

Comparison of Visual and Auditory Reaction Times of Wrestlers Engaging in Traditional and Modern Wrestling *Geleneksel ve Modern Güreşçilerin Görsel ve İşitsel Reaksiyon Sürelerinin Karşılaştırılması*

*Muhammet Hakan Mayda¹, Ahmet Koyunlu²

¹Kilis 7 Aralık Üniversitesi, Beden Eğitimi ve Spor Yüksekokulu, Kilis, TÜRKİYE / hakan.mayda@kilis.edu.tr / 0000-0002-7062-3284

²Kahramanmaraş Sütçü İmam Üniversitesi, Spor Bilimleri Fakültesi, Kahramanmaraş, TÜRKİYE / koyunluahmet@gmail.com / 0000-0003-3758-2844

* Corresponding author

Abstract: The aim of this study is to compare the visual and auditory reaction times of athletes engaged in traditional and modern wrestling. The study was conducted on a total of 46 professional heavyweight wrestlers engaged in traditional (n = 22) and modern (n = 24) wrestling. Athletes included in the study were wrestlers engaged in traditional wrestling such as oil wrestling, plaid aba wrestling, competitive aba wrestling, karakucak wrestling, short shalwar wrestling, and modern wrestling such as freestyle wrestling and Greco-Roman wrestling. Measurements were taken using the computer system (IRZ: cognitivefun.net) for visual and auditory reaction time. The SPSS package program was used for statistical evaluation of the data obtained as a result of the study. As a result of the statistical evaluation, visual reaction (fastest), visual reaction (slowest) and visual reaction (average) time averages of the wrestlers engaged in modern wrestling were found to be better than those of the wrestlers engaged in traditional wrestling ($p < 0.05$). In addition, a significant difference was found in favor of wrestlers engaged in modern wrestling in terms of auditory reaction (slowest) and auditory reaction (average) time values ($p < 0.05$). It was found that wrestlers engaged in traditional wrestling had better auditory reaction (fastest) time average but not statistically significant ($p > 0.05$). In conclusion, since the duration of modern wrestling competitions is shorter than that of traditional wrestling, competitions in modern wrestling are more active. Since both wrestlers train according to their competitions, traditional wrestling athletes have less improved reaction time than modern wrestling athletes. Traditional wrestling athletes are recommended to do more training based on improving reaction time

Keywords: Visual reaction, traditional wrestling, auditory reaction, modern wrestling.

Özet: Bu çalışmanın amacı geleneksel güreş ve modern güreş sporcularının görsel ve işitsel reaksiyon sürelerinin karşılaştırılmasıdır. Çalışma, geleneksel (n=22) ve modern (n=24) güreş yapan toplam 46 profesyonel ağır siklet güreşçi üzerinde uygulanmıştır. Çalışmaya katılan sporcular yağlı güreş, aşırı malı aba güreşi, kapışmalı aba güreşi, karakucak güreşi, kısa şalvar güreşi gibi geleneksel güreşler ile serbest güreş ve Greko-Romen güreşi gibi modern güreşlerle uğraşan güreşçilerdir. Görsel ve işitsel reaksiyon süresi için (İRZ: cognitivefun.net) bilgisayar sistemi kullanılarak ölçümler alınmıştır. Çalışma sonucunda ulaşılan verilerin istatistiki olarak değerlendirilmesinde SPSS paket programı kullanıldı. İstatistiksel değerlendirme sonucunda modern güreş ile ilgilenen güreşçilerin geleneksel güreş ile ilgilenen güreşçilere göre, görsel reaksiyon (fastest), görsel reaksiyon (slowest) ve görsel reaksiyon (average) zamanı ortalamaları daha iyi bulunmuştur ($p < 0,05$). Yine işitsel reaksiyon (slowest) ve işitsel reaksiyon (average) zamanı değerlerinde de modern güreşçilerin lehinde anlamlı farklılık tespit edilmiştir ($p < 0,05$). Geleneksel güreşçilerin daha iyi düzeyde işitsel reaksiyon (fastest) zamanı ortalamalarına sahip olduğu bulunmuştur ama istatistiksel olarak anlamlı değildir ($p > 0,05$). Sonuç olarak, modern güreş müsabaka sürelerinin geleneksel güreşe göre daha kısa olması nedeniyle modern güreş müsabakaları daha hareketli geçmektedir. Dolayısıyla her iki güreşçi de kendi müsabakalarına göre antrenman yaptıkları için geleneksel güreşçilerin tepki sürelerinin modern güreşçilere göre daha az geliştiği söylenebilir. Geleneksel güreş sporcularına daha fazla reaksiyon süresi geliştirici antrenmanlar yapılması önerilmektedir.

