity in wrestling matches. Because the matches will last 7 minutes, these attacks in the first period demonstrate the wrestlers' high anaerobic power and capacity.

Studies on psychological advantage in sports have found that scoring the first points in a competition (such as scoring the first goal in football) is a strong indicator of winning in sports like tennis, wrestling, and ice hockey (Courneya, 1990). In the technical analysis, the desire to get the first point is seen among the wrestlers in the first period, in terms of unsuccessful single and double leg attempts and successful takedown scores in the first period (Fig 1, 2, and 4).

Wrestling is a sport that depends on dynamic factors and many variables that influence athletic performance (Selvaraj, 2021). A standard NCAA wrestling match consists of a 3-minute first period, followed by two 2-minute periods, totaling 7

minutes. During these periods, significant metabolic demands are placed on the athletes, leading to blood lactate levels of 16-20 mmol/L (Barbas et al., 2011; Kraemer et al., 2001).

Conclusion

In conclusion; The findings of this study suggest that wrestlers in all weight categories should focus on improving their single-leg and double-leg techniques, as well as defending against these attacks. Our results indicate that wrestlers predominantly rely on both techniques, with a higher frequency of attacks in the first period compared to the second and third periods. Therefore, wrestlers should be prepared for an initial attack in the first period. In the second and third periods, escape points become crucial. Wrestlers should practice escape techniques regularly. Some wrestlers strategically choose either the bottom or standing position based on their opponent's tendencies. It is recommended that wrestlers study their opponents prior to the match to determine how they react to bottom or standing positions, as well as their escape techniques.

Recommendation

Technical capacity always plays a crucial role in wrestling competitions. Specific technique training, particularly for each weight group, should be conducted. Muscle memory should be built by performing numerous repetitions of the most scoring techniques.

Limitations and strengths

This study's limitation lies in only including the first three final matches of wrestling competitions. Psychological pressure differs significantly between the final matches and the group stage matches in wrestling competitions. Therefore, it is recommended that wrestling competition analyses be conducted for all matches, including both the preliminary and final matches. Match analyses, frequently performed in team sports, should be increasingly applied to wrestling as an individual sport. Match analyses are crucial in developing athletes' match strategies. Therefore, match analysis for wrestling competitions is one of the strengths of this study.

Ethical statement

This study is based entirely on primary data and does not involve human or animal subjects. Therefore, ethical approval was not required.

CRedit authorship contribution statement

Soygüden A.: Conceptualization, Methodology, Software, Validation, Formal analysis, Investigation, Resources, Data curation, Writing - Original Draft, Writing - Review & Editing, Visualization, Supervision, Project administration, Funding acquisition; **Ryan T.:** Conceptualization, Methodology, Software, Validation, Formal analysis, Investigation, Resources, Data curation, Writing - Original Draft, Writing - Review & Editing, Visualization, Supervision, Project administration, Funding acquisition.

Data availability

All data used in this study are obtained from primary sources, which are available in the given link <https://www.ncaa.com/sports/wrestling-men/d1>

Declaration of competing interest

Researchers do not have any personal or financial conflicts of interest with other people and institutions related to the research.

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