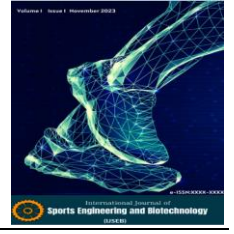




International Journal of Sports Engineering and Biotechnology

<https://ndpapublishing.com/index.php/ijseb/>
e-ISSN: 3023-6010



Investigation of the Opinions of the Students of the Faculty of Sports Sciences on the Use of Wearable Technological Products

Hüsniye Eylül ESKİCİ¹, Eda Nur KESİCİ¹, Sedanur POLAT¹ and Pervin TOPTAŞ DEMİRCİ¹

¹Mersin University, Faculty of Sports Science, Türkiye

Keywords

Sports
Wearable Technology
Products

ABSTRACT

The aim of this study was to examine the opinions of sport sciences faculty students on the use of wearable technological products. The aim of this study is to examine the opinions of sport sciences faculty students on the use of wearable technological products. In this direction, a total of 100 students studying at the faculty of sport sciences voluntarily participated in the study. In addition to the personal information form created by the researchers, the attitude scale towards wearable technological sports products (ASTWTSP) was used as a data collection tool. Kruskal Wallis H and Mann Whitney U tests were used for nonparametric data. In the statistical analysis of the data obtained after the study and in determining the differences between the groups, $P < 0.05$ value will be considered significant. According to the findings; the total scores of the attitude scale towards wearable technological sports products of the participants did not show a significant difference according to their gender ($U=1192.00$; $p=0.781$; $p > 0.05$), did not show a significant difference according to age variable ($X^2=0.237$; $p=0.888$; $p > 0.05$) and did not show a statistically significant difference according to income variable ($X^2=4.516$; $p=0.105$; $p > 0.05$). As a result, based on the results obtained from our study and the literature, and considering the various advantages of wearable technological products, it can be stated that wearable technologies are a complement to the complex structure of exercise or sports on individuals.



1. INTRODUCTION

Wearable technology is defined as an electronic device or system that is placed on a part of the body or clothing. These devices (e.g. smartwatches or smartbands) are typically small and contain biometric sensors to capture physiological signals such as heart rate, accelerometer or body temperature, and are configured to track the wearer's location and capture distance walked or run. These devices are relatively new to the general public, but performance personnel working in professional football environments (e.g. sports and exercise scientists, performance analysts and coaches) have been using this technology for over a decade [1].

With the increasing use of wearable technological products by athletes, special wearable technological products designed to improve sports performance have started to be

developed. These include products such as sports wearables, sports headphones and sports apparel. Such products are designed to enhance the performance of athletes and are used in many sports [2]. In another study that wearable technological products improve sports performance, it was observed that smartwatches increase the performance of athletes, especially in sports activities such as running, cycling and swimming. Thanks to these products It is possible for athletes to monitor and improve their performance by recording their training data [3].

In recent years, many technological innovations have occurred in the field of sports sciences, as in many different fields. This situation emerges as an innovative innovation in sports sciences, which is preferred and highly demanded by individuals in both training and daily life.

*Corresponding author

*e-mail: esskeylul@gmail.com

ORCID ID: 0009-0007-3532-2236

How to cite this article

Eskici, H. E., Kesici, E. N., Polat, S. & Toptaş Demirci, P. (2024). Investigation of the Opinions of the Students of the Faculty of Sports Sciences on the Use of Wearable Technological Products. *Int. J. Sports Eng. Biotech*, 2(2), 51-55.

Wearable technological products provide many conveniences in individuals' sports activities and normal daily lives. Smartwatches used by athletes while training measure characteristics such as pulse rate, blood pressure, etc. during their workouts. While wearable technological products are also used as clothing and accessories, another feature is that they can be integrated with smart devices. In addition, wearable technological products allow individuals to make their own self-monitoring by transferring information to the devices they are integrated with [4, 5].

The role of technological products, which are present in every aspect of our lives, in sports has changed significantly with the developments in technology and digitalization. With the emergence of the internet and mobile technologies, technology has become indispensable for many branches of sports. Technology has contributed to making sports more exciting and challenging than ever, playing a "vital role in being the best on and off the field" [6]. In these challenging conditions where high competition and performances that exceed human limits are in question, the sports industry increasingly needs the use of technology to facilitate performance improvements [7]. Today, sports use technology at the highest level, which leads to rapid advances in many branches of sports [8]. However, technology has begun to be used not only for performance development purposes, but also in the field of health to help individuals live healthier lives and understand the complex structure of the body. The collection of patient data with technological devices also informs healthcare professionals and affects treatment decisions [9]. Wearable devices, which can be used daily in both sports and healthcare and can provide information flow with numerical data, show a rapidly growing trend in this technology network [10]. The aim of this study was to examine the opinions of sport sciences faculty students on the use of wearable technological products.

