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#### Dear Readers,

In this issue of our Journal, we present 3 articles in total. As in every issues, we would like to extend our special thanks to referee and scientific committee, editor and publication board who contributed to this issue. We are honoured to be able to present the first issue of 2018 to the distinguished scientists of which our writers are members. As a quarterly journal, we expect to publish our next issue in June. We gladly present valuable studies in this issue of our Journal. We are also happy to see that our issues include especially research and application studies and that the number of such studies in the field of communication has increased. As of 2018, we will be working with a new editorial board and publication board. The fact that our new editorial board, which is comprised of scientists who are expert in their respective field and have contributed to many scientific researches and studies, has contributed to the quality of our Journal. Taking this opportunity, we would like to say welcome to all the scientists who became a part of our Journal. We also would like to extend our thanks to all scientists who will be a part of and provide their support to the further issues of our Journal. We expect your comments, recommendations, criticisms and contributions on the studies included in our Journal and our issue. We extend our sincere regards to all readers, writers, scientific committee, editors and scientists in our editorial board. Hope to see you in the next issue.

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INTERNATIONAL REFEREED ACADEMIC JOURNAL OF SPORTS, HEALTH AND MEDICAL SCIENCES

## RELATIONSHIP BETWEEN FUNCTIONAL MOVEMENT SCREEN AND ATHLETIC PERFORMANCE IN YOUNG SOCCER PLAYERS <sup>1</sup>

## ALTYAPI FUTBOLCULARINDA FONKSİYONEL HAREKET ANALİZİNİN ATLETİK PERFORMANSLA İLİŞKİSİ

## Mustafa ŞAHİN<sup>1</sup>, Ogulcan DOĞANAY<sup>2</sup>, Bülent BAYRAKTAR<sup>3</sup>

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Öz: Amaç: Bu çalışma altyapı futbolcularının fonksiyonel hareket taraması (FMS) skorlarının analizi ve performansla olan ilişkisini belirlemek amacıyla yapılmıştır. Yöntem: Çalışma farklı kulüplerin 14-16 yaş aralığında oynayan toplam 92 futbolcu ile gerçekleştirilmiştir. Araştırmada futbolcuların yaş, boy uzunluğu, vücut ağırlığı, Beden Kütle indeksi (BKI), Uzun atlama, Dayanıklılık, Çeviklik, 10-20 ve 30m. Sürat ile FMS bileşenleri incelenmiştir. Çalışmanın istatistiksel analizi SPSS 21.0 programı ile yapılmış, gruplara arası karşılaştırmalar bağımsız t-testi ile, FMS skorları ile performans ilişkisi Pearson korelasyon analizi ile gerçekleştirilmiştir. Bulgular: Futbolcuların toplam FMS puan ortalaması 14,40 olarak tespit edilmiştir. FMS testinde skorların en az birinde asimetrisi olan sporcuların oranının %61.96 olduğu, %38,04 futbolcunun ise asimetrisinin olmadığı görülmüştür. FMS skorları ile performans parametreleri arasındaki ilişki incelendiğinde Dayanıklılık ile Active straigth leg raise (r=0,270) ve rotary stability (r=0,259) arasında p<0,05 düzeyinde ilişki pozitif ilişki olduğu tespit edilmiştir. Çeviklik testi ile active straigth legraise arasında p<0,05 düzeyinde negatif ilişki (r=-0,273) bulunmuştur. Sonuç: Altyapı futbolcularında FMS skorlarının normal olduğu, fakat sağ ve sol taraf asimetri yaygınlığı açısından önemli problemlerin bulunduğu söylenebilir. Alt yapı futbolcularında Fonksiyonel hareket değerlerinin dayanıklılık ve çeviklik özelliği ile ilişkisi bulunmaktadır.

Anahtar Kelimeler: Futbol, Hareket Analizi, FMS, Atletik Performans, Yaralanmaların Önlenmesi Abstract: Aim: This study was conducted to determine the relationship between the analysis of functional movement screen (FMS) scores and the performance of young soccer players. Method: The study was conducted with a total of 92 soccer players playing at different clubs aged between 14-16. In the study, FMS components were examined with age, height, body weight, body mass index (BMI), long jump, endurance, agility, and a 10-m, 20-m, and 30-m sprint test. Statistical analysis of the study was conducted using the SPSS 21.0 program. Comparisons between groups were made using the independent t-test. The FMS scores and performance relationship were analyzed using Pearson's correlation analysis. Finding: The total FMS score of the soccer players was determined as 14.40. In the FMS test, 61.96% of the soccer players had at least one asymmetry; 38.04% of the soccer players had no asymmetry. When the relationship between FMS scores and performance parameters was examined, it was determined that there was a positive correlation between endurance and active straight leg raise (r= 0.270) and rotary stability (r= 0.259). A negative correlation (r= -0.273) was found between the agility test and active straight leg raise at p<0.05. Conclusion: It can be said that FMS scores are normal in infrastructural soccer players, but there are significant problems in terms of the excess of asymmetry in the right and left sides. In young soccer players, functional movement scores are related to endurance and agility.

Key Words: Soccer, Movement Analysis, FMS, Athletic Performance, Injury Prevention

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## INTRODUCTION

Functional movement screen (FMS), which is a reliable method for evaluating the movement of athletes (Moran et al., 2016:527-536; Kiesel et al., 2007:147-158), is a detailed evaluation method of human movement which consists of 7 movement tests and 3 clearing movements (Cook et al., 2014:396-409). FMS was first applied to American football players and then research spread rapidly (Agresta et al., 2014: 1203-1207; Bardenett et al., 2015:303-308; Li et al., 2015:1166; Warren et al., 2015:163). The movement screen test, which is used to evaluate mobilization and stabilization, has been applied in many countries and areas (Bodden et al., 2013:219-225; Loudon et al., 2014:909-913; Parenteau et al., 2014:169-175; Kazman et al., 2014:672-678; Schneiders et al., 2011:75-82; Teyhen et al., 2014:413-420).

The interest of sport experts for corrective exercises to increase the range of motion of athletes has begun to increase day by day. FMS is a method in which each movement score is assessed within itself, as well as with 7 different measurements that are evaluated in asymmetry and total score, and corrective exercises can be given according to the results (Mokha et al., 2016:276-282;). If the total of the 7 measurements is below 14 points, it increases the risk of injuries (Chorba., 2010:47-54). It is emphasized that work is also important for young athletes in the system, which is mostly performed on adults (Marques., 2017:977-985).

When evaluating physical performance, shuttles, push-ups, endurance, sprints, jumps, agility and strength tests are usually applied (Meeuwisse and Fowler, 1988: 35-42). The main goal of pre-season tests is to reduce the risk factors that may cause injuries, to prevent the recurrence of injuries, to improve performance, and to improve the quality of life. Surveys have shown that performance tests or fitness tests are uncertain to meet these goals (Metzl., 2000: 577-592).

The purpose of this study is to provide a detailed explanation of the results of FMS in young soccer players.

When we looked at the research on youth soccer, we found many conditioning studies but very few studies on movement analysis.

With this approach, we researched whether athletic performance characteristics were affected by FMS total score, individual scores, and asymmetry, in order to have knowledge about the relationship between movement analysis and the performance components of young soccer players.

## **METHODS**

This research was conducted with a total of 92 soccer players who studied at the Turkish



Football Federation Meral Celal Aras Sports High School and played at different youth

The age, height, body weight, body mass index (BMI), long jump, endurance, agility, speed, and FMS evaluations of the soccer players were examined in the research.

soccer clubs.

In our study, we used the New Test-Powertimer 300 test system (Enoksen et al., 2009: 77-84), traffic cones, disc cones, a speaker, stadiometer, and a Tanita BC418 segmental body composition device (Tanita, Japan). The FMS kit was used for functional movement screen.

Height: The heights of the soccer players were determined by measuring the distance between the head and foot. The results are reported in centimeters (Table 1).

Body Weight: Body weight measurements were made with the Tanita BC418 body composition device; the soccer players were measured without shoes with standard sportswear (shorts, t-shirts). The results were recorded in kilograms.

Body Mass Index: BMI was calculated with using the formula weight/height<sup>2</sup> (kg/m<sup>2</sup>).

The FMS test was applied to the athletes first, and performance tests were applied 1 day after. The athletes were prepared for performance tests with a 20-minute coordinationbased warm-up. Five minutes rest was given between the tests.

Standing long jump: This was measured using a steel meter on a non-slip floor. The measurement was made by measuring the distance between the starting point and the heel of the soccer player at the place where they fell.

During the test, the arms of the soccer players had to be behind their body, the knees had to be bent and the body leaning slightly forward. The best score of three trials was recorded (Reiman and Manske, 2009:193-201).

Agility: The pro-agility test was performed. Photocell (Newtest Powertimer 300) was used to measure the duration. In the test, a single photocell was used. The athlete started the test by running to the right from the midpoint of the 10-meter field, then to the left, and again to the starting point to end the test. The same procedure was repeated by starting to the left and the best time was recorded in seconds (Harman and Garhammer, 2008: 249-292).

Speed: The athlete started the test with a command from the test manager from the starting line, which was 50 cm behind the starting photocell. The measurements were made with photocells located at 10-20 and 30th meters of the 30-m running distance. Two measurements were taken and five minutes of rest



was given between the two measurements. The best time was recorded.

Endurance: Endurance was determined by using the Yo-Yo Intermittent Recovery Test (Yo-Yo IR1). This is an endurance test that gradually increases the running speed according to the signal tone coming from the signal device that starts with 10 km running speed in a 2x20 m area. After every 40 m of running, there is an active recovery area of 2x5 m for 10 seconds. The test was terminated when the person missed three beeps or when the athlete runs out (Krustrup et al., 2003:697-705).

Functional Movement Screen: The FMS consists of 7 movement tests and 3 control tests.

Movement Tests:

Deep squat, hurdle step, in-line lunge, shoulder mobility, active straight leg raise, trunk stability push up, rotary stability.

Clearing Tests:

Impingement clearing test, press-up clearing test, posterior rocking clearing test (Cook et al. 2014:396-409).

The athletes were scored 0-3, the highest score was recorded after 3 attempts.

The statistical analysis of the study was made with the SPSS 21.0 program, the independent t-test between groups, and the performance correlation with FMS scores was performed using Pearson's correlation analysis.

## RESULTS

## Table 1. Descriptive Characteristics of the Soccer Players, Average and Standard Devia-tions of Performance Tests, and FMS Scores

Parameters	n	Mean	Standard Deviation
Age (years)	92	15.55	1.598
Height (cm)	92	171.18	17.66
Bodyweight (kg)	92	62.38	9.77
BMI (kg/m <sup>2</sup> )	92	20.841	2.822
Long Jump (cm)	92	222.86	13.28
YO-YO (m)	81	1834.57	510.09





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Agility (s)	88	5.191	0.187
Sprint 10m (s)	87	1.86	0.072
Sprint 20m (s)	87	3.270	0.116
Sprint 30m (s)	87	4.598	0.179
Deep Squat (point)	84	1.68	0.604
Hurdle (point)	86	1.90	0.509
Lunge (point)	86	2.01	0.542
Shoulder Mobility (point)	86	2.57	0.678
Leg Raise (point)	86	1.95	0.667
Stability Push Up (point)	86	2.36	0.944
Rotary Stability (point)	86	1.97	0.471
Total FMS (point)	84	14.40	2.2

Table 1. shows the descriptive characteristics of the soccer players, the average and standard deviations of performance components, and FMS scores. The average long jump of the players was 222.86 cm, the endurance average was 1834.57 m, the average agility was 5.191 sec, and the average 10-m, 20-m, and 30-m sprint was 1.86 sec, 3.27 sec, 4.59 sec, respectively. The average total FMS score of the soccer players was determined as 14.40. When the FMS scores were examined, the average deep squat was 1.68, the average hurdle step was 1.9, the mean lunge was 2.01, the average shoulder mobility was 2.57, the average leg raise was 1.95, the average push up was 2.36, and the average stability was 1.97.



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## Table 2. Effect of Asymmetry on Performance in FMS Test

Parameters	Asymmetry	n	Mean	Standard Deviation	t	р
Long Jump (cm)	Yes	57	220.86	12.98	-1.867	.065
	No	35	226.11	13.31		
Yo-Yo (m)	Yes	55	1878.55	484.79	1.131	.262
	No	26	1741.54	558.31		
Agility (s)	Yes	54	5.181	0.189	-0.579	.564
	No	34	5.21	0.186		
Sprint 10m (s)	Yes	54	1.86	0.071	-0.803	.424
	No	33	1.87	0.074		
Sprint 20m (s)	Yes	54	3.26	0.112	-0.623	.535
	No	33	3.28	0.123		
Sprint 30m (s)	Yes	54	4.59	0.174	-0.466	.643
	No	33	4.61	0.188		

When the effect of asymmetry on performance was examined according to the FMS test in Table 2, it was seen that there was no significant effect of asymmetry (p > .05). When we examined for any asymmetry in the FMS test, we found that 57 (61.96%) soccer players had asymmetry and 35 (38.04%) had no asymmetry.