Anahtar Kelimeler: Görsel reaksiyon, geleneksel güreş, işitsel reaksiyon, modern güreş.

Received: 20.06.2023 / Accepted: 08.07.2023 / Published: 30.07.2023

<https://doi.org/10.22282/tojras.1317739>

Citation: Mayda, M. H., & Koyunlu, A. (2023). Comparison of visual and auditory reaction times of wrestlers engaging in traditional and modern wrestling. *The Online Journal of Recreation and Sports (TOJRAS)*, 12(3), 429-434.

INTRODUCTION

Wrestling is one of the oldest sports (Cieśliński et al., 2021). The main goal of every wrestler is to dominate an opponent physically and to establish a definite physical control over him. Wrestlers compete in a challenging environment with high-intensity movements (Chaabene et al., 2017). Technically, wrestling is the struggle of two wrestlers on a mat with predetermined sizes, by using their characteristics and abilities to win over each other within the framework of predetermined rules (Baić et al., 2022; Bryıklı, 1993). Internationally organized competitions are organized in two ways: Freestyle and Greco-Roman. Freestyle wrestling is a modern type of wrestling that came to Turkey in the 20th century and is technically similar to traditional wrestling, such as karakucak and salwar wrestling and includes using a hand and feet within the framework of predetermined rules. Greco-Roman wrestling, which emerged in Europe and spread worldwide, is a modern type of wrestling that involves techniques by wrestlers using only their bodies from the waist up, within specific rules (Kahraman, 1989; Maria Lopez-Gullon et al., 2011). Wrestling is a social and cultural reflection of the society in which it emerged. Several wrestlers have taken their place in the modern Olympics and the international arena. Wrestling takes up a place in a country by carrying the customs, traditions, and characteristics of the society in which it has emerged. While freestyle and Greco-Roman wrestling are known as modern wrestling, wrestling

such as shalwar, aba, karakucak, and oil wrestling are called traditional wrestling. While traditional wrestling is followed and practiced in the culture and society to which it is affiliated, modern wrestling is the wrestling that is practiced and watched by people worldwide (Yıldıran, 2000).

In defense sports such as wrestling, the body should be balanced, and the reaction time should be high during rapid positioning while performing sudden displacement, balancing the body and performing the applied techniques (Bayraktar et al., 2012). The time elapsed between the onset of the stimulus and the onset of the response, or the time between the emergence of different stimuli and the onset of the muscle's response to this stimulus, is defined as the reaction time (Auxter et al., 1993; Cicioğlu et al., 2007; Pancar et al., 2016). In another definition, reaction time can be defined as the interval required to perceive a stimulus, process information, perform an appropriate decision-making process, and initiate a motor task in response (Sirico et al., 2020). It has been stated that reaction times vary in different sports branches, and sedentary individuals have worse reaction times than athletes (Moka et al., 1992; Pancar et al., 2016). A determined reaction time against a dynamic object is very important in wrestling. In the first, there is an immediate reaction to the changing movements of the opponent, while in the second, there is a standard response in

the techniques applied to the automation. It is obligatory to include studies aimed at gaining these features in training to develop these two features (Kılıç et al., 1996). Reaction time is closely related to the rapid reaction of the athlete under the pressure of time and the field. It is necessary to act in a very short time during a wrestling match.

For this reason, speed and reaction time are essential factors for success in wrestling. During matches, wrestlers attack, defends, play against the opponent (counterattack) and apply all of these practices quickly (Günay et al., 2006). It is inevitable that reaction time and speed, which are extremely important in wrestling, positively affect success in traditional and modern wrestling competitions.

When the literature is examined, it can be seen that although there are studies on wrestling, there are no studies specifically comparing reaction times of wrestlers engaged in traditional and modern wrestling. Therefore, the aim of this study is to examine and compare the reaction times of professional wrestlers engaged in traditional and modern wrestling.

