



Investigation Of The Effects Of Coordination And Balance Trainings On Some Biomotor Skills Of Football Players

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ABSTRACT

The aim of this study is to examine the effects of coordination and balance training applied during the preparation period on speed and flexibility in young football players in the 10-14 age group (born in 2010-2011 and 2012-2013). 40 athletes from Beşiktaş Gebze Football School participated in the study group voluntarily. In the research, 20 meter speed test and flexibility sit-reach test were performed. Istanbul Gelişim University Rectorate Ethics Committee Presidency approved the suitability of the research with the decision numbered 2024-01-153. Data analysis was done with SPSS 24 program. After the evaluations, the Independent T test was used to compare two independent groups. It was determined that there was a statistically significant difference in the pretest-posttest results of flexibility ($p<001$) and sprinting ($p=000$) in the 2012-2013 age groups. It has been concluded that the 6-week preparation period planned before the season affects speed and flexibility performance, and in this sense, it can be a guide for coaches in different branches.

Keywords: Speed, balance, coordination, flexibility, football

Introduction

The training programs and measurements applied in the preparation period are applications aimed at determining the physical and motoric characteristics of athletes regarding performance. The physical performance determined by pre-season training programs should be maintained throughout the season (Ersöz et al., 1996). As a result of pre-season training, positive changes can be observed in jumping abilities, endurance capacities and some physical parameters of professionals (Berriel et al., 2022). In team sports, it is predicted that a minimum of 6 weeks of training in the pre-season preparation period will contribute to the speed of athletes (Trajkovic et al., 2012). The interrelationship between physiological and physical characteristics has been unquestionably accepted by the world of sports science (Inskip et al., 2007). Performance in soccer develops depending on many factors. Therefore, in order to reflect the performance at the desired level, endurance characteristics should be good. In this context, it is an inevitable condition that parameters such as sprint and flexibility find a place in coordination training. In this context, it is necessary to plan and prepare the training content in a way to cover many factors, not on a single feature.

Method

In this study, one group pretest-posttest design of the experimental method, one of the quantitative research methods, was applied. Forty male soccer players from Beşiktaş Gebze Football School voluntarily participated in the study group.

Balance Training: Passing on the bosu ball with in-foot, over-foot and head (Paired Work), one of the partners throws an accurate pass with his hand to his friend on the bosu ball (1 min work-1 min pass X 3 sets = 6 minutes). Slow, medium, fast walks forward and backward over the gymnastic balance board with ball in hand (6 minutes).

Coordination Training: Starting with dribbling with a soccer ball, dribbling 5 meters, passing between 6 slalom bars, passing with the wall, throwing from the right and catching from the left, obstacle jumping and shooting at the miniature goal (3 sets).

6-Week Training Protocol: During the preparation period, training sessions will be held on weekdays, 2 days a week are planned as coordination and balance training, and weekends are determined as recovery days. Before the training, the general warm-up is completed with a warm-up specific to the football branch and then the training program of that day starts. The characteristics of the exercises in the training program are detailed in Table 1.

Table.1 Training Program (6 weeks)

	Warm up	Main Phase	Cooling Down
Monday	General Warming/Special Warming	Technical + Tactical	Cooling Exercises
Tuesday	General Warming/Special Warming	Coordination + Balance	Cooling Exercises
Wednesday	General Warming/Special Warming	Technical + Tactical	Cooling Exercises
Thursday	General Warming/Special Warming	Coordination + Balance	Cooling Exercises
Friday	General Warming/Special Warming	Overall, Strength + Quickness	Cooling Exercises

* A full day of rest is given on Saturdays and Sundays.

Speed Measurement

30 Meter Sprint: The athletes ran 30 meters at maximal speed with high output, and it was recorded in seconds with a photocell. The best score of the sprint test, which was run in two repetitions, was recorded in the system (Sevim, 1997).

Flexibility Test

Sit-Rest Flexibility Test: A 30 cm long straight line was marked as the baseline for the test. A measurement line with a precision of 0.1 mm and a length of 60-80 cm was placed perpendicular to the baseline and 30-40 cm on both sides. The point where the baseline and measurement line intersected was considered as point "0". The recorded scores were evaluated as plus (+) for reaches beyond the baseline and minus (-) for reaches beyond the baseline and the last point reached was recorded (Hui and Yuen, 2000; PCPFS, 2000).

Data analysis: The data obtained from speed and flexibility tests were analyzed with SPSS 24.0 program in computer environment. Whether the data were normally distributed was evaluated according to Shapiro Wilk tests, skewness and kurtosis values