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## Table 3. Relationship Between Athlete's FMS Scores and Performance Parameters

Parameters		Long Jump	Endurance	Agility	Sprint 10m.	Sprint 20m.	Sprint 30m.
Deep Squat	r	016	.070	103	.091	.078	.087
	р	.885	.542	.365	.426	.499	.447
Hurdle Step	r	.154	047	019	.112	.100	.102
	р	.162	.678	.868	.324	.379	.366
In-Line Lunge	r	003	.069	044	032	082	068
	р	.976	.542	.696	.776	.472	.549
Shoulder Mobility	r	-0.035	-0.042	0.084	0.216	0.180	0.177
	р	.751	.707	.453	.055	.110	.116
Active Leg Raise	r	0.075	0.270*	-0.273*	0.146	0.123	0.081
	р	.500	.015	.014	.197	.277	.477
Stability Push Up	r	-0.136	-0.021	0.017	-0.019	-0.031	0.014
	р	.218	.851	.883	.870	.785	.902
Rotary Stability	r	-0.050	0.259*	0.095	0.105	0.090	0.084
	р	.648	.019	.401	.354	.429	.456
FMS Total Score	r	-0.013	0.125	-0.074	0.167	0.131	0.145
	р	.904	.273	.516	.143	.253	.205



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When the relationship between FMS scores and performance parameters of athletes was examined in Table 3, it was determined that there was a relation between the Yo-Yo test and active straight leg raise (p < .05) (r= 0.270). The relationship between the Yo-Yo test and the rotary stability was also found as significant (p < .05) (r= 0.259).

The relationship between the agility test and active straight leg raise was found as significant (p < .05) (r= -0.273). The other parameters seemed to be unrelated.

## DISCUSSION

Although the result of a successful soccer match is mostly determined by the level of technique and tactics, the ability to move with high athletic performance contributes to elite performance (Mohr et al., 2008:341-349). Soccer requires a high level of athletic performance for success (Stolen et al., 2005:501-536).

In our study, the average long jump of the players was 222.86 cm, the average endurance was 1834.57 m, the average agility was 5.191 sec, and the average 10-m, 20-m, and 30-m sprints were 1.86 sec, 3.27 sec, and 4.59 sec, respectively.

Soccer players usually run between 10 and 12 km during matches; 25% of this distance is walking, 37% is slow running, 20% is sub-

maximal movements, 11% is sprint, and 7% is backward running. These data show that the aerobic energy system is used predominantly in soccer and that the anaerobic energy system is also used (Bangsbo et al., 2006:665-674).

Physical changes associated with training cause different physical changes in each age group. It has been reported that the results of regular training in amateur and adolescent athletes lead to greater improvement than in high-level athletes (Ateş and Ateşoğlu., 2007:21).

Movements in soccer are performed with recovery in short periods of time (Mohr et al., 2005:593-599). It is necessary for soccer players to develop endurance in order to maintain performance during competition (Helgerud et al., 2001:1925-1931).

Elite 14-year-old soccer player's YO-YO IRT 1 durability test average was 2200 m (Bangsbo and Mohr, 2012:28). In our study, the results show that the soccer players we tested were below the elite level.

In the present study, 92 young soccer players were evaluated by scoring seven different movement patterns of FMS. The total FMS scores of the soccer players was determined as 14.40. When the FMS scores were examined, the average deep squat was 1.68, the average hurdle step was 1.9, the average in-line



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lunge was 2.01, the average shoulder mobility was 2.57, the average active straight leg raise was 1.95, the average stability push up was 2.36, and the average of the rotary stability was 1.97.

When the asymmetry effect according to the FMS test was examined, it was seen that there was no significant effect of asymmetry (p > .05).

When any asymmetry score was examined in the FMS test, 57 (61.96%) soccer players had asymmetry and 35 (38.04%) had no asymmetry.

If any FMS movement score is below 2 points, or if the total score is below 14 points, or if right and left body asymmetry occurs, the injury risk rate increases (Chorba, 2010:47-54). In our study group, the percentage of athletes with at least one asymmetry was 61%, and the total FMS scores of the athletes were 14 and above, which was sufficient for the movement screening score. Our athletes' average deep squat, hurdle step, active straight leg raise, and rotary stability patterns were below 2 points. This indicates that the risk of injury is high.

When the relationship between the FMS scores and the performance parameters of the athletes was examined, it was found that there was a relationship between the YO-YO test and active straight leg raise (p < .05) (r=

0.270), YO-YO test, and rotary stability (p < .05) (r= 0.259).

A significant relationship was found between the agility test and active straight leg raise (p < .05) (r= -0.273). The other parameters seemed to be unrelated.

Studies that suggested that functional movement screening was not related to athletic performance (Parchmann et al., 2011:3378-3384) are contrary to our findings. In our study, although not all the performance parameters were related to the motion analysis, it was found that endurance and agility were related to the movement analysis.

### REFERENCES

- AGRESTA, C., SLOBODINSKY, M., TUCKER, C., (2014). Functional Movement Screen – Normative Values in Healthy Distance Runners. Int J Sports Med, 35(14):1203-1207
- ATEŞ, M., ATEŞOĞLU, U., (2007). Pliometrik Antrenmanın 16-18 Yaş Grubu Erkek Futbolcuların Üst ve Alt Ekstremite Kuvvet Parametreleri Üzerine Etkisi. Spormetre Beden Eğitimi ve Spor Bilimleri Dergisi, (1): 21-28
- BANGSBO, J., MOHR, M., (2012). Fitness Testing in Football. Bangsbosport, ss.27



(TRADEMARK)

(2015/04315- 2015-GE-18972)

## BANGSBO, J., MOHR, M., KRUSTRUP, P.,

*(2006).* Physical and Metabolic Demands of Training and Match-Play in The Elite Football Player. Journal of sports sciences, 24(07): 665-674.

- BARDENETT, S.M., MICCA, J.J., DENOY-ELLES, J.T., MILLER, S.D., JENK,
  D.T., BROOKS, G.S., (2015). Functional Movement Screen Normative Values and Validity in High School Athletes: Can The FMS<sup>™</sup> Be Used as A Predictor of Injury? Int J Sports Phys Ther, 10(3):303-308
- BODDEN, J.G., NEEDHAM, R.A., CHOCKALINGAM, N., (2015). The Effect of an Intervention Program on Functional Movement Screen Test Scores in Mixed Martial Arts Athletes. The Journal of Strength and Conditioning Research, 29(1): 219-225
- CHORBA, R.S., CHORBA, D.J., BOUIL-LON, L.E, OVERMYER, C.A., LAN-DIS, J.A., (2010). Use of a Functional Movement Screening Tool to Determine Injury Risk in Female Collegiate Athletes. N Am J Sports Phys Ther, 5(2): 47-54
- COOK, G., BURTON, L., HOOGENBOOM, B.J., VOİGHT, M., (2014). Functional Movement Screening: The Use of Fundamental Movements as An Assessment of

Function - Part 1. Int J Sports Phys Ther. 9(3):396-409

- ENOKSEN, E., TONNESSEN, E.,
  SHALFAWİ, S., (2009). Validity and
  Reliability of the Newtest Powertimer
  300-Series Testing System. Journal of
  Sports Sciences, 26(4): 77-84
- HARMAN, E., GARHAMMER, J., (2008). Administration, Scoring and Interpretation of Selected Tests. In: Baechle Tr, Earle R. W., Eds. Essentials of Strength and Conditioning. Champaign, Il: Human Kinetics, ss. 249–292
- HELGERUD, J., ENGEN, L.C., WISL-OFF, U, AND HOFF, J., (2001). Aerobic Endurance Training Improves Soccer Performance. Med Sci Sports Exerc 33: 1925–1931
- KAZMAN, J.B., GALECKI, J.M., LISMAN,
  P., DEUSTER, P.A., O'CONNOR, F.G.,
  (2014). Factor Structure of the Functional Movement Screen in Marine Officer Candidates. Journal of Strength and Conditioning Research, 28: 672–678
- KIESEL, K., PLISKY, P.J., VOIGHT, M.L., (2007). Can Serious Injury in Professional Football Be Predicted by A Preseason Functional Movement Screen? N Am J Sports Phys Ther. 2(3):147-158



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(TRADEMARK)

(2015/04315-2015-GE-18972)

- KRUSTRUP, P., MOHR, M., AMSTRUP,
  T., RYSGAARD, T., JOHANSEN, J.,
  STEENSBERG, A., BANGSBO, J.,
  (2003). The Yo-Yo Intermittent Recovery
  Test: Physiological Response, Reliability, and Validity. Medicine and Science in
  Sports and Exercise, 35(4): 697-705
- LI, Y., WANG, X., CHEN, X., DAI, B., (2015). Exploratory Factor Analysis of the Functional Movement Screen in Elite Athletes. J Sports Sci. 33(11):1166-1172
- LOUDON, J.K., PARKERSON-MİTCHELL, A.J., HİLDEBRAND, L.D., TEAGUE, C., (2014). Functional Movement Screen Scores in a Group of Running Athletes. Journal of Strength and Conditioning Research, 28: 909–913
- MARQUES, V.B., MEDEIROS, T.M., DE SOUZA STIGGER, F., NAKAMURA, F.Y, BARONI, B.M, (2017). The Functional Movement Screen (FMS<sup>™</sup>) in Elite Young Soccer Players Between 14 And 20 Years: Composite Score, Individual-Test Scores and Asymmetries. Int J Sports Phys Ther. 12(6):977-985
- MEEUWİSSE, W.H., FOWLER. P.J., (1988), Frequency and Predictability of Sports Injuries in Intercollegiate Athletes. Can J Sport Sci., 13(1):35-42

- *METZL, J.D., (2000).* The Adolescent Pre-Participation Physical Examination: is it Helpful? Clin Sports Med, 19(4):577-592
- MOHR, M., KRUSTRUP, P., AND BANGS-BO, J., (2005). Fatigue in Soccer: A Brief Review. J Sport Sci, 23: 593–599
- MOHR, M., KRUSTRUP, P., ANDERSSON,
  H., KIRKENDAL, D., AND BANGSBO, J., (2008). Match Activities of Elite
  Women Soccer Players at Different Performance Levels. J Strength Cond Res, 22: 341–349
- MOKHA, M., SPRAGUE, P.A., GATENS, D.R., (2016). Predicting Musculoskeletal Injury in National Collegiate Athletic Association Division II Athletes From Asymmetries and Individual-Test Versus Composite Functional Movement Screen Scores. J Athl Train, 51(4):276-282
- MORAN, R.W., SCHNEIDERS, A.G, MA-JOR, K.M., SULLIVAN, S.J., (2016). How Reliable are Functional Movement Screening Scores. A Systematic Review of Rater Reliability. Br J Sports Med, 50(9):527-536
- *PARCHMANN, C.J., MCBRİDE, J. M.,* (2011). Relationship Between Functional Movement Screen and Athletic Performance. The Journal of Strength and Conditioning Research, 25(12): 3378-3384









SSTB www.sstbdergisi.com International Refereed Academic Journal of Sports, Health and Medical Sciences January - February - March Issue 26 Winter Year: 2018 ID:370 K:424 ISSN Print: 2146-8508 Online 2147-1711 (ISO 18001-OH-0090-13001706 / ISO 14001-EM-0090-13001706 / ISO 9001-QM-0090-13001706 / ISO 10002-CM-0090-13001706) (TRADEMARK)

(2015/04315- 2015-GE-18972)

- PARENTEAU-G, E., GAUDREAULT, N., CHAMBERS, S., BOISVERT, C., GRE-NIER, A., GAGNE, G., BALG, F., (2014). Functional Movement Screen Test: a Reliable Screening Test for Young Elite Ice Hockey Players. Physical Therapy in Sport, 15: 169–175
- *REIMAN, R.P., MANSKE, R.C., (2009).* Functional Testing in Human Performance. Human Kinetics, ss. 193-201
- SCHNEIDERS, A.G., DAVIDSSON, A., HORMAN, E., SULLIVAN, S.J., (2011). Functional Movement Screen Normative Values in A Young, Active Population. International Journal of Sports Physical Therapy, (6): 75–82

- STOLEN, T., CHAMARI, K., CASTAGNA, C., AND WISLOFF, U., (2005). Physiology of Soccer: An Update. Sports Med, 35: 501–536
- TEYHEN, D.S., RIEBEL, M.A., MCAR-THUR, D.R., SAVINI, M., JONES, M.J., GOFFAR, S.L., PLISKY, P.J., (2014). Normative Data and The Influence of Age and Gender on Power, Balance, Flexibility, and Functional Movement in Healthy Service Members. Military Medicine, 179(4): 413-420
- WARREN, M., SMITH, C.A., CHIMERA, N.J., (2015). Association of The Functional Movement Screen with Injuries in Division I Athletes. Journal of Sport Rehabilitation, 24(2): 163-170



INTERNATIONAL REFEREED ACADEMIC JOURNAL OF SPORTS, HEALTH AND MEDICAL SCIENCES

## AN INVESTIGATION OF THE RELATIONSHIP BETWEEN ISOKINETIC STRENGTH OF KNEE FLEXOR AND EXTENSOR MUSCLES AND VERTICAL JUMP PERFORMANCE IN ELITE MALE VOLLEYBALL PLAYERS <sup>1</sup>

## ELİT ERKEK VOLEYBOL SPORCULARINDA DİZ FLEKSÖR VE EKSTANSÖR KASLARININ İZOKİNETİK KAS KUVVETİ İLE SIÇRAMA PERFORMANSI ARASINDAKİ İLİŞKİNİN İNCELENMESİ

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Öz: Amaç: Araştırmanın amacım, elit erkek voleybolcuların diz fleksör ve ekslansör kaslarının izəkinetik kas kuvveti ile saçrama performansı arasındaki ilişkiyi belirlemek oluşturmaktadır. Yöntem: Araştırmaya 28 elit erkek voleybolcu (Xyaşer 7,56:1,94 yıl) dahi edildi. Sporeuların aşınat ve aktif dikey sıçrama yütseklikleri optojump98 cihazı kullanlarık elde edildi. Aynı zamanda Voleybolcuların diz eklemi fleksör ve ekslansör kaslarının izəkinetik kas kuvveti ile sonsatırık ve eksantırık lor eksantıra ölçüldu. Değişkenler arasındaki ilışkiyi incelemek amacıyla; Pearson korelasyon analizi kullanıldı. Aralarında ilişki oldügu belirlenen parametrelerden bağımsız değişenlerin, bağımıd değişkenleri yordana düzeylerini belirlemek amacıyla regresyon analizi vuyulandı. Bulçular: Uygulanan regresyon analizi sonuçlarına göre, kuadıriseps kasısı qüskekliğindeki değişimin ise %60'm ekklemektedir. Hamstring kası, squat sıçrama yüksekliğindeki değişimin ise %60'm eldile sonsantır kası eksantır kası kuvvetinin squat sıçrama yüksekliğindeki değişimin sış %60'm eldilemektedir. Hamstring kası, squat sıçrama yüksekliğindeki değişimin ise %60'm eldilemektedir. Bununla birlikte segmental analizler kullanıldığında, sol taraf kuardıceş kasının 60'ma hızdaki konsantırik kas kuvvetinin squat sışrama ve aktif sıçrama performansını zayıf düzeyde pozitif yönde etkilediği ve kuadriceps kasının 60'ma hızdaki konsantırik kas kuvvetinin şuat sıçrama ve aktif sıçrama performansını artını daşışı aşışı aşışı akış kaşırına terkilediği belirlendi. Sonu: Çalışınamız sonucında, kuadriceps ve hamstring kasının 180'/sın hızdaki konsantırik kas kuvvetinin şuat sıçrama ve aktif sışrama performansını artını daşışı kaşışı kaşırı aşışıra kekliği belirlendi. Sonu: Çalışınamız sonucunda, kuadriceps ve hamstring kasının 180'/sın aşışal hızdaki konsantırik ve eksantırik kas kuvvetinin quat sıçrama şeraşış daşıra tekliediği belirlendi. Şıştıranı şaşış hızdaki konsantırik ve eksantırik kas kuvvetini şuşut sıçrama şerektiğin didişünmekteyiz.