METHODS

Subjects and Study Design

The study was designed following a randomized controlled single-blind study design. The study was conducted with a total of forty-six professional male wrestlers who participated in the study voluntarily. Twenty-two of these athletes were

engaged in traditional wrestling (oil wrestling, plaid aba wrestling, competitive aba wrestling, karakucak wrestling, short shalwar wrestling), while twenty-four were engaged in modern wrestling (freestyle wrestling and Greco-Roman) (Table 1). All the subjects who participated in the study were informed about the study plan and its purpose. A nutrition program and training plan were not applied to the subjects. Ethics committee approval of the study was obtained from Medical Research Ethics Committee (2022-25).

Visual and Auditory Reaction Time Measurement

In the study, to determine the visual and auditory reaction times of the athletes engaged in traditional and modern wrestling, the application in the computer program was applied to each athlete in a quiet and empty area to avoid distraction. Measurements were taken using the computer system (IRZ: cognitivefun.net) for visual and auditory reaction time. Data are recorded in milliseconds. Visual and auditory reaction times were measured three times, and the mean variable was saved (Pancar et al., 2016).

Statistical Analysis

The SPSS 26.0 (SPSS Inc., Chicago, IL) package program was used for statistical analysis. Data were presented as mean and standard deviation. An independent sample t-test was used to compare the differences between traditional and modern wrestler groups. Statistical results were evaluated at 0.05 significance levels.

FINDINGS

Table 1: Characteristics of the study participants (Means \pm SD).

Variables	Traditional Wrestling Group (n: 22)	Modern Wrestling Group (n: 24)
Age (years)	30.59 \pm 4.17	29.67 \pm 2.78
Height (cm)	181.82 \pm 3.98	181.79 \pm 3.86
Weight (kg)	113.46 \pm 5.38	109.79 \pm 8.01
BMI (kg/m ²)	34.33 \pm 1.51	33.23 \pm 2.43

SD, standard deviation; BMI, body mass index

Table 2: Descriptive characteristics of participants for visual and auditory reaction tests

	Min.	Max.	Mean	SD	
Traditional Wrestling Group	Visual Reaction (Fastest)	296.00	407.00	343.91	28.89
	Visual Reaction (Slowest)	364.00	914.00	530.18	162.52
	Visual Reaction (Average)	332.20	573.33	410.69	59.07
	Auditory Reaction (Fastest)	444.00	596.00	510.00	123.52
	Auditory Reaction (Slowest)	605.00	1150.00	796.86	164.98
	Auditory Reaction (Average)	559.20	791.20	653.76	67.26
Modern Wrestling Group	Visual Reaction (Fastest)	274.00	394.00	317.92	28.90
	Visual Reaction (Slowest)	341.00	599.00	443.75	73.62

Visual Reaction (Average)	316.20	483.00	369.51	39.94
Auditory Reaction (Fastest)	429.00	635.00	524.88	51.66
Auditory Reaction (Slowest)	554.00	899.00	633.04	152.99
Auditory Reaction (Average)	511.20	868.60	598.80	70.68

SD, standard deviation

The descriptive information of the reaction data obtained from the volunteers who participated in the study is examined in Table 2.

Table 3: Comparison of participants' visual and auditory reaction tests between groups.

		Mean	SD	t	p
Visual Reaction (Fastest)	Traditional Group	343.91	28.89	3.047	0.001*
	Modern Group	317.92	28.90		
Visual Reaction (Slowest)	Traditional Group	530.18	162.52	2.288	0.003*
	Modern Group	443.75	73.62		
Visual Reaction (Average)	Traditional Group	410.69	59.07	0.126	0.001*
	Modern Group	369.51	39.94		
Auditory Reaction (Fastest)	Traditional Group	510.00	123.52	-0.541	0.059
	Modern Group	524.88	51.66		
Auditory Reaction (Slowest)	Traditional Group	796.86	164.98	3.494	0.001*
	Modern Group	633.04	152.99		
Auditory Reaction (Average)	Traditional Group	653.76	67.26	2.696	0.001*
	Modern Group	598.80	70.68		

SD, standard deviation, * $p < 0.05$

As a result of the statistical analysis, it was found that when the wrestlers engaged in modern wrestling were compared to the wrestlers engaged in traditional wrestling, visual reaction (slowest), visual reaction (slowest), and visual reaction (average) times were in favor of the modern wrestling group ($p < 0.05$). Auditory reaction (slowest) and auditory reaction (average) time values were statistically significant in favor of wrestlers engaged in modern wrestling ($p < 0.05$); while only the auditory reaction (fastest) time value was better in wrestlers engaged in traditional wrestling, although not statistically significant ($p > 0.05$).