2. MATERIALS AND METHODS

2.1. Participants

Table 1 shows that 56 (56%) of the participants were male and 44 (44%) were female. It was determined that 62% of the participants were between the ages of 18-21 and 49% of their average income was between 15-30 thousand Turkish Liras (Table 1).

Ethical standards were adhered to in this study and the participant provided informed consent in the form of a consent form covering research details, risks, benefits, confidentiality and participant rights. The study strictly adhered to the

ethical principles of the Declaration of Helsinki, prioritizing the rights and welfare of the participant in the design, procedures and confidentiality measures.

2.2. Research Model

In line with the objectives of this study, descriptive analysis model used. The descriptive model is an approach that aims to describe an existing event as it is. The person or object that is the subject of the research should be defined in its current conditions and should not be changed or transformed in any way. Whatever is desired to be researched or known is to be obtained. should be studied [11]. The scale technique was utilized for the information obtained in the study.

2.3. Data Collection Tools

Personal Information Form: A questionnaire form was created to obtain information about the age, gender and income levels of the audience.

2.3.1. Attitude Scale Towards Wearable Technological Sports Products (ASTWTSP)

In order to determine students' attitudes towards wearable technological sports products, [12], consisting of 14 items and 2 sub-dimensions (positive attitude and negative attitude) was used. The scale is a 5-point Likert scale ranging from 1- Strongly Disagree to 5- Strongly Agree. Items 10-11-12-13-14 were reverse coded. Cronbach Alpha value of the scale was calculated as 0.841.

2.4. Statistical Analysis

The data obtained within the scope of the study will be described by using frequency and percentage values for variables measured at the classical level. Kruskal Wallis H and Mann Whitney U tests were used for nonparametric data. In the statistical analysis of the data obtained after the study and in determining the differences between the groups, $P < 0.05$ value will be considered significant.

3. RESULTS

Table 1 shows that 56% of the participants were male and 44% were female. It was determined that 62% of the participants were between the ages of 18-21 and 49% of their average income was between 15-30 thousand Turkish Liras (Table 1).

The total scores of the attitude scale towards wearable technological sports products of the participants do not show a significant difference according to their gender ($U=1192.00$; $p=0.781$; $p>0.05$) (Table 2).

When Table 3 is examined, it is seen that the total scores of the attitude scale towards wearable technological sports products of the participants in this study do not differ significantly according to the age variable ($X^2=0,237$; $p=0,888$; $p>0,05$).

Table 4 shows that there is no statistically significant difference in the total scores of the

attitude scale towards wearable technological sports products of the participants according to the average income variable ($X^2=4,516$; $p=0,105$; $p>0,05$).

Table 1. Characteristics of the participants

	Variables	Frequency	Percentage
Gender	Female	44	44,0
	Male	56	56,0 %
Age (years)	18-21	62	62,0 %
	22-25	35	35,0 %
	26 and above	3	3,0 %
Monthly income	<15000	25	25,0 %
	15000 to 30000	49	49,0 %
	>30000	26	26,0 %
Total		100	100 %

Table 2. Mann Whitney U test results of the total score of the attitude scale towards wearable technological sports products according to gender

	Variables	n	Mean Rank	Sum of Ranks	U	Z	p
Gender	Female	44	49,59	2182,00	1192,00	-0,278	0,781
	Male	56	51,21	2868,00			

Table 3. Kruskal Wallis H test results of the total score of the attitude scale towards wearable technological sports products according to age variable

	Variables	n	Mean Rank	X^2	df	p
Age (years)	18-21	62	50,52	0,237	2	0,888
	22-25	35	51,14			
	26 and above	3	42,67			

Table 4. Kruskal Wallis H test results of the total score of the attitude scale towards wearable technological sports products according to the average income variable

	Variables	n	Mean Rank	X^2	df	p
Monthly income	<15000	25	39,86	4,516	2	0,105
	15000 to 30000	49	54,30			
	>30000	26	53,58			

4. DISCUSSION

This study was conducted to examine the opinions of sports sciences faculty students on the use of wearable technological products. As a result of the analysis. Shows that 56% of the participants were male and 44% were female. It was determined that 62% of the participants were between the ages of 18-21 and 49% of their average income was between 15-30 thousand

Turkish Liras. The total scores of the attitude scale towards wearable technological sports products of the participants do not show a significant difference according to their gender ($p>0,05$).

When Table 3 is examined, it is seen that the total scores of the attitude scale towards wearable technological sports products of the participants in this study do not differ significantly according

to the age variable ($p>0,05$). Table 4 shows that there is no statistically significant difference in the total scores of the attitude scale towards wearable technological sports products of the participants according to the average income variable ($p>0,05$).

According to the research, the use of wearable technological sports products for athletes is very important for instant monitoring of the exercise performed, and its use is frequently observed for every individual who does sports [13]. The continuous use of wearable devices will increase the possibility of long-term commitment, positively affect exercise participation and result in sustainable behavioral change. According to [14], wearable technological products show their importance in the field of sports as well as in various fields today, and these products make the user's life easier. In addition, thanks to their reliability, the data they provide can also be used in medical reports [15].