Anahtar Kelimeler: Voleybol, Sıçrama, Kas Kuvveti, İzokinetik

Abstract: Aim: The purpose of the sludy is to determine the relationship between the isokinetic strength of the knee flexor and extensor muscles and vertical jump performance. Method: 28 clite male volleybull players (Xage 17,56 ± 1,94 years) were included in the sludy. Squat and countermovement jump heights of the athletes were obtained using the OptoJump8 device. At the same inne, the isokinetic muscle strength of predicting dependent variables of the indevelopball players (Xage indevelopball players) (Xage indevelopball players) was used in order to determine the levels of predicting dependent variables of the independent variables which were determined to be correlated with each other. **Results**: According to the regression analysis result, quadriceps muscle strength of the change in squat jump height and 59% of the change in active jump height. Hamstring muscle affects 56% of the change in squat jump height and countermovement jump performance positively on the weak level. The concentric destrength of quadriceps muscle at 00% see affected squat jump and countermovement jump performance at 180% cangular velocity affected moderately positively the squat jump and countermovement jump Derformance. At the same time, the right side cecentric contraction of the hamstring muscle at 60° / see velocity was found to be results of the study, it was determined that the concentric and cecentric muscle strength of the legued recentric muscle strength of the legued recentric muscle strength of the legued recentric muscle strength of the squat at 100% see when we level. The results of the study, it was determined that the concentric and the square the vertical jump performance, we have the square the trength of the legued recentric muscle strength of the legued recentric muscle strength of the legued recentric muscle strength of the square strength of the legued recentric muscle strength of the legued recentric muscle strength of the square strength of the legued recentric muscle strength of the legued recentric muscle s

Key Words: Volleyball, Jump, Muscle Strength, Isokinetic

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## **INTRODUCTION**

Volleyball is one of the most popular sports in the world. In volleyball sports, explosive movements, fast moving, jumping and blocks are often used (Kim and Jeoung, 2016:429-437). Because the volleyball is played over a 2.43 meter high for men, vertical jump performance is particularly important. Volleyball players often make vertical jump during competition or training, during various defensive and offensive variations. Vertical jump height is considered to be an important predictor of many sports' performance which requires action to explosive power (Kenny and Gregory, 2006). Different vertical jump tests such as squat and countermovement jump are used in vertical jump evaluations. The Squat Jump has a mainly concentric working phase. However, in countermovement jump, a large centered eccentric movement is followed by homocentric concentric movement. The height reached in such jumps depends on the strength that the muscles can develop during stimulation (Pupo et al., 2012: 41-51).

This suggests the hypothesis that the concentric and eccentric muscular strength of knee extensors, an important parameter of sports performance of volleyball players, will be related to vertical jump performance. When the literature is examined in this respect; in a study while there were moderate and strong relationships between isokinetic muscle strength of the knee joint and jump performance (Tsiokanos et al. 2002:107-115), low or negligible results were shown in other studies (Alemdaroglu, 2012:149-158; Iossifidou et al., 2005:1121-1127). However, in studies including well-trained, highly competitive athletes in this field, it was observed that the relationship between jump performance and concentric muscle strength of only the quadriceps muscle was generally investigated (Harrison et al., 2013: 175-180; Tsiokanos et al. 2002: 107-115). In the literature, the number of studies that shows a relationship between jump performance and concentric, eccentric muscle strength of quadriceps and hamstring group muscles is very small. Determining the relationship between concentric and eccentric muscle strength of hamstring and quadriceps muscles and jump performance will provide important information for the development of effective training methods and regeneration methods for elite volleyball players.

For this reason, the purpose of this study is to determine the relationship between the concentric and eccentric muscle strength of the quadriceps and hamstring muscles and jump performance of the elite male volleyball players.



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### **METHOD**

### **Research group**

The study included elite volleyball players who came to Turkey Olympic Training Center from September 15 to October 15, 2017. The exclusion criteria for participation in the study were as follows: playing volleyball in the first league less than three years, continuous pain in the lower extremities, having an orthopedic problem in the lower and upper extremities within the last six months, and no volunteering to participate in the study. Four of 32 players included in the study at the beginning were excluded from the study because of having the exclusion criteria, and so the study was completed with 28 elite male volleyball players. In order to do the research, ethical committee approval was provided from Ankara Yıldırım Beyazıt University Social and Human Sciences Ethics Committee [642 (13.09.2017 / 15)] and before starting to work, the athletes were informed about the purpose, process, and activity of the study and written consent was obtained from volunteers based on volunteerism. The jump performance test and each isokinetic strength test were evaluated on different days after the players' dates of birth, body weights and heights were recorded.

The descriptive statistical results of the age, body weight, height, fat percentage, fat weight and lean body mass values of the players are given in table 1.

Table 1. Descriptive Statistic	al Results of the Age	, Body Weight, Heigl	ht, Fat Percentage,
Fat Weight	and Lean Body Mass	s Values of the Playe	rs

Descriptive Statistics (n = 28)	Age (years)	Body We- ight (kg)	Height (cm)	Fat %	Body mass (kg)	Lean Mass (kg)	Sport Age (vear)
Average	17,56	83,56	192,96	12,42	10,58	72,98	6,43
Standard deviation	1,94	10,63	6,36	3,18	3,81	7,94	1,21

## Evaluation

The strength of knee flexors and extensor muscles of volleyball players was assessed with an Isomed 2000® isokinetic dynamometer (Ferstl, Germany). Before the test, the athletes were asked to run slowly (jogging) for 10 minutes. Tests were applied in sitting position. The athletes were stabilized over the shoulders with device's shoulder pad, over the waist and distal femur with stabilization bands. The lateral condyle of femur was adjusted to be a pivot point. During the tests, the athletes were verbally encouraged. The strength of knee flexor and extender muscles









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was evaluated as being concentric and eccentric at 60 °/sec and 180 °/sec. At the end of the evaluation, peak torque (PT) values were obtained for knee extensor muscles at 60 °/sec and 180 °/sec. (Alemdaroglu, 2012:149–158; Soslu et al., 2016:164-173). In the evaluation protocol, knee flexion-extension movement: eccentric-concentric (quadriceps femoris muscle); knee flexion-extension movement: concentric-eccentric (hamstring muscles) were evaluated. During the evaluation, 3 repetitively warming and comprehension movements were performed before every velocity. The tests were then carried out at 60 °/ sec and 180 °/sec angular velocities.

With the jump performance test, the players's jump height was measured. The players' jump performance tests were measured with the Opto JumpÒ Tester in the following protocols and the obtained results were recorded by the Opto JumpÒ device. The players were tested in turn after 15-minute personal warm-up periods. The Jump Performance tests were performed on two different protocols (squat and countermovement).

The squat jump test was applied in the form of a full jump in the upward direction when the knees were at  $90^{\circ}$  flexor and the hands were in the belly (Sattler et al., 2012:1532-1538).

The countermovement jump test was performed by quickly squatting and then suddenly jumping vertically while the knees were fully in the extension and in the upright position. (Sattler et al, 2012: 1532-1538).

## Statistical analysis

Statistics of the study were made using the SPSS 21 package program. Visual (histogram, probability plots) and analytical method (Kolmogorov-Smirnov test) were used to identify whether the variables were normally distributed. It was determined that all variables showed normal distribution. In order to examine the relation between variables, Pearson correlation analysis was used. To determine the levels to predict the dependent variables of independent variables from parameters which were correlated with each other, regression analysis was used. Statistical error level was determined as p < 0.05.

### FINDINGS

The mean and standard deviation values belongs to right and left quadriceps (Q) and hamstring (H) values of the study group are given in Table 2.



## Table 2. The Mean and Standard Deviation Values Belongs to the Right and Left Quadriceps (Q) and Hamstring (H) Values of the Study Group

Variables	Mean	SD	Variables	Mean	SD
Right Q Ecc PT 60°/sn (Nm)	255,49	90,02	Right H Con PT 60°/sn (Nm)	130,62	27,91
Right Q Con PT 60°/sn (Nm)	264,47	62,21	Right H Ecc PT 60°/sn (Nm)	154,95	40,54
Left Q Ecc PT 60°/sn (Nm)	263,92	79,92	Left H Con PT 60°/sn (Nm)	121,62	30,17
Left Q Con PT 60°/sn (Nm)	259,99	53,96	Left Ecc PT 60°/sn (Nm)	149,97	41,60
Right Q Ecc PT 180°/sn (Nm)	268,10	70,46	Right H Con PT 180°/sn (Nm)	133,06	35,16
Right Q Con PT 180°/sn (Nm)	243,13	48,50	Right H Ecc PT 180°/sn (Nm)	153,93	44,64
Left Q Ecc PT 180°/sn (Nm)	267,88	91,83	Left H Con PT 180°/sn (Nm)	134,45	32,56
Left Q Con PT 180°/sn (Nm)	234,46	49,24	Left H Ecc PT 180°/sn (Nm)	153,28	40,52
Squat jumping (cm)	33,82	5,86	Squat jumping (cm)	35,47	5,66

Ecc: Eccentric; Con: Concentric; PT: Peak Tork.

The regression analysis results related to being evaluated of concentric and eccentric

muscle strength values of the right and left quadriceps muscles at 60-180 °/sec angular velocities of squat jump applied to the research group are given in table 3.



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Table 3. Regression Analysis Results on the Rediction of Squat Jump Skill Applied to
Volleyball Players

Variable	В	Standard error	β	Т	р	Relation r	Partial r
Constant	18,507	6,457		2,866	,012		
Right Q ECC PT 60	,035	,032	,537	1,107	,286	,119	,275
Right Q CON PT 60	-,044	,049	-,466	-,900	,382	,307	-,226
Left Q ECC PT 60	-,095	,049	-1,301	-1,948	,070	,158	-,449
Left Q CON PT 60	,059	,058	,547	1,026	,321	,374*	,256
Right Q ECC PT 180	,027	,032	,328	,863	,160	,402*	,217
Right Q CON PT 180	,067	,045	,552	1,473	,161	,531*	,355
Left Q ECC PT 180	,048	,028	,744	1,715	,107	,417*	,405
Left Q CON PT 180	,026	,043	,219	,611	,550	,628*	,156
R=,780	R <sup>2</sup> =,608						
F <sub>(8-15)</sub> =2,907	P=,036						

Ecc: Eccentric; Con: Concentric; PT: Peak Tork.

Table 3 shows that the right and left quadriceps muscles' concentric and eccentric muscle strength values at 60-180 °/sec angular velocity have a high and significant relationship with the squat jump (R =, 780, R2 = 608, p <0,05). The variables mentioned together represent about 61% of the variance in the squat jump. According to the standardized regression coefficient ( $\beta$ ), it is seen that the predictive variables have no significant effect on the squat jump. When the relation between the predictor variables and the squat jump and partial correlations were examined, it was found that the left quadriceps muscle at 60 °/sec angular velocity has a low level of correlation with the concentric muscle strength, on the other hand the right and left quadriceps muscles at 180 °/sec angular velocity have moderate and positive correlations with the concentric eccentric muscle strength variables.

Regression analysis results of being coevaluated of concentric and eccentric values of the right and left hamstring muscles at 60-180 °/sec angular velocity of squat jump applied to the research group are given in Table 4.



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## Table 4. Regression Analysis Results on the Prediction of Squat Jump Skill Applied toVolleyball Players

Variable	В	Standard error	β	Т	р	Relation r	Partial r
Constant	27,008	5,266		5,129	,000		
Right H CON PT 60	,087	,080	,414	1,100	,289	,159	,273
Right H ECC PT 60	,170	,059	1,156	2,861	,012	,305*	,594
Left H CON PT 60	,050	,120	,258	,421	,680	,064	,108
Left H ECC PT 60	-,063	,107	-,441	-,588	,566	-,039	-,150
Right H CON PT 180	-,048	,091	-,289	-,532	,603	-,007	-,136
Right H ECC PT 180	-,055	,059	-,409	-,935	,365	-,114	-,235
Left H CON PT 180	-,019	,092	,106	,204	,841	-,081	-,052
Left H ECC PT 180	-,099	,098	-,682	-1,015	,326	-,072	-,254
R=,747	R <sup>2</sup> =,559						
F <sub>(8-15)</sub> =2,373	P=,041						

Ecc: Eccentric; Con: Concentric; PT: Peak Tork.