DISCUSSION AND CONCLUSION

The hypothesis of this study was that reaction times are different in traditional and modern wrestlers. Reaction time is a very important variable in sports competitions. It has been stated that athletes with better reaction times are successful, especially athletes whose physiological and technical capacities are equivalent to each other (Açıkada and Ergen, 1990). As in many sports, reaction time has been a criterion for success in wrestling, and this feature can be improved with training (Catelli, 1990). It is an important factor to have a short reaction time to take action before the opponent during competitions. The importance of reaction time may vary in different branches (Karakuş et al., 1996). It is known that there is an improvement in reaction time with advancing age (Çolakoğlu, 1986; Aslan et al., 2016). Improvement in reaction time can be achieved with appropriate and on-site studies (Bompa, 2007; Özer, 2007). It has been stated that an improvement of 0.12 ms in reaction time is possible with regular training (Dündar, 1996) and it is possible to shorten reaction time with long-term training (Çolakoğlu et al., 1993).

In a study conducted on wrestlers, before weight loss, auditory right-hand reaction time was 182.09+6.84 ms, auditory left-hand reaction time was 179.54+6.50 ms, visual right-hand reaction time was 206.09+9.26 ms, visual left-hand reaction time was 212.91+9.31 ms; after weight loss, right-hand reaction time was 202.36+7.54 ms, left-hand

reaction time was 208.91+8.93 ms, visual right-hand reaction time was 238.54+11.22, and left-hand reaction time was 254.36+10.74 ms; after recovery, auditory right-hand reaction time was 187.18+7.40 ms, auditory left-hand reaction time was 192.27+6.22 ms, visual right-hand reaction time was 224.45+8.59 ms and visual left-hand reaction time was 222.55+8.91 ms (Eroğlu, 2002). In a study on adolescent wrestlers, the difference between the auditory right-hand reaction time and the left-hand reaction time averages ($p < 0.05$) and the difference between the visual left-hand reaction time averages ($p < 0.01$) were significant (Kürkçü et al., 2007). In another study on wrestlers, football players and volleyball players, the mean of right-hand reaction time was recorded as 386.33 ms in wrestlers, 369.14 ms in football players and 405.96 ms in volleyball players (Akarsu, 2008).

In a study conducted with judo national team athletes, auditory reaction time was 0.148 sec, and visual reaction time was 0.149 sec (Ağaoğlu et al., 2010). In a study conducted on Turkish and Russian judo national women's teams, the average auditory right-hand reaction time was 226.83 ms, auditory left-hand reaction time was 183.16 ms, visual right-hand reaction time was 243.33 ms, and visual left-hand reaction time in Turkish heavyweight athletes was 236.66 ms. In Russian athletes, the auditory right-hand reaction time was 215.50 ms, the auditory left-hand reaction time was 215.40

ms, the visual right-hand reaction time was 228.20 ms, and the visual left-hand reaction time was 231.60 ms (Yüksek and Cicioglu, 2004). In another study conducted on female judo national team athletes, the average auditory right-hand reaction time was 0.1487 sec, auditory left-hand reaction time was 0.1554 sec, visual right-hand reaction time was 0.16 sec, visual left-hand reaction time was 0.16 sec (İmamoğlu et al., 2010).

Although reaction time is of great importance for success in modern wrestling, it is closely related to the fact that wrestlers who are under the pressure of time, opponent and time decide quickly during the competition (Taş et al., 2008). In wrestling, which is a combat sport, rapid displacements lead to a balanced, fast, flexible and high reaction time during the match, which requires using the hands and feet together skillfully or responding to an extremely fast and strong attack with defense and counterattacking at the same speed and strength. As in most sport branches, reaction time is extremely important in wrestling to be successful (Türkeri, 2007). Reaction time is decisive in athletic success and can be improved with regular training (Bompa, 2007).

In conclusion, especially in terms of stimuli, taking action before attacking is extremely important for athletes to complete the match without injury, in addition to winning and losing in wrestling. For this reason, it is extremely important to include training to improve reaction time of athletes in training programs. According to the data we have reached as a result of the study we have carried out, it has been determined that wrestlers engaged in modern wrestling have lower reaction times both visually and audibly compared to wrestlers engaged in traditional wrestling. In modern wrestling, where the time pressure is higher, athletes develop their reaction times with training at a higher level, the time pressure in traditional wrestling is less when compared with modern wrestling, and the reaction times of athletes who are engaged in modern wrestling are higher. Improving the reaction time of athletes who do traditional wrestling can lead to higher success in sports competitions. According to the results of our study, practices aimed at improving reaction time, which is a criterion for success in wrestling, should be included in the training program.