In a metaphor study conducted by Yıldız and Algün Doğu [16], on the use of technology in sports, researchers determined different categories. It was determined that there were 18 metaphors in the "Necessity" category, and these metaphors reported that athletes see the use of technology in sports as an indispensable need and that they think that the use of this technology is inevitable in order to be successful. Therefore, according to the results of the studies, it can be said that technology provides great convenience, especially to athletes involved in Olympic branches. At the same time, it can be stated that technology significantly affects development in amateur or professional sports branches.

5. CONCLUSION

However, considering the current state of technology, it is thought that the use of wearable technological products in sports will increase due to the fact that they provide us with information such as respiratory rate, heart rate, body temperature, neural activity, humidity measurement, location, speed, calories, step count, etc. and that studies resulting from this will make significant contributions to the field. Conducting such studies will create a healthier discussion environment and the reasons for the use of these products will be more clearly revealed. As a result, based on the results obtained from our study and the literature, and considering the various advantages of wearable technological products, it can be stated that wearable technologies are a complement to the

complex structure of exercise or sports on individuals.

Conflict of Interest

No conflict of interest is declared by the authors. In addition, no financial support was received.

Ethics Committee

Ethical standards were adhered to in this study and the participant provided informed consent in the form of a consent form covering research details, risks, benefits, confidentiality and participant rights.

Author Contributions

Study Design, P.T.D.; H.E.E; Data Collection, E.N.K; S.P.; H.E.E; Statistical Analysis, P.T.D.; Data Interpretation, E.N.K; S.P. H.E.E.; Manuscript Preparation, P.T.D.; E.N.K; Literature Search, S.P.; H.E.E All authors have read and agreed to the published version of the manuscript.

REFERENCES

1. Tierney, P., Clarke, N., & Roberts, S. (2024). Use and application of wearable technology in football further education settings in the UK, *Sport, Education and Society*, 29(9),1-14. [CrossRef]
2. Brownsberger, J., Edwards, A., Crowther, R., Cottrell, D., & Crotty, M. (2014). Impact of exercise on sleep and quality of life in elderly residents of assisted living facilities. *Journal of Aging and Physical Activity*, 22(4), 554-563. [CrossRef]
3. Mayer, D. K., Landers-Ramos, R. Q., & Beighle, A. (2016). A review of wearable technology in medicine. *Journal of Medical Systems*, 40(7), 174. [PubMed]
4. Çakır F. S., Aytakin A. & Tüminçin F. (2018). Internet of things and wearable technologies. *Journal of Social Research and Behavioral Sciences*, 4(5), 84-95.
5. Buyrukoğlu, E., & Bayındır, M. (2023). A Research on the Use of Wearable Technological Sports Products, *Textile and Engineer*, 30: 131, 201-209. [CrossRef]
6. Sinar, D. S. & Acar, N. E. (2024). Wearable Sports Technologies. *Int. J. Sports Eng. Biotech*,2(1),17-26. [CrossRef]
7. Schmidt, S. L. (2020a). 21st Century Sports (S. L. Schmidt (ed.). Springer International Publishing.
8. Trabal, P. (2008). Resistance to technological innovation in elite sport. *International review for the sociology of sport*, 43(3), 313-330. [CrossRef]
9. Haake, S. J. (2009). The impact of technology on sporting performance in Olympic sports. *Journal of Sports Sciences*, 27(13), 1421-1431. [PubMed]

10. Wilson D. (2017). An Overview of the Application of Wearable Technology to Nursing Practice. *Nurs Forum*, (52), 124-132. [PubMed]
11. Karasar, N., (2016). Report Preparation in Research. Ankara: Nobel publishing.
12. Çar, B., Bezci, Ş., Dokuzoğlu, G., & Kurtoğlu, A. (2022). Attitude Scale (ASDSTSP) Development Study For Clothing Technological Sports Products. *Mediterranean Journal of Sports Sciences*, 5,(Special Issue 2):1155-1167
13. Turgut, Z., N., Danişan, T. & Eren, T. (2020). Selecting the suitable smartest watch for who making sports by ahp and promethee methods. *International Journal of Physical Education Sport and Technologies*, 1(2), 1-11.
14. Serçek, S., & Korkmaz, M. (2023). A systematic literature review on wearable technology in sports. *International Journal of Contemporary Educational Studies*, 9(1), 77-92.
15. Aydin, N. (2019). Wearable technologies. Ankara: Iksad Publications. 25-26.
16. Yıldız, A. B. & Algün Doğu, G. (2022). Use of technology in sports: A metaphor study. *Ahi Evran University Journal of Social Sciences Institute*, 8(1), 67-80. [Crossref]