Table 4 shows that the concentric and eccentric muscle strength values of the right and left hamstring muscles at 60-180 °/sec angular velocity give a high and significant relationship with the squat jump (R =, 747, R2 = 559, p <0,05). The variables mentioned together represent about 56% of the variance in the squat jump. According to the standardized regression coefficient ( $\beta$ ), the predictive variables were found to be a significant predictor of the eccentric muscle strength variable of right hamstring muscle at only 60 °/sec angular velocity on squat jump. Other variables appear to have no significant effect. When the relation between the predictor variables and the squat jump and partial correlations are examined, At 60 °/sec angular velocity, the right hamstring muscle was found to have a low and positive relationship with eccentric muscle strength change.

Regression analysis results of being coevaluated of concentric and eccentric muscle strength values of the right and left quadriceps muscles at 60-180 °/sec angular velocity applied to the study group are given in Table 5.



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## Table 5. Regression Analysis Results on the Prediction of Countermovement Jump Skill Applied to Volleyball Players

Variable	В	Standard error	β	Т	Р	Relation r	Partial r
Constant	18,011	6,313		2,853	,012		
Right Q ECC PT 60	,023	,031	,372	,758	,460	,146	,192
Right Q CON PT 60	-,044	,048	-,481	-,918	,373	,280	-,231
Left Q ECC PT 60	-,059	,048	-,833	-1,233	,237	,280	-,303
Left Q CON PT 60	,052	,057	,492	,913	,376	,465*	,230
Right Q ECC PT 180	,027	,031	-,336	,873	,204	,396*	,220
Right Q CON PT 180	,074	,044	,631	1,666	,117	,569*	,395
Left Q ECC PT 180	,030	,027	,488	1,112	,284	,470*	,276
Left Q CON PT 180	,028	,042	,239	,660	,519	,684*	,168
R=,774	R <sup>2</sup> =,599						
F <sub>(8-15)</sub> =2,798	P=,041						

Ecc: Eccentric; Con: Concentric; PT: Peak Tork.

Table 5 shows that the concentric and eccentric muscle strength values of the right and left quadriceps muscles at 60-180 °/sec angular velocity have a high and meaningful relationship with countermovement jump (R =, 774, R2 =, 599, p <0,05). The variables mentioned together represent about 60% of the variance in the countermovement jump. According to the standardized regression coefficient ( $\beta$ ), it is seen that the predictive variables have no significant effect on the countermovement jump. When the relation between the predictor variables and the squat jump and partial correlations were examined, it was determined that the left quadriceps muscle at 60 °/sec angular velocity has a low relationship with the concentric muscle strength, and also the right and left quadriceps muscles at 180 °/sec angular velocity have moderate and positive reletionships with the concentric eccentric muscle strength variables.

Regression analysis results of being coevaluated of concentric and eccentric muscle strength values of the right and left quadriceps muscles at 60-180 °/sec angular velocity (Xort =  $35.48 \pm 5.66$  cm) of the countermovement jump skill applied to the study group are given in Table 6.



(2015/04315- 2015-GE-18972)

## Table 6. Regression Analysis Results on the Prediction of Countermovement Jump Skill Applied to Volleyball Players

Variable	В	Standard error	β	Т	р	Relation r	Partial r
Constant	29,210	4,905		5,956	,000		
Right H CON PT 60	,064	,074	,313	,863	,402	,136	,217
Right H ECC PT 60	,156	,055	1,094	2,808	,013	,318*	,587
Left H CON PT 60	,071	,112	,378	,639	,532	,143	,163
Left H ECC PT 60	-,011	,100	-,077	-,106	,917	,023	-,027
Right H CON PT 180	-,020	,085	-,123	-,234	,818	,028	-,060
Right H ECC PT 180	-,094	,055	-,724	-1,717	,107	-,148	-,405
Left I H CON PT 180	,005	,085	,027	,054	,958	,127	,014
Left H ECC PT 180	-,109	,091	-,774	-1,195	,250	-,052	-,295
R=,768	R <sup>2</sup> =,590						
F <sub>(8-15)</sub> =2,699	P=,046						

Ecc: Eccentric; Con: Concentric; PT: Peak Tork.

Table 5 shows that the concentric and eccentric muscle strenth values of the right and left hamstring muscles at 60-180 °/sec angular velocity have a high and significant relationship with countermovement jump (R =, 768, R2 = 590, p <0,05). The variables mentioned together represent about 59% of the variance in the contermovement jump. According to the standardized regression coefficient ( $\beta$ ), the predictive variables are an important predictor of the eccentric muscle strength variable of the right hamstring muscle at 60 °/ sec angular velocity on the countermovement jump. Other variables do not seem to have a significant effect. When the relation between the predictor variables and the countermovement jump and partial correlations were examined, it was determined that the right hamstring muscle at 60 °/sec angular velocity has a low level of positive relationship with the eccentric muscle strength variables.

## DISCUSSION

Volleyball is one of the most popular sports in the world. Jump is one of the most used movements in the volleyball game. It is reported that muscle strength is among the factors affecting the jump movement (Magalhaes et









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al., 2004: 119-125; Voelzke et al., 2012: 457-462). The purpose of this article is to determine the independent muscular variables that predict the vertical jump performance in elite male volleyball players. In elite male vollayball players, a simple linear regression analysis was used to estimate the effect on different contraction types (concentric, eccentric) of two different muscles (quadriceps, hamstring) and vertical jump height at different angular velocities (60 and 180 °/sec). According to the observed regression values, quadriceps and hamstring muscles have over 50% effect on the changes in squat and countermovement jump heights. However, when segmental analyzes are used, it was determined that the quadriceps muscle affected the squat and countermovement jump performance of the concentric and eccentric muscle strength at 180 °/sec angular velocity moderately and positively.

Vertical jump movements are closely related to the explosive power and anaerobic capacity of the leg extender muscles (Harrison et al., 2013: 175-180; Tsiokanos et al., 2002: 107-115; Rousanoglou et al., 2008; 22(4):1375-1378). In the literature, it is reported that jump performance can be influenced by many factors such as age, training status, muscle strength, anthropometric properties and jumping debth (Sheppard et al., 2008: 758-765; Malliou et al., 2003: 165-169). At the same time there are studies showing that jump height is related to the concentric muscle strength of the knee extensors (Rouis et al., 2015: 1-2), and vertical jump increases as a result of the lower extremity muscle strength training (Voelzke et al., 2012: 457-462).

When the jump activity is examined in terms of the activity of the quadriceps muscle, it is seen that the squat jump movement occurs with the concentric explosive power of the quadriceps muscle followed by eccentric quadriceps contraction during the landing (Sattler et al., 2012: 1532-1538). In the case of countermovement jump, a concentric contraction follows the eccentric contraction of the quadriceps muscle. In this context, it is reasonable to hypothesize that the jump performance is related to both the concentric and eccentric muscle strength of the quadriceps muscle. As a matter of fact, our study results support this hypothesis. In the literature, in parallel with these results there are studies showing the relation between jump performance and lower extremity muscle strength (Tsiokanos et al., 2002: 107-115; Paasuke et al., 2001: 354-361).

When the jump performance is examined in terms of activity of the hamstring muscle, it is detected that the jump movement occurs as a result of contracting effectively and generating force of the flexor and extensor muscles in the thigh. In the literature, although there



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have been several studies showing that knee extensor muscles affect jump performance (Rouis et al. 2001: 354-361; De Ruiter et al., 2006: 1843-1852), there are very few studies (Sattler et al., 2012:1532-1538) examining the relation with jump performance of the knee flexors (De Ruiter et al., 2006:1843-1852), which are also hip extansor muscles. Knee flexors are important not only for standing up from squatting position but also for balancing and protecting posture during taking off after jumping and landing (De Ruiter et al., 2006: 1843-1852).

In the study of Sattler et al. showing similar features with our work, in female volleyball players, the flexor and extensor muscles of the knee joint in the lower extremity were found to be an important determinant of the jump performance of eccentric and concentric strength (Sattler et al., 2012: 1532-1538). Similarly, in our study, it was determined that the isokinetic muscle strength of the quadriceps muscle was highly correlated with the squat and countermovement jump test, and that the isokinetic muscle strength of the quadriceps muscle was a factor influencing the countermovement jump by 60%. It was also found that the left quadriceps muscle was related to concentric muscle strength at 60 °/sec angular velocity and the left and right quadriceps muscles were correlated with concentric and eccentric muscle strength in the moderate

range and positive direction at 180 °/sec angular velocity. In parallel with this situation, it was determined that the isokinetic muscle strength of the hamstring muscle group was highly correlated with the countermovement jump test and the isokinetic muscle strength of this muscle group was a factor that affected the squat jump by 56% and countermovement jump by 59%. According to the standardized regression coefficient ( $\beta$ ), the predictive variables were found to be a significant predictor of the eccentric muscle strength variable at the only right hand hamstring muscle on the countermovement jump 60 °/sec angular velocity. In volleyball players, it was determined that there was a positive weak correlation between the eccentric muscle strength of the right hamstring muscle group and jump height at 60 °/sec angular velocity.

As a result of our work, it was determined that the jump performance was affected by the strength of the quadriceps muscle rather than the strength of the hamstring muscle group, and that the quadriceps muscle was influenced by both eccentric and concentric muscle strength. It was also concluded that the left side quadriceps muscle strength with respect to the right side and the concentric muscle strength of the quadriceps muscle at 180 °/sec angular velocity with respect to 60 °/sec angular velocity are more effective parameters on the jump performance. Our results are si-









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milar to those existing in the literature (De Ruiter et al., 2006:1843-1852; Saliba and Hrysomallis, 2001:336-47; Genuario and Dolgener, 1980:593-8; Gauffin et al., 1989:215-24). We think that this situation was due to the fact that the type of muscle fiber involved during vertical jumping, that is, type IIa fibers that engaged in high-speed movements was also related to being activated at high angular velocities (Gregor et al., 1979: 388-92; Glenmark 1994: 1-47). Indeed, vertical jump performance has a positive correlation with the percentage of type IIA muscle fibers (Glenmark 1994: 1-47).

The limitations of our study are to take only male volleyball players and use two angular velocities. At the same time, that the relationship between conventional and functional ratios and jump performance has not been investigated is another limitation. There is a need for studies which will examine the relationship between muscle strength, jump performance, and muscle strength rates at different angular velocities in both genders including more people and sports branches.

## CONCLUSION

In our study; it was determined that concentric and eccentric muscular strength of quadriceps and hamstring group muscles affected both squat and countermovement jump performance. It was also found that the concentric and eccentric muscular strength of the quadriceps muscle at 180 °/sec angular velocity significantly affected the squat jump and countermovement jump performance. To increase jump performance, we think that the concentric and hamstring muscular strength at 60 °/sec angular velocity of the left quadriceps muscle as well as the concentric and eccentric muscle strength at 180 °/sec angular velocity of the quadriceps muscle on both sides should be increased. Because of that, concentric and eccentric strengthening of the qadricesps muscle at 180 °/sec angular velocity can increase the jump performance.

## REFERENCES

- ALEMDAROGLU, U., (2012). The relationship between muscle strength, anaerobic perfor-mance, agility, sprint ability and vertical jump performance in professionalbasketball players. J Hum Kinet, 31:149–158
- DE RUİTER, C.J., LEEUWEN, D., HEİJB-LOM, A., BOBBERT, M. F., HAAN, A. D., (2006). Fast unilateral isometric knee extension torque development and bilateral jump height. Med Sci Sports Exerc, 38(10):1843-1852
- GAUFFİN, H., EKSTRAND, J., ARNES-SON, L., TROPP, H., (1989). Vertical jump performance in soccer players: a comparative study of two training programs. J Hum Mov Stud,16:215-24









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(2015/04315- 2015-GE-18972)

- GENUARIO, S.E., DOLGENER, F.A., (1980). The Relationship of Isokinetic Torque at Two Speeds to the Vertical Jump. Res Q Exerc Sport, 51:593-8
- *GLENMARK, B., (1994).* Skeletal muscle fibre types, physical performance, physical activity and attitude to physical activity in women and men. A follow-up from age 16 to 27. Acta Physiol Scand Suppl, 623:1-47
- GREGOR, R. J., EDGERTON, V. R., PER-RİNE, J. J., CAMPİON, D. S., DEBUS, C. S., (1979). Torque-velocity relationships and muscle fiber composition in elite female athletes. J Appl Physiol Respir Environ Exerc Physiol, 47:388-92
- HARRİSON, B., FİRTH, W., ROGERS, S., TİPPLE, J., MARSDEN, J, FREEMAN, JENNİFER, A., et all., (2013). The relationship between isokinetic per-formance of hip and knee and jump performance in university rugby players. Isokinet Exerc Sci, 21(2):175–180
- *IOSSIFIDOU, A., BALTZOPOULOS, V., GİAKAS, G., (2005).* Isokinetic knee extension and vertical jumping: are they related? J Sports Sci, 23(10):1121–1127
- *KENNY, B., GREGORY, C., (2006).* Volleyball – step to success. Champaign: Human Kinetics