Ethical Considerations

Journal writing rules, publication principles, research and publication ethics rules, journal ethics rules were followed in the present study. Responsibility for any violations that may arise regarding the article belongs to the author. Ethics committee approval of the study was obtained from Kahramanmaraş Sütçü İmam University Medical Research Ethics Commission (2022-25, decision no: 9).

Conflict of Interest: The author declares no conflict of interest regarding the study.

Author Contributions: In present study, the contribution rate of the first author was 60%, the contribution rate of the second author was 40%.

REFERENCES

- Açıkada, C. & Ergen, E. (1990). *Science and sport*. Ankara: Büro-Tek Ofset Printing.
- Ağaoğlu, S. A. , İmamoğlu, O. , Kışalı, N. F. & Çebi, M. (2001). Investigation of some physiologic and antropometric characteristics. *Journal of Physical Education and Sport Sciences*, 1(3), 59-67.
- Aslan, C. S. , Özer, U. & Dalkıran, O. (2016). Examination of coordination and reaction characteristics in girls according to age variable. *Mehmet Akif Ersoy University Journal of Health Sciences Institute*, 4 (1), 27-33.
- Auxter D., Pyfer J. & Hunettig C. (1993). *Adapted physical education and reaction*. (7. Ed.) Mosby, USA.
- Baić, M., Trajković, N., Djordjevic, D., Stankovic, M., & Pekas, D. (2022). Strength profile in wrestlers-a systematic review. *Archives of Budo*, 18, 151-164.
- Bayraktar, I., Deliceoğlu, G., Yaman, M., & Yaman, Ç. (2012). The comparison of some physical and physiological parameters of sprinters and throwers with same age wrestlers. *International Refereed Academic Journal of Health and Medical Sciences*, 2(2), 37-46.
- Bıyıklı, Y. (1993). *The role of public institutions in training young wrestlers and the example of Bursa region*. Istanbul: Istanbul Wrestling Specialization Club Conservation Foundation Publication.
- Bompa, T. O. (2007). *Training theory and method-periodization*. Ankara: Sports Bookstore.
- Catelli, R., & Manaham, R. (1990). Reaction time and movement time. *Medicine and Science in Sport and Exercise*, 22(1), 75-77.
- Chaabene, H., Negra, Y., Bouguezzi, R., Mkaouer, B., Franchini, E., Julio, U., & Hachana, Y. (2017). Physical and physiological attributes of wrestlers: an update. *The Journal of Strength & Conditioning Research*, 31(5), 1411-1442.
- Cicioğlu, İ., Kürkçü, R., Eroğlu, H., & Yüksek, S. (2007). Seasonal variation of physical and physiological characteristics of 15-17 age group wrestlers. *Sportmetre Journal of Physical Education and Sports Sciences*, 5(4), 151-156.
- Cieśliński, I., Gierczuk, D., & Sadowski, J. (2021). Identification of success factors in elite wrestlers—An exploratory study. *PLoS One*, 16(3), e0247565.
- Çolakoğlu, H. (1986). *Children and sports*. Ankara: National Education Printing House.
- Çolakoğlu, M., Selamoğlu, S., Gündüz, N., Acarbay, Ş., & Çolakoğlu, S. (1993). The effects of isometric exercise on the correction of hamstring/quadriceps strength ratios of