- *KİM, C.G., JEOUNG, B.J., (2016).* Assessment of isokinetic muscle function in Korea male volleyball athletes. J Exerc Rehabil, 12(5):429-437
- MAGALHAES, J., OLİVEİRA, J., ASCEN-SAO, A., SOARES, J., (2004). Concentric quadriceps and hamstrings isokinetic strength in volleyball and soccer players. J Sports Med Phys Fitness, 44(2):119-125
- MALLÍOU, P., ISPÍRLÍDÍS, I., BENEKA,
  A., TAXÍLDARÍS, K., GODOLÍAS, G.,
  (2003). Vertical jump and knee extensor
  isokinetic performance in professional
  soccer players related to the phase of the
  training period. Isokinet Exerc Sci, 11:
  165-169
- PAASUKE, M., ERELİNE, J., GAPEYEVA, H., (2001). Knee extension strength and vertical jumping performance in nordic combined athletes. J Sports Med Phys Fitness, 41(3):354-361
- PUPO, J.D., DETANİCO, D., SANTOS, S.G.D., (2012). Kinetic parameters as determinants of vertical jump performance. Rev Bras Cineantropom Hum, 14:41–51
- ROUİS, M., COUDRAT, L., JAAFAR, H., FİLLİARD, J. R., VANDEWALLE, H., BARTHELEMY, Y., et all., (2015). Assessment of isokinetic knee strength in elite young female basketball players:









correlation with vertical jump. J Sports Med Phys Fitness, 55:1-2

- ROUSANOGLOU, E.N., GEORGİADİS,
  G.V., BOUDOLOS, K.D., (2008). Muscular strength and jumping performance relationships in young women athletes. J Strength Cond Res, 22(4):1375-1378
- SALİBA, L., HRYSOMALLİS, C., (2001). Isokinetic strength related to jumping but not kicking performance of Australian footballers. J Sci Med Sport, 4:336-47
- SATTLER, T., SEKULİC, D., HADZİC, V., DERVİSEVİC, E., (2012). Vertical jumping tests in volleyball: reliability, validity, and playing-position specifics. J Strength Cond Res, 26(6);1532-1538
- SHEPPARD, J.M., CRONİN, J.B., GAB-BETT, T.J., MCGUİGAN, M. R., ETXE-BARRİA, N., NEWTON, R. U., (2008). Relative importance of strength, power, and anthropometric measures to jump

performance of elite volleyball players. J Strength Cond Res, 22(3);758-765

- SOSLU, R., ÖZKAN, A., GÖKTEPE, M., (2016). The relationship between anaerobic performances, muscle strength, hamstring/quadriceps ratio, agility, sprint ability and vertical jump in Professional basketball players. J Phys Edu Sport Sci, 10(2):164-173
- TSİOKANOS, A., KELLİS, E., JAMURTAS, A., KELLİS, S., (2002). The relationship between jumping per-formance and isokinetic strength of hip and knee extensors and ankle plantar flexors. Isokinet Exerc Sci, 10(2):107–115
- VOELZKE, M., STUTZİG, N., THORHA-UER, H.A., GRANACHER, U., (2012). Promoting lower extremity strength in elite volleyball players: effects of two combined training methods. J Sci Med Sport,15(5):457–462

ULUSLARARASI HAKEMLİ AKADEMİK SPOR SAĞLIK VE TIP BİLİMLERİ DERGİSİ

INTERNATIONAL REFEREED ACADEMIC JOURNAL OF SPORTS, HEALTH AND MEDICAL SCIENCES

## EFFECTS OF INDIVIDUAL COMPETITIVE AND COOPERATIVE TARGET ORIENTATIONS APPLIED IN 2ND LEVEL ELEMENTARY EDUCATION ON STUDENTS' ATTITUDES TOWARDS PHYSICAL EDUCATION AND SPORT CLASSES <sup>1</sup>

## İLKÖĞRETİM 2. KADEMEDE OKUYAN ÖĞRENCİLERE UYGULANAN BİREYSEL REKABETÇİ VE İŞBİRLİKLİ HEDEF YÖNELİMLERİNİN BEDEN EĞİTİMİ DERSLERİNE YÖNELİK TUTUMLARINA ETKİSİ

## Begüm ÜRESİN<sup>1</sup>, Melih BALYAN<sup>2</sup>

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Öz: Amaç: İlköğretim 2. kademede okuyan öğrencilerin beden eğitimi derslerinin planlamasında kullanılan hedef yönelimlerinden, bireysel ve işbirlikli hedef yönelimlerinin öğrencilerin beden eğitimi dersine yönelik tutumlarına etkilerinin belirlenmesidir. Yöntem: Çalışmanın örneklem grubu 7. sınıflarda okuyan 47 ilköğretim 2. Kademe öğrencisi oluşturmuştur. Veri toplama aracı olarak; Demirhan ve Altay (2001) tarafından geliştirilen "Beden Eğitimi ve Spor Dersi Tutum Ölçeği Spora Yönelim Ölçeği" kullanılmıştır. Kullanılacak envanter, çalışma öncesi ve sonrası olmak üzere ön test ve son test şeklinde uygulanmıştır. Ön test uygulandıktan sonra 6 hafta boyunca beden eğitimi dersleri işlenmiştir. İki gruba ayrılan öğrencilerin; birinci grubunda (n = 24) rekabetçi hedef yönelimi ile beden eğitimi dersi işlenirken, ikinci grupta (n = 23) işbirlikli hedef yönelimi ile dersler yapılmıştır. Verilerin analizinde Mann-Whitney U test ve Wilcoxon eşleştirilmiş iki örneklem testi kullanılmıştır. Bulgular: Rekabetçi hedef yönelimi uygulaması yapan grubun ilk test ortalaması ile işbirlikli hedef yönelimi uygulaması yapan grubun ilk testi arasında fark olup olmadığı incelendiğinde, istatistiksel olarak anlamlı fark olmadığı belirlenmiştir. Uygulamalar sonrasında iki grup için elde edilen puan ortalamalarında da fark olmadığı tespit edilmiştir. Bunun yanında, rekabetçi hedef yönelimi uygulaması yapan grubun ilk testi ve son testileri ve işbirlikli hedef yönelimi uygulaması yapan grubun ilk ve son testleri arasında da istatistiksel olarak anlamlı farklılık olmadığı gözlenmiştir. Sonuç: İki farklı hedef yönelimi ile gerçekleştirilen derslerin, öğrencilerin beden eğitimi derslerine yönelik tutumlarını etkilemediği söylenebilir.

Anahtar Kelimeler: Beden Eğitimi Dersi, Yönelim, Tutum

Abstract: Aim: The aim of this project is to determine the effects of individual and cooperative target orientation, which are two orientations used for planning physical education classes for 2nd level elementary school students, on students' attitude towards physical education and sport classes. Method: 47 (7th grade) students participated in this study. "Attitude Toward Physical Education and Sport Lesson" scale was used. The quastionaire was applied as pre-test and post-test. physical education classes were organized during the period of six weeks between pre-test and post-test. The sample group was divided into 2 groups. While physical education class with competitive target orientation was held in the first group (n = 24), physical education class with cooperative target orientation was held in the second group (n = 23). Mann-Whitney U Test and Wilcoxon analyses were used for data analysis. Results: There is no significant difference between the groups in pre-test and post-test. Conclusion: Physical education classes organized with the methods of competitive target orientation and cooperative target orientation do not affect students' attitudes towards physical education and sports lessons.

Key Words: Physical Education Lesson, Orientation, Attitude

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## INTRODUCTION

Education is a broad concept encompassing all individuals. Each individual, from birth to death, is involved in educational processes either willingly or reluctantly. Therefore, education has been a topic of interest which has attracted everyone in all societies for centuries. For this reason, education has been dealt with and defined by many different individuals and circles, both educators and others, with different viewpoints.

In recent years, particularly, the number of studies focusing on sports sciences has been on a rapid rise. Teaching methods have a significant place among issues concerning physical education and sports teaching. "Employing Teaching Methods Effectively", which is one of the most important qualities of a teacher, has been among the leading discussion topics. The fact that physical education and sportive activities do not only relate to the psychomotor domain, but they are also effective on cognitive and affective domains is now emphasized by all related studies. One way to enhance this effect may be the use of different teaching methods and target orientations that develop different domains by physical education teachers and trainers.

In addition to the elements of instruction, it is necessary to use various methods and techniques for teaching activities to attain the desired learning outcomes. The teacher should be able to use different strategies and teaching methods according to the learning styles of students and the features of the topic to be instructed.

In order to maximize learning efficiency, physical education teachers have to determine which target type would be appropriate for a higher number of students. Accurate decisions made concerning the target could make a good-level physical education class possible. Choosing the suitable target is one of the most critical decisions to be made by teachers; however, it turns out to be the most overlooked one.

Two approaches can be used in order to reach the target. These are cooperative and competitive approaches.

Cooperative learning encourages students to discuss, share opinions and as a result to teach each other. Cooperative learning method, which is suggested as a solution for many problems coming up concerning education, generally highlights the ability to think, and high-level learning and is considered as a tool that can allow for grouping abilities, eliminating learning difficulties, getting used to working together with others from different racial, ethnical, religious and class backgrounds and naturalizing each other's presence. Coopera-



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tive learning also prepares students to get into cooperation (Davidson, 1991: 362-365).

In the competitive approach, students are rivals to one another. Negative dependence occurs in cases when one student's or a group of students' reaching the target depends on the others' failure. For example, in a rope jumping competition, this dependence is made clear when deciding on who will jump the rope. While other students are given less opportunity, one student will have the greatest chance. In this case, his/her reaching the target will block other students. A few students will be able to reach the target while others will fail.

The first publication on cooperative learning in Turkey is the study published by Ün in 1987 with the title of "Cooperation or competition in learning?" (As cited in: Açıkgöz, 1992). Many studies have been conducted on target orientations used in education both in Turkey and abroad (Açıkgöz, 1992; Kasap, 2002; Açıkgöz, 1996; Kartaoğlu, 1999; Tonbul, 2001; Johnson et al, 1981).

The effects of cooperative learning in physical education and sport teaching have similarly been studied by many researchers both in Turkey and abroad and new ideas have been put forward on its effects (Grineski, 1993: 32-35; Polvi and Telama, 2000; Barrett, 2000; Dyson ,2001: 264-281; Pehlivan and Alkan, 2002).

Attitude is a mental, emotional and behavioral reaction predisposition which an individual organizes towards himself/herself or any object, social issue or event around himself/herself based on his/her experience, motivation and knowledge (İnceoğlu, 2000). Attitude is a phenomenon which is earned through learning, guides one's behavior and causes bias in the process of decision making. Attitudes are formed as a result of learning process through experience (Tavşancıl, 2002). Attitude consists of three components. These include cognitive, affective and behavioral (observable acts) processes (Ülgen, 1997). Attitudes may strengthen or weaken. Some attitudes strengthen and increase in resistance upon learning, while others may change later. Attitudes that would strengthen or those that would change differ from individual to individual and from society to society. For these properties of attitude, it is a topic that must be studied deeply especially in education and teaching environments where methods and target orientations are effective. Many studies have been carried out in Turkey and abroad in order to discover how an individual can understand the importance of "life-long sport", which is one of the most significant targets in physical education classes in particular (Koçak and Kirazcı, 1997; Balyan,



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2009; Güllü and Korucu , 2007; Hünük, 2006; Şişko and Demirhan, 2002: 9-20; Kangalgil et al, 2004; Young et al, 1996; Chung and Phillips, 2002; Subramaniam and Silverman, 2007).

The aim of this project is to determine the effects of individual and cooperative target orientation, which are two orientations used for planning physical education classes for 2<sup>nd</sup> level elementary school students, on students' attitude towards physical education and sport classes.

## **MATERIAL and METHOD**

The present study was designed in the "Experimental Research" model in which the data obtained through inventory and use of cooperative target orientation and competitive target orientation were analyzed with different statistical methods.

## **Population and Sample**

The study was participated by a total of 47 students aged 13-17. The sample group of the study consisted of 47 students attending the 7<sup>th</sup> grade. Physical education classes were held using the individual competitive method with half the students (n:23) and the cooperative target orientation with the other half (n:24).

## **Data Collection and Analysis**

The inventory used was applied as pre-test and post-test prior to and following the study. After the application of the pre-test, physical education classes were held with the given methods for 6 weeks. At the end of the 6-week period, both groups were given the post test and their attitudes towards physical education classes were compared. The study was conducted in an elementary school located in the city of İzmir. It was carried out in the spring semester of the 2011-2012 academic year.

The study employed a scale consisting of two parts. The first part of the scale included a personal information form and in the second part, the "Attitude toward Physical Education and Sport Lesson" Scale developed by Demirhan and Altay (2001) was used in order to measure students' attitudes. The scale is a 5-Likert type scale consisting of 24 items, 12 positive and 12 negative.

The Cronbach Alpha reliability and scale validity coefficients of the scale were calculated as 0.90 and 0.82 respectively. The scale is one-dimensional.

## Data Analysis

In the analysis of the data, Mann-Whitney U test was used to examine the attitude values obtained from individual competitive and target orientations and Wilcoxon paired samples









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test was applied to examine the pre and post tests of individual competitive and target orientation. ing  $2^{nd}$  level elementary education, on the attitudes of students towards physical education classes.

## Aim of the Research

The main purpose of the present study was to determine the effects of individual competitive and cooperative target orientations, two of the target orientations used in planning physical education classes of students attend-

## RESULTS

The results findings obtained from the study are presented below as descriptive statistics, Mann-Whitney U test and Wilcoxon signedrank test respectively:

# Table 1. Descriptive Statistics Concerning the Students' Scores of Attitude TowardsPhysical Education Classes Held With Individual Competitive and Cooperative TargetOrientations

	Values on the Attitude Toward Physical Education and Sport Lesson Scale							
		$\overline{\mathbf{X}}$	Ss	Min.	Max.			
Individual competiti- ve target orientation group	Pre-test	71.54	7.78	51	93			
	Post-test	72.58	9.97	45	88			
Cooperative target orientation group	Pre-test	70.69	7.94	49	91			
	Post-test	72.26	7.38	54	86			

Descriptive statistics concerning students' scores of attitude towards physical education classes which used individual competitive and cooperative target orientations are given in table 1. Accordingly, it is seen that b arithmetic mean and standard deviation is 71.54  $\pm$  7.78, minimum value is 51, and maximum value is 93 in the pre-test results of the class that used the individual competitive method, whereas arithmetic mean and standard devia-

tion appears as  $72.58 \pm 9.97$ , minimum value as 45 and maximum value as 88 in the posttest results. In the cooperative target orientation group, pre-test results are  $70.69 \pm 7.94$ for arithmetic mean and standard deviation, 49 for minimum value and 91 for maximum value, while in the post test results, it is seen that arithmetic mean and standard deviation is  $72.26 \pm 7.38$ , minimum value is 54, and maximum value is 86.



## Table 2. Mann-Whitney U-Test and Attitude Value Pre-Test Statistics of Individual Competitive and Cooperative Target Orientations

		N	Rank mean	Rank total	Mann- Whitney U-test	Р
Attitude Va- lue pre-test	Individual competitive	24	25.63	615.00	237.00	0.41
	Cooperative	23	22.30	513.00		
	Total	47			_	

Mann-Whitney U-test was used in order to see whether the pre-test scores obtained from the individual competitive and cooperative target orientation samples differed from each other significantly or not (Table 4). In the pre-test scores concerning attitude value, it is seen that the rank mean is 25.63, and rank total is 615.00 in the individual competitive orientation group consisting of 24 students,

while in the cooperative target orientation group of 23 students, rank mean is 22.30 and rank total is 513.00. Mann-Whitney Utest value was determined as 237.00 and p value as 0.41. According to this finding, no statistically significant difference was found between the pre-test mean of the competitive target orientation group and the pre-test of the cooperative target orientation group.

Table 3. Mann-Whitney U-Test and Attitude Value Post-Test Statistics of IndividualCompetitive and Cooperative Target Orientations

		N	Rank Mean	Rank Total	Mann- Whitney U-test	Р
Attitude Value post-test	Individual competitive	24	24.19	580.50	271.50	0.92
	Cooperative	23	23.80	547.50		
	Total	47				

Mann-Whitney U-test was used to see whether the post-test scores obtained from the individual competitive and cooperative target orientation samples differed from each other significantly or not (Table 3). In the post-test scores concerning attitude value, it is seen that the rank mean is 24.19, and rank total is 580.50 in the individual competitive orienta-



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tion group consisting of 24 students, while in the cooperative target orientation group of 23 students, rank mean is 23.80 and rank total is 547.50. Mann-Whitney U-test value was determined as 271.50 and p value as 0.92. According to this finding, no statistically significant difference was found between the post-test mean of the competitive target orientation group and the post-test of the cooperative target orientation group.

Table 4. Wilcoxon Signed-Rank Test and Attitude Value Pre and Post Test Statistics ofIndividual Competitive Target Orientation

		n	Rank Mean	Rank Total	Z	Р
Individual com- petitive target orientation group pre test-post test	Negative Rank	9	11.78	106.00	-0.67	0.51
	Positive rank	13	11.31	147.00		
	Equal	2				
	Total	24				

Wilcoxon signed-rank test was used to examine the significance of the difference between pre and post test scores of the individual competitive target orientation. In the examination of the test statistics concerning the Wilcoxon Signed-rank test of the individual competitive target orientation (Table 4), it is seen that 9 individuals on the negative rank have a rank mean of 11.78 and a rank total of 106.00. On the positive rank, on the other hand, 13 individuals have a rank mean of 11.31 and a rank total of 147.00. Accordingly, it was determined that there was no significant difference between the pre and post test tests of the individual competitive target orientation employed in physical education classes (Table 4).

Table 5. Wilcoxon Signed-Rank Test and Attitude Value Pre and Post Test Statistics ofCooperative Target Orientation

		Ν	Rank mean	Rank total	Ζ	Р
Cooperative	Negative Rank	7	12.14	85.00	-1.06	0.29
target orienta-	Positive rank	14	10.43	146.00		
test-post test	Equal	2			_	
	Total	23				









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Wilcoxon signed-rank test was used to examine the significance of the difference between pre and post test scores of the cooperative target orientation. In the examination of the test statistics concerning the Wilcoxon Signedrank test of the cooperative target orientation (Table 5), it is seen that 7 individuals on the negative rank have a rank mean of 12.14 and a rank total of 85.00. On the positive rank, on the other hand, 14 individuals have a rank mean of 10.43 and a rank total of 146.00. Accordingly, it was determined that there was no significant difference between the pre and post test tests of the cooperative target orientation employed in physical education classes (Table 5).

## DISCUSSION

Education is an indispensible requirement for societies. The common aim of education is to help growing up children and teenagers to adapt the society in a healthy and efficient way (Varış, 1994). In this respect, it is extremely important to develop physical education classes, which are an inseparable part of general education, in line with the expectations of the individual and society (Sunay, 1996). In the Control and Fight against Obesity Program carried out by the Turkish Ministry of Health in 2010, it is reported that obesity rate has increased in Turkey. A sedentary lifestyle is stated to be among the most important reasons behind this. One of the methods that can be used to improve this attitude towards sport is to increase participation into sports activities. Increasing participation can only be possible through developing positive attitudes towards sports activities.

A sedentary life is not a Turkey-specific problem only; but similar problems are faced in many countries around the world. In the USA, the cost of sedentary lifestyle in the healthcare sector is approaching 75 billion dollars; Canada allocated 6% of its healthcare budget to solve this problem (Berrggren, 2005). In this respect, governments are expected to come up with solutions to eliminate these problems. Educational policies applied particularly in elementary education, which is the first stage of formal education of human beings, play a significant role in the formation of positive attitudes towards sports.

In this section of our study, the effects of individual and cooperative target orientations used in planning physical education classes in the 2<sup>nd</sup> level elementary education on students' attitudes towards physical education classes were tried to be examined and comments were intended by comparing the obtained results with previous studies on the topic.

In the comparison of the pre and post tests of the individual target orientation used in physical education classes, no significant dif-









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ference was found between attitude levels towards physical education classes. Abakay (2007) examined the effects of cooperative learning and individual competitive target orientations on learning levels in physical education classes. The comparison of the pre and post tests of the individual competitive target orientation showed a slight increase in achievement. In our study; the short time period of the study (6 weeks), and the environmental factors like the attitudes of teachers towards students and students' attitudes towards one another may have caused the non-significant difference between pre and post tests.

In the comparison of the pre and post tests of the cooperative target orientation used in physical education classes, no significant difference was found between attitude levels towards physical education classes. This finding is similar to the findings obtained from the study conducted by Gülay (2008) on the effects of cooperative games in the 9<sup>th</sup> grade physical education classes on students' social skill levels and their attitudes towards physical education classes. In several studies carried out in different areas other than physical education; it was seen that attitude towards classes could be increased by using cooperative method in physics classes (Eke, 2010; Özdemirli, 2011; Johnson et al 1981), geography classes (Aydın, 2009), social sci-

ences classes (Çelebi, 2006; Özkümüş, 2010) and math classes (Özdemirli, 2011). It seems that students feel more comfortable in activities, they deal with different materials about the subject, they have more fun and enjoy the classes better, and they learn more easily and remember what they learn better by helping one another with cooperative learning. These positive outcomes affect students' attitudes towards classes in a positive way. The reason behind the fact that the effects of cooperative target orientation appear to be more positive in other areas may be the difference within the body of physical education classes. Being constantly on the move, putting physical effort and that individual differences come out more in physical education classes may have led to these reasons. The fact that our study period was rather short (6 weeks), that several different branches were present during the practices (5 branches) and environmental factors may well be shown as the factors behind the results obtained from our study.

In the comparison of the pre and post tests of the individual target orientation and cooperative target orientation used in physical education classes, no significant difference was found between the two target orientations in terms of attitude levels towards physical education classes. One possible reason for this may be the effect of environmental factors in education. Teachers, peers, school conditions









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and families' perspectives on sports may have caused this positive level. Whichever method is offered to students, the period they are going through is the first stage of adolescence. During this period, the child attempts to get into more communication with others around and needs to move more. Physical education classes are an important need that can save children form a sedentary life and students from the education process. Since these requirements were applied in both orientations in a planned and programmed way in our study, students may have not perceived the differences between the two orientations completely. In the studies conducted by Sarıtaş (1998), Abakay (2007), Görücü (2007) and Özcan (2009), it was found that individual competitive and cooperative target orientations used in physical education classes affected attitude towards physical education classes positively. With cooperative target orientation, it was seen that students who were used to instruction method and had monotonous classes enjoyed such a difference; negative physical communication and negative verbal interaction decreased with cooperative games and that working as a team helped students reach similar goals such as thinking about and discussing strategies These outcomes affected with teammates. attitude towards physical education classes positively.

## CONCLUSION

In our study, the effects of classes held with two target orientations on the attitude towards physical education classes were examined. It was found out that classes held with cooperative target orientation and individual competitive target orientation did not affect students' attitude toward physical education classes. Similarly, no significant difference was found between the two target orientations in terms of improving attitude towards physical education classes.

## Suggestions

According to the results obtained from the study, the following recommendations can be made;

- The present study was limited to a time period of 6 weeks. A similar study of a longer time period may reveal different results.
- Similar studies could be conducted with different age groups. This could present the correlation between age and target orientations.
- 3) In the start-up phase of the study, choosing a student group with a lower level of attitude towards physical education classes as the study sample may be more effective in determining the efficiency of target orientations.



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 A similar study can be conducted regarding one single branch, instead of several multi-branches. This could make it possible to better interpret the effect of target orientations.

## REFERENCES

- AÇIKGÖZ, Ü. K., (1992). İşbirlikli öğrenme: Kuram, Araştırma ve Uygulama.Uğurel Matbaası, Malatya
- AÇIKGÖZ, Ü. K., (1996). Etkili Öğrenme ve Öğretme. Kanyılmaz Maatbası, İzmir
- BALYAN, M., (2009). İlköğretim 2.Kademe ve Ortaöğretim kurumlarındaki Öğrencilerin Beden Eğitimi Dersine Yönelik Tutumları, Sosyal Beceri ve

Özyeterlilik Düzeylerinin Karşılaştırılması. Ege Üniversitesi Sağlık Bilimleri Enstitüsü Beden Eğitimi ve Sporda Psiko Sosyal Bilimler Anabilim D a l 1 Yayımlanmış Doktora Tezi

- *DAVIDSON, N., DIANA L.K., (1991).* An Overview of Research on Cooperative Learning Related to Mathematics,r Research in Mathematics Education Vol. 22, No. 5 (Nov., 1991), pp. 362-365 DOI: 10.2307/749185
- **DEMİRHAN, G., ALTAY, F., (2001).** Lise birinci Sınıf Öğrencilerinin Beden Eğitimi ve Spora İlişkin Tutum Ölçeği II. Hacettepe Spor Bilimleri Dergisi. 12(2),9-20

- DYSON, B., (2001). Cooperative Learning in an Elementary Physical Education Program. Journal of Teaching Physical Education Vol.20 No: 3, pp.264-281 <u>https://</u> <u>doi.org/10.1123/jtpe.20.3.264</u>
- *GÜLLÜ, M., (2007).* Ortaöğretim öğrencilerinin Beden Eğitimi dersine ilişkin tutumlarının araştırılması. Gazi Üniversitesi Eğitim Bilimleri Enstitüsü, Beden Eğitimi ve Spor Öğretmenliği Anabilim Dalı Yayımlanmış Doktora Tezi
- GRINESKI, S., (1993). Achieving Instructional Goals in Physical Education: A
  Missing Ingredient. Journal of Physical
  Education, Recreation and Dance, Vol:
  64, No:5, pp. 32-35 <u>https://doi.org/10.1</u>
  080/07303084.1993.10609972
- *GRINESKI, S., (1996).* Cooperative Learning. Ed: Kasap, H. (2002) Beden Eğitiminde işbirliği ile öğrenme. Beyaz yayınları, İstanbul
- *İNCEOĞLU, M., (2000).* Tutum Algı İletişim. İmaj Yayıncılık, Ankara
- HÜNÜK, D., (2006). Ankara İli Merkez İlçelerindeki İlköğretim İkinci Kademe Öğrencilerinin Beden Eğitimi Dersine İlişkin Tutumlarının Sınıf Düzeyi, Öğrenci Cinsiyeti, Öğretmen Cinsiyeti ve Spora Aktif Katılımları Açısından-Karşılaştırılması. Hacettepe Üniversitesi









Sağlık Bilimleri Enstitüsü Spor Bilimleri ve Teknolojisi Programları Yayımlanmış Yüksek Lisans Tezi

- JOHNSON, D. W., JOHNSON, R. T., (1995). Colloboration and Cognition. Cooperative Learning Center
- *TAVŞANCIL, E., (2002).* Tutumların Ölçülmesi ve SPSS LE Veri Analizi. Nobel Yayınları, Ankara

**ÜLGEN, G., (1997).** Eğitim Psikolojisi. Alkım Yayınevi, İstanbul

Author's Note: This project is the Master's Thesis Project of Begüm Üresin This study was presented as an oral report in the 8th National Physical Education and Sport Teacher Congress

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- 11 The papers uploaded to the system are first evaluated by the editor. A correction demand can be raised by our editorial board for the manuscripts not complying with the spelling rules. The articles edited in line with the spelling rules are sent to referee evaluation. The corrections demanded by the referee can be seen on the system by the relevant responsible author with the membership information and the correspondent author is informed via the system by e-mail. Every referee has the right to claim correction three times for a paper. If the correction isn't still made after three demands, the paper is automatically "REJEC-TED". The papers corrected in accordance with the referee suggestions are "ACCEPTED" or "REJECTED" after being evaluated by the editor again. The correspondent author is informed via the system by e-mail. The paper can be REJECTED with the decision of chief editor even though it has gone through the referee approval. All rights belong to the chief editor or raise any demand.
- 12 If the article is produced from the thesis, presentation, and so on, it should be stated and explained in the footnote. Otherwise the author is accused of plagiarism. In that case, the journal cannot be held responsible for this situation.
- 13 If the paper is not within the scope of the journal, it is the editors and the administrators who will accept or reject the paper unilaterally. The author cannot assert any legal rights.
- 14 The uploaded study belongs to the journal with its exclusive rights by author(s). For this reason, it is not necessary for the author(s) to sign any other documents. The studies uploaded to the system are regarded as being transferred to our journal with all rights. If necessary, author(s) can be demanded a transfer contract with wet signature.
- 15 In the articles evaluated in our journal, the correspondent author is regarded as the addressee; other authors are not communicated and informed. The journal is not supposed to give information to other authors.

- 16 The referees act independently in the journal. Authors cannot exercise power over the referees or cannot demand anything from the referees.
- 17 The journal publishes four times a year in March, June, September and December. However, there might be changes in the periods depending on the publication process. The journal cannot be held responsible for this.
- 18 Following the evaluation process of the papers, the referee report can be seen on the system and sent to the correspondent author by e-mail. After completing the two-referee evaluation process, correction demand can be made via the system by e-mail. The corrections made before that cannot be allowed in the system. The edited paper should be uploaded again with the registered ID number. The authors should make the required corrections in 15 days. If the corrections are not made within 15 days, the article is rejected by the system automatically. None of the authors can impose sanctions on the journal in this case.

## WRITING RULES OF THE JOURNAL

- The bibliography is arranged according to the Turkish alphabet order. The sample article for the writing rules and preparation of papers can be found on our website in Word format. All authors are required to take into account the writing format in the last volume of the journal.
- The main text of papers, abstract, tables and footnotes that will be sent to the journal must be written in MS Word Program, with Times New Roman in 12 pt. and single spaced.
- Page layout must be with 3 cm margin in the top, bottom, left and right.
- Texts must be between 15-20 pages, they must be no longer than 20 pages and page number must be indicated at the bottom of the page. Annex documents, tables, figures, charts and similar materials aren't included in the number of pages.
- Page layout must include the titles, abstract and tables written in one column, the main text and the references should be given in two columns, justified and without indentation, spacing 12nk below the titles and paragraphs. Extended English Abstract must be provided after the references in 12 pt. and one column.
- On the first page, Özet and Anahtar Kelimeler in Turkish must be below the Turkish heading, Abstract and Key Words must be below the English heading. Abstract in Turkish and English must be no longer than 150-200 words in 12 pt. Sub-headings must include Abstract, Aim, Method, Findings, Conclusion and Key Words. Anahtar Sözcük(Ler)/Key Words must be given in 3-7 words below the Abstracts by capitalizing the first letters of each word. In addition to this, key words must be written in the space provided by the system by capitalizing the first letters of each word and by separating each word by comma. It is necessary to choose the Turkish keywords according to "Türkiye Bilim Terimleri" and English key words in accordance with the "Index Medicus Medical Subject Heading (MeSH)" standards (http://www.bilimterimleri.com).
- If the article has been presented in a conference, the title of the conference, the date and the place of the conference and the type of the presentation must be provided below the "Author's note," after the References part. For example, Author's Note: This study has been presented at "1.Ulusal Ana Çocuk Sağlığı Kongresi," on 19-20 December 2014, in İzmir as an oral presentation.
- The names and the affiliations of the authors must not be given on the text below the title; this information must be uploaded to the system on the website.

- It should be stated that research articles have been prepared according to the scientific ethical principles and ethical board report information (Name of the institution from which report is received, its date and the serial number of report) must be added to the system. It is also necessary to scan the ethical board's report and the institution's permit document and to send to our editorial office via e-mail. For the papers without ethical board report, a signed document indicating that it doesn't have the ethical board report must be sent to the editorial board via e-mail.
- The main text must include such parts as Introduction, Method, Findings, Discussion, Conclusion, References, Acknowledgement (persons and institutions not participated in the study but contributed to the development of the study should be acknowledged here) and Extended Abstract. Extended English Abstract must be 750 words and more. Extended abstract must be prepared apart from Turkish abstract. It must be added to the paper after the references. The title (Extended English Abstract) must be written in capital letters, bold and centered, and the text must be justified without indentation, in 12 pt. and one column. Below the titles of Definition and Importance (references can be given only in this part), Aim, Method, Findings, Results and Conclusion, data concerning the article must be provided.
- Tables and figures must be placed in the text appropriately. Numbers and headings of tables/figures must be above the table; sentence case must be used in 12 pt., bold and justified. There must be a full stop between the table number and heading. Tables must only contain horizontal line. Each table must be referred to within the text. Items in the table must be in 1 line spacing and 12 pt. Explanations of the tables must be indicated below the table in 10 pt. and by putting \* before it. E.g.: \*Saraçoğlu, 2004:416-21.. Explanations about the abbreviations must be stated below the table and figure by using "\*,\*\*" or "a, b" in 12 pt. The number of tables and figures must be no longer than 6.
- Reviews must incorporate Turkish and English Headings, Abstract, Text, References and Extended English Abstract. Text should include a structure within a purpose, Conclusion parts must be completed. Headings, Abstract must be in one column; Text, References and Extended English Abstract must be in two columns, justified without indent and with 12 nk spacing in heading and at the end of the paragraph. Extended English Abstract must be 750 words and more. Extended abstract must be prepared apart from Turkish abstract. It must be added to the paper after the references. The title (Extended English Abstract) must be written in capital letters, bold and centered, and the text must be justified without indentation, in 12 pt. and one column. Below the titles of Definition and Importance, Aim, Method, Findings, Results and Conclusion, data concerning the article must be provided within the Extended English Abstract.

• Case reports must include Turkish and English headings, Abstract, Introduction, Case Report, Discussion, References and Extended English Abstract. Headings and Abstracts must be 12 pt. and in one column; Introduction, Case Report, Discussion, References must be 12 pt. and in two columns justified without indent and with 12 nk spacing in heading and at the end of the paragraph. Extended English Abstract must be 750 words and more. Extended abstract must be prepared apart from Turkish abstract. It must be added to the paper after the references. The title (Extended English Abstract) must be written in capital letters, bold and centered, the text must be justified without indentation, in 12 pt. and one column. Below the titles of Definition and Importance, Aim, Method, Findings, Results and Conclusion, data concerning the article must be provided. Reports can be supported with photos and flow charts. Necessary permissions must be taken for photos and flow charts and references must be indicated in 10 pt. with "\*". E.g.: \*Saraçoğlu, 2004:416-21.

## **REFERENCES WITHIN PAPER**

- The sample article in the system must be used for citation rules. In other words, references are indicated with the name of author, the year of publication and page numbers in parent-heses beside the main text (Surname, Year of Publication: Cited Page Number).
- Footnotes of extra explanations about the content and other explanations must be given below the page. Notes numbered in the text are located below the page by numbers with the explanations.
- Citations made from a source are indicated between double quotes in the text.
- Citations longer than 30-40 words are given as an indented paragraph without using quotes.
- While providing references, if the name of the author isn't within the text, the surname of the author and date of publication and the cited page are indicated in parenthesis: (Korkmaz, 2007: 23-45).
- If the name of the author is in the text, only the publication date of source and page number is given in parenthesis: Oskay et al.. (2005:36) in his/her study.....
- In sources with two authors, the surnames of both authors are indicated. If it is an English publication, it is separated with "and" (Morley and Robins, 2007:20).
- If it is Turkish, in sources with more than two authors, "vd." is indicated: (Yücel vd., 2012:236).
- If it is English, in sources with more than two authors, "et al." is indicated: (Hossain et al., 2007:156).
- If more than one study from the same author published in the same year must be used, the sources are separated by adding the letters like a, b, c: Such as (Ortaylı, 1999a:25) (Ortaylı, 1999b:43).
- If more than one source about the same subject is cited within the text, sources are separated with a semicolon: (Geray, 2005:33; Moran, 2006:36).

## WRITING REFERENCES

- Only the sources cited in the text must be included in the references and those sources must be put in order alphabetically by the surnames of authors. If more than one study belonging to the same author is included in the references, it must be sorted by the date of publication (from old to new).
- If the number of the authors is 6 or less, all the authors must be listed, if it is 7 or more, the first 6 authors must be listed and "vd.", for Turkish articles and "et al." for English articles must be used. After the last author, "&" must be used before "vd." or "et al."
- Anonymous writers from Internet sources must not be cited.

## \* BOOKS

SEVİL, Ü., YANIKKEREM, E., (2006). Kadına yönelik aile içi şiddet. İzmir, Türkiye: İzmir Güven Kitabevi, ss.36-66

### \*CHAPTERS IN A BOOK

- *TAŞKIN, L., YANIKKEREM, E., (2014).* Aile planlaması. İçinde Kadın Sağlığı Hemşireliği, 12. Baskı, Ankara, Türkiye: Özyurt Matbaacılık, ss.527-545
- SEVİL, Ü., YANIKKEREM, E., (2008). Adölesan dönemi. İçinde A. Şirin (Ed.), Kadın Sağlığı , İstanbul, Türkiye: Bedray Basın Yayıncılık, ss.57-90
- BAYIK, A., SEVİL, Ü., (2004). Hemşirelik disiplini ve araştırma. İçinde İ. Erefe (Ed.), Hemşirelikte Araştırma İlke Süreç ve Yöntemleri, 3. Baskı, İstanbul, Türkiye: Odak Baskı Ofset, ss.13-26

## \* ARTICLES

- EGELİOĞLU, N., MUSLU, G.K., ŞEN, S., GÜNERİ, S.E., BOLIŞIK, B., SARUHAN, A., (2014). Ege Bölgesinde doğum sonu dönemde uygulanan geleneksel uygulamalar. Uluslararası Hakemli Hemşirelik Araştırmaları Dergisi (UHD), 1(1):22-35. Doi: 10.17371/ UHD.2014018935
- *ÖZCAN, B., KOCAMAN, H., (2016).* Eşler Arasındaki Yaş Farkının Boşanmalar Üzerindeki Etkisi, ACED Dergisi, 10:1-17 Doi: 10.17359/ACED.20161024262
- ŞEN, E., GÜNERİ, S.E., YANIKKEREM, E., HADIMLI, A., KAVLAK, O., ŞİRİN, A., et, al., (2012). Determination of knowledge requirements and health practices of adolescent pregnant women. International Journal of Caring Sciences, 5(2):171-178

## **PUBLICATION PRINCIPLES**

- 1 Papers which are submitted to the journal for publication are expected not to have been published somewhere else, not to be in the evaluation process of another publication organ. If it is determined that the manuscript uploaded by the relevant author(s) has been sent for evaluation or REJECTED by another journal, we reserve all kinds of legal rights about the relevant author(s).
- 2 Papers outside the accepted disciplines and fields in our journal are rejected. The accepted fields are stated under the "DISCIPLINES" title of our journal. None of the papers outside these fields can be published or requested to be published in this journal.
- **3** The content and scientific responsibility of the papers cannot be imposed on the journal under any circumstances. The whole responsibility belongs to relevant author(s).
- 4 In articles with more than one author, the correspondent author is the one who ranks first. Or the member uploading the paper to the journal accepts and has to accept the whole responsibility.
- 5 The abstract should be prepared both in Turkish and English and between 150 and 250 words. The title should also be both in Turkish and English. The purpose of the paper, scope, method, limitations of research, findings and conclusion should be included in Turkish and English parts.
- 6 If the paper has been prepared from such organs as thesis, book etc., it should be stated at the end of references part with "Author's Note" by referring to the first title. If the paper has been prepared from a master's or doctoral thesis, the name of the advisor should be ranked in the second place. If the thesis advisor doesn't want to see her/his name in the relevant paper, our journal should be informed about this situation with a document. It should be a document with wet signature. Our journal and management doesn't have such a liability to question author(s) about the source of papers reproduced from thesis or another paper. The whole responsibility belongs to author(s). The author(s) already accept these conditions.
- 7 Sources used in the works must be prepared according to the appropriate template of the journal. This template is presented to all author(s) as a Word file on our website. Besides, the last volume of our journal should always be taken into account. Our journal and management unilaterally belongs the right to change these criteria in line with their own demands.
- 8 Every paper evaluated should get the approval of two referees. If one of the referees has rejected and the other one has approved, the editor sends the paper to the third referee. In

line with the opinions and suggestions of the third referee, editor acts in accordance with her/his own authority. Chief Editor of the journal unilaterally reserves the right to REJECT even if the paper has been approved by referees. In this case, none of the author(s) can claim a right or demand. All kinds of management, practice and procedure belong to the chief editor of the journal. The relevant paper prepared in English is evaluated by the English language editor. Also, every paper is evaluated in terms of the writing rules of our journal by the technical editor. If the English language editor decides that the paper is inappropriate for our journal, the authorized person who will REJECT or amend this decision is the chief editor. Language editor and technical editor don't have the right to REJECT. They transmit their suggestions to the chief editor and the chief editor unilaterally applies the decision in line with the demands and suggestions. Field editors transmit their opinions regarding evaluation and publication of the papers uploaded to the system to the chief editor. The chief editor acts with her/his own authority in line with the opinions and suggestions of field editors. Major or minor corrections can be made after the evaluation of papers. Author(s) are requested for corrections THREE times. If the corrections aren't made after three demands, the article is rejected after the chief editor is informed by the system editor. The manuscripts uploaded to the website are first analyzed by system editor or technical editor before sending to the referee. This analysis is performed within the framework of spelling rules. System or technical editor informs author(s) about the necessary demands. If these demands aren't satisfied, the chief editor is informed about the result. Chief Editor makes the final decision according to the information. This decision is unilaterally up to the chief editor either in a negative or positive way. None of the institutions and individuals has the right to impose sanction on the decision made.