- sprinters and jumpers. *Journal of Sport Sciences*, 4(1), 24-33.
- Dündar, U. (1996). *Training theory*. Ankara: Bagirgan Publishing House.
- Eroğlu, H. (2002). *The effect of rapid weight loss on some physiological parameters in wrestlers*. Master Thesis. Gazi University, Ankara.
- Günay M., Tamer K., Cicioğlu İ. (2006). *Sports physiology and performance measurement*. Anakara: Baran Ofset.
- İmamoğlu, O., Çebi, M., Kishalı, N. F., & Tunç, T. Investigation of some anthropometric and physiological parameters in female judo national team athletes. *Journal of Physical Education and Sport Sciences*, 1(1), 34-40.
- Kahraman, A. (1989). *Turkish wrestling until the Republic*. Ankara: Ministry of Culture.
- Karakuş, S., Küçük, V., & Koç, H. (1996). Reaction times of badminton athletes participating in the 1995 balkan championship. *Gazi Journal of Physical Education and Sport Sciences*, 1(2), 11-17.
- Kılıç, R., Sevim, Y., Aydos, L., & Günay, M. (1996). Investigation of the effects of circular quick strength training on some conditional characteristics of 14-16 age group wrestlers. *HU Journal of Sport Sciences*, 5(1).
- Kürkü, R., Çalışkan, E., Şirinkan, A., & Erciş, S. (2010). The effects of exercise on the reaction time of adolescent wrestlers. *Journal of Physical Education and Sport Sciences*, 9(4), 3-11.
- Maria Lopez-Gullon, J., Muriel, X., Dolores Torres-Bonete, M., Izquierdo, M., & Garcia-Pallares, J. (2011). Physical fitness differences between Freestyle and Greco-Roman elite wrestlers. *Archives of Budo*, 7(4), 217-225.
- Mokha, R., Kaur, G., & Sidhu, L. S. (1992). Effect of training on the reaction time of Indian female hockey players. *The Journal of Sports Medicine And Physical Fitness*, 32(4), 428-431.
- Özer, U. (2007). *The effect of mini tennis training on the development of coordination and reaction time in 8-11 year old girls*. Master Thesis. Cumhuriyet University, Sivas.
- Pancar, Z., Özdal, M., Pancar, S., & Biçer, M. (2016). Investigation of visual and auditory simple reaction time of 11-18 aged youth. *European Journal of Physical Education and Sport Science*, 2(4), 145-152.
- Sirico, F., Romano, V., Sacco, A. M., Belviso, I., Didonna, V., Nurzynska, D., & Di Meglio, F. (2020). Effect of video observation and motor imagery on simple reaction time in cadet pilots. *Journal of Functional Morphology and Kinesiology*, 5(4), 2-9.
- Taş, M., Özkan, A., Uzun, A., Koç, H., Akyüz, M., & Kıyıcı, F. (2008). Comparison of some physical fitness and somatotype characteristics of young wrestlers in the national wrestling teams of two different countries. *SU BES Science Journal*, 10(3), 1-9.
- Türkeri, C. (2007). Anthropometric and biomechanical analysis of two different karate techniques. Doctoral Thesis. Çukurova University, Adana.
- Yıldıran, İ. (2000). Evaluation of the differences between traditional oil wrestling and modern mattress wrestling in terms of cultural, structural and scientific. *Gazi Journal of Physical Education and Sport Sciences*, 5(1), 53-62.
- Yüksek, S., & Cicioğlu, İ. (2004). Comparison of some physical and physiological parameters of Turkish and Russian judo national women's teams. *Spormetre Journal of Physical Education and Sport Sciences*, 2(4), 139-146.

GENİŞLETİLMİŞ ÖZET

Çalışmanın Amacı: Araştırmada, geleneksel ve modern güreşçilerin görsel ve işitsel reaksiyon sürelerinin karşılaştırılması amaçlanmıştır.

Araştırma Soruları: Geleneksel ve modern güreş antrenmanı sporcularda görsel ve işitsel reaksiyon sürelerini etkiler mi? Geleneksel ve modern güreşçilerin görsel ve işitsel reaksiyon süreleri farklılık gösterir mi ?

Literatur Araştırması: Birçok spor dalında olduğu gibi güreşte de reaksiyon zamanı başarılı olmak için bir kriter olmuş ve yapılan antrenmanlar ile bu özelliğin iyileştirilmesi yoluna gidilmiştir (Catelli, 1990). Müsabakalar esnasında rakipten önce harekete geçmek için reaksiyon zamanının kısa olması önemli bir etmendir. Farklı branşlarda reaksiyon zamanı önemli değişiklik gösterebilmektedir (Karakuş ve ark., 1996). Yapılacak düzenli antrenmanlarla reaksiyon zamanının gelişebileceği farklı araştırmalarda belirtilmiştir (Çolakoğlu ve ark., 1993; Dündar, 1996). Adolesan güreşçiler üzerinde yapılan bir çalışmada sezon başı, sezon ortası ve sezon sonrası reaksiyon zamanı ölçümleri alınmış ve karşılaştırılmıştır. Yapılan karşılaştırma sonucunda işitsel sağ el reaksiyon süresi ile sol el reaksiyon süresi arasında anlamlı farklılık olduğu ortaya çıkmıştır (Çalışkan ve ark., 2007). Güreşçiler, futbolcular ve voleybolcular üzerinde yapılan bir araştırmada sağ el reaksiyon süresi güreşçilerde 386,33 ms, futbolcularda 369,14 ms ve voleybolcularda 405,96 ms olarak kaydedilmiştir (Akarsu, 2008). Mücadele sporu olan güreşte çabuk ve süratli yer değiştirmeler ellerin ve ayakların birlikte ustaca kullanıldığı ya da kendisine uygulanan son derece hızlı ve güçlü bir atağa savunma ile karşılık verip, aynı hızda ve kuvvette karşı atak yapmayı gerektiren müsabaka sırasında dengeli, süratli, esnek ve yüksek reaksiyon zamanına sahip olmak başarılı olmak için son derece öneme sahiptir (Türkeri, 2007). Reaksiyon zamanı çoğu spor branşında olduğu gibi güreşte de bu yüzden son derece önemlidir. Ayrıca sportif başarıda reaksiyon zamanı belirleyici olup yapılacak düzenli antrenmanlarla geliştirilmesi mümkündür (Bompa, 2007).

Literatürde farklı branşlarda ve güreşçilerde reaksiyon zamanı ile ilgili çalışmalar bulunmasına rağmen bu kapsamlı geleneksel güreşçilerin yer aldığı ve modern güreşçilerle karşılaştırmanın yapıldığı ilk çalışmalar arasında yer almaktadır.

Yöntem: Araştırma, randomize kontrollü tek kör çalışma tasarımına uygun olarak tasarlandı. Araştırmaya elit düzeydeki geleneksel güreş (n = 22; yağlı güreş, aşırı malı aba güreşi, kapışmalı aba güreşi, karakucak güreşi, kısa şalvar güreşi) ve modern güreş (n = 24; serbest stil güreş ve greko-romen) sporcuları gönüllü olarak katıldı. Araştırmada geleneksel ve modern güreş sporcularının görsel ve işitsel reaksiyon sürelerini belirlemek için her sporcu bilgisayar programında bulunan uygulamayı, dikkat dağınıklığı meydana gelmemesi için, sessiz ve boş bir alanda uyguladı. Görsel ve işitsel reaksiyon zamanı için (İRZ: cognitivefun.net) bilgisayar sistemi kullanılarak ölçümler alındı. Elde edilen veriler milisaniye cinsinden kaydedildi. Verilerin analizinde gruplar arası karşılaştırma yapmak için bağımsız t testi kullanıldı. Araştırmanın uygulanması için Kahramanmaraş Sütçü İmam Üniversitesi Tıbbi Araştırmalar Etik kurulundan izin alındı.

Sonuç ve Değerlendirme: İstatistiksel analiz sonucunda modern güreşçilerin görsel reaksiyon (fastest), görsel reaksiyon (slowest) ve görsel reaksiyon (average) süreleri daha iyi bulunmuştur ($p < 0,05$). Ayrıca işitsel reaksiyon (slowest) ve işitsel reaksiyon (average) süre değerlerinin de modern güreşçiler lehine istatistiksel olarak anlamlı olduğu görülmüştür ($p < 0,05$). İstatistiksel olarak anlamlı olmamasına rağmen sadece işitsel reaksiyon (fastest) değeri geleneksel güreşçilerde daha yüksek gözlenmiştir ($p > 0,05$). Bu sonuçlara göre, süre baskısının daha fazla olduğu modern güreşlerde sporcuların antrenmanlarla reaksiyon sürelerini daha üst seviyede geliştirdiği, geleneksel güreşlerde süre baskısının modern güreşe nazaran daha az olduğu ve sporcuların çalışmalarını bu şekilde gerçekleştirdikleri için reaksiyon zamanlarının modern güreşçilere göre daha az geliştiği söylenebilir. Geleneksel güreş antrenmanı yapan sporcularda reaksiyon zamanının iyileştirilmesi ile müsabakalarda daha başarılı olabileceği düşünülmektedir. Araştırma sonuçlarına göre, güreşte başarı için önemli bir kriter olan reaksiyon zamanının geliştirilmesine yönelik uygulamaların güreş antrenman programlarına dahil edilmesi gerektiği söylenebilir.