- **9** English and Turkish abstracts should be written in Times New Roman with 12 pt. All author(s) are obliged to act and arrange their papers in accordance with the sample article format on our website.
- 10 The names of the institutions of author(s) should be written in 12 pt. and italic with Times New Roman. It is stated in the sample article format.
- 11 The paragraph spacing of the whole manuscript should be single spaced.
- 12 The references should be stated in a way that the reference is italic and the name and author's surname rank at the first place just like in the sample article. For example; *Yılmaz, A., Güven, M., (2017). İşletmelerde Sağlık Yönetiminin Önemi, ...... Dergisi, Sayı: 1, Cilt: 1, ss.1-2* The references should be indicated within the text as (Yılmaz, 2017: 1-2) or (Yılmaz, ve diğ., 2017: 1-2). Internet resources are never used within the text. These sources are numbered and indicated at the bottom of the page. The citations

made from such internet resources as Wikipedia should never be used. If such use of resources is determined, the manuscript is unilaterally REJECTED. None of the author(s) can impose a sanction and raise a demand on our journal in this matter.

- 13 The internet resources should be indicated in the references part under the title of "INTER-NET RESOURCES". The link should be included in the resources and the Access date should be after the link like "E.T. 01.01.2017).
- 14 Typesetting and editing of the paper should be in accordance with the sample article format on the website and the references within the text must be prepared as per the sample article.
- 15 The current papers are uploaded to the system by the author being the member of the system step by step. The paper uploaded is sent to the relevant field editor by the system manager and asked for approval for referee evaluation. If there are more than one author name in the paper, this information should be inserted in the system together with the names and institutions of author(s) while uploading the paper to the system. Our journal and management never accepts responsibility regarding the problems that may arise about the names and institutions of authors related to the article. This information must be unilaterally inserted in the system by author(s). Our journal and management aren't responsible to insert this information to the system. Our journal and management only take into account the information uploaded to the system by author(s).
- 16 The language of our journal is English. However, the papers prepared in different situations and principles are accepted in other languages. In this case, the publication board unilaterally reserves the right to use initiative or reject. Relevant author(s) cannot be effective or impose sanction on our journal in this matter.
- 17 The author cannot decide on which referee will evaluate the paper and won't know the information of the referee making the evaluation. After the referee evaluation of the relevant paper, the correspondent author who accepts the responsibility in uploading the paper to the system is informed via the web system. The e-mail address in the journal system should be valid and correct. The member author is unilaterally responsible for any delay and problem that may arise about the authors whose membership information isn't valid and correct in the system. Our journal doesn't address comments to other authors. The member author who uploads the paper to the system is the addressee and the responsibility belongs to the relevant author. If the paper is uploaded to the system by someone else whose name isn't in the paper, the relevant member becomes responsible for this situation. Our journal and management are never responsible for possible problems. All kinds of correspondences and information related to the article are directed to the member author. Our journal isn't supposed to inform other author(s).

- 18 Information about the authors and the materials of communication are confidential and it is only known by system manager and the editor. Therefore, authors don't have such a right to ask for referee evaluation or any other demand. Information on referees and authors are only shared with the system editor, technical editor, chief editor and the field editor.
- **19** The number of pages uploaded to the system is 20. This number can increase according to the subject of the paper. Annexes and tables can be excluded from this number. However, publication board, field editor and the chief editor unilaterally reserve their right to make a positive or negative evaluation. Author(s) cannot claim a right in this matter.
- **20** Our journal is an "e" electronic journal but is also published in paper version. Individuals who would like to get printed version of the journal can obtain it by paying the necessary fee to the relevant printing company. Our journal does not have to provide printed version of the journal to any author or individual. Annual membership fee should also be sent to relevant printing company for works sent to our journal. A reasonable amount of fee is requested from the author of the paper approved for publication considering the journal expenses and according to the conditions of that time. The relevant author or the person who makes the payment is sent a receipt about the payment by the beneficiary company.
- 21 Evaluation process of works uploaded to the system is two months. Works which are not evaluated within this period of time and about which information report is not received are sent to a different referee. Author(s) cannot claim a right on our journal and management because of this delay. It is out of question for the papers being in the referee evaluation process to be withdrawn from the journal under any circumstances.
- **22** Our journal publishes four times a year. The journal and publication board has a right to publish special issues. This is up to the initiative of journal management.
- **23** Publication and copyright of published papers belong to our journal. Publication right of every paper uploaded to the system is automatically transferred to the journal. The responsible author approves the transfer contract created at the same time with the button on the website while uploading the paper to the system. None of the authors are requested to sign the copyright agreement for this procedure. Journal management has the right to demand transfer agreement with wet signature if required. The papers being in the referee evaluation process cannot be withdrawn from the publication. A valid reason should be indicated for the papers that are withdrawn. Otherwise, legal action is unilaterally taken against the relevant author(s). Author(s) approve these conditions in advance for the paper uploaded to the system. None of the author(s) have a right to object.

- 24 Relevant author(s) are supposed to insert the ethics board or institutional approval while uploading the paper to the system if necessary. The whole responsibility unilaterally belongs to author(s) in case of a possible problem if the information of papers for which ethics board or institutional approval is required isn't inserted in the system or the journal management isn't informed. Our journal is never asked to accept such a responsibility. Our journal and management doesn't have to ask or monitor this information.
- IT IS CONSIDERED THAT ABOVEMENTIONED 24 ITEMS OF PUBLICATION PRINCIP-LES GUIDELINE ARE ACCEPTED BY AUTHOR OR AUTHORS WHO ARE INVOL-VED IN THE SYSTEM. NO AUTHOR HAS THE RIGHT TO OBJECT TO THESE PRIN-CIPLES. OUR JOURNAL HAS UNILATERAL RIGHT IN TERMS OF PUBLICATION PRINCIPLES, AND PUBLISHING, EVALUATION OR REFUSAL OF WORKS. THIS RIGHT CANNOT BE CHANGED UNDER ANY CIRCUMSTANCES AND CONDITI-ONS. OUR JOURNAL HAS THE RIGHT TO USE ITS LEGAL RIGHTS WITHIN THE FRAMEWORK OF RELEVANT LAWS AND LIABILITIES IN CASE OF AUTHOR/ AUTHORS WHO DO NOT ACT IN ACCORDANCE WITH RELEVANT PRINCIPLES AND RULES. EVERYBODY WHO IS INVOLVED IN THE SYSTEM HAS AUTOMA-TICALLY AGREED ON THESE POINTS IN ADVANCE.

## FREQUENTLY ASKED QUESTIONS

## 1 Is your journal a refereed and international journal?

Our journal is a refereed, scientific and international journal. It is indexed by many international indices.

## 2 Which fields are accepted in your journal?

Only the papers in the fields accepted by the journal are approved.

## **3** Does your journal charge any publication fee?

A certain amount of fee is requested per the manuscript accepted for publication in return for some expenses. There is no such demand for the rejected papers.

4 Are the readers allowed to access to the volumes and the articles without being a member of the journal?

All the volumes can be downloaded from our website in pdf format without being a member.

### 5 What is the publication frequency of the journal?

The journal publishes three times a year; the volumes with full texts are uploaded to the system at the end of April, August and December. However, some special issues can be published in some cases.

### 6 Are the authors informed about the evaluation process of the submissions?

The journal is web-based, and the authors can follow all kinds of information concerning their submissions from the membership panel of the system. The authors will also be provided with the necessary information about the process and procedure.

### 7 How many referees evaluate a manuscript?

Manuscripts are firstly evaluated by the field editors and then the ones found appropriate are sent to the referees by the field editors. Field editors send the approved papers to two field referees and referee evaluation process begins. This process takes two months at most according to the referee evaluation. If evaluation reports are not received within three months, the article is sent to the third referee. If there is still not any progress, field referee, and the editorial board decide on the publication process.

## 8 Is any information concerning "the author and authors" confidential?

In this journal and all the international refereed journals, information, concerning the author(s) is known only by the system editors, field editors, chief editor and assistant chief

editors. This information is completely kept confidential. The referees or members of the journal are not allowed to access to the relevant information.

## 9 Are there a certain number of articles to be published in the journal?

There are not a certain number of articles in the journal. Each article, approved by the referees and the editorial board, is accepted to be published in the journal without delay and sent for the layout process which is the final stage.

## 10 Is an author allowed to submit more than one paper in the same issue?

It is out of the question in terms of ethics. However, more than one manuscript of the same author can be published in the same journal or the following issues if the publication and editorial board approve the articles. But this situation is only valid for specific cases and those requiring initiative. This case is only valid for special conditions and those requiring initiative.

## **11 Is there sufficient number of referees in all the fields that the journal accepts articles?** All the submissions sent to our journal are subjected to evaluation by expert academicians and scientists and referees are not getting paid for the evaluation they make. Evaluation and reports are only on a volunteer basis.

## 12 What is the duty of the science and advisory board?

The science and advisory board is responsible for solving the incompatibility problems that the referees experience; the board gives the final decision independently, and they act actively to solve such problems. The decisions of the science and advisory board are accepted without questioning. The decisions are applied accordingly. Their decisions cannot be changed and offered to be changed.

## 13 Is an author allowed to submit his/her paper to the science and advisory board in a negative situation?

This situation is out of the question. Functionality of science and advisory board occurs only with the approval of the editor-in-chief.

14 If an author submits her/his paper simultaneously to another journal for consideration, and the paper is accepted in that journal too, what kind of procedures is taken? The executive board and editorial board give the final decision in such cases. As the publication board does not regard such attitudes as ethical, even if the paper has been published, it is removed from the system on condition that refutation is published, necessary institutions are informed, and the rights are reserved. However, in order to avoid such problems, the guidelines for the authors should be read carefully and the appropriate papers should be submitted. Our journal's all rights are kept reserved under the guidance of journal's legal advisors within the framework of Turkish Commercial Law and Law on Intellectual and Industrial Rights in such negative conditions. It defends its material and moral rights within the framework of Laws of Turkish Republic.

## 15 Does your journal accept papers from other languages?

Currently, the language of our journal is Turkish and English. However, studies in English and other languages are also accepted.

## 16 Is an author allowed to get information about referees evaluating her/his paper?

It is out of question. The names of the referees will never be revealed to the authors even if they want to learn. The author cannot recommend a referee for the paper s/he sent. Only the editor-in-chief, assistant editors, field editor and system editor can decide on this. It is also out of the question to assign a referee outside those boards and to give information.

## 17 Is an author allowed to give a name of a referee that s/he does not want her/his paper to be evaluated by?

If such a problem occurs, and the referee is in the journal list, on condition that the process is confidential, the author should submit the necessary explanations and reasons in an official document to the editor-in-chief. If this is approved by the chief editor, necessary steps are taken; otherwise, common procedures and standard working are carried out.

18 Is an author allowed to suggest a referee to contribute to the evaluation process? It is out of question. The field and system editors decide on the issue. Authors cannot interfere in this process.

## 19 Are the authors to sign the transfer agreement or publishing transfer contract?

This situation is stated on the main page of the journal in the section titled publication principles. All the submitted papers are accepted to be transferred to the journal with exclusive rights. The author is not asked to **sign the document** concerning the submission. However, in some cases the author should sign the contract, required by the field editors or administrative board and submit it to the chief editor officially. Otherwise the paper will not be published.

## 20 Is an author allowed to withdraw his/her paper when desired?

If the evaluation process has started, papers cannot be withdrawn. The paper can only be withdrawn in case of plagiarism and scientific disquality and if the author sends an official letter, explaining the situation to the chief editor. The journal acts unilaterally in this issue.

**21** What is the process in papers requiring the approval and report of ETHICS BOARD? As in "Media Organs" of National and International journals, author(s) has to upload "Date of Report", "Report Information-Report Number" to "Ethics Board Report Information"

part of the publication submission system of the journal in "EXPERIMENTAL, CASE STUDY and INSTITUTIONAL" works requiring ETHICS BOARD approval and report. The chief editor has the right to ask for the original report if deemed necessary with an official approval of the institution. In such cases, if the chief editor doesn't get the ethics board report despite the request made, the manuscript cannot be included in the system and published even if it has obtained referee approval and completed the publication process. The paper is rejected with the decision of chief editor and other editors. In this case, author(s) cannot make a demand for right. This information isn't necessary for the papers not requesting ethics board report or being lack of this report. However, this information should be uploaded to the system by author(s) for the papers requesting and having the ethics board report. Author(s) are held responsible for this situation. Our journal doesn't accept any liability and responsibility regarding this matter. The whole responsibility in legal process belongs to author(s). Otherwise, our journal cannot bear any legal, spiritual and material responsibility. Journal management and referees cannot be imposed any liability in this matter. In case of a possible negative condition, our journal unilaterally reserves its legal rights.

SSTB - Uluslararası Hakemli Akademik Spor Sağlık ve Tıp Bilimleri Dergisi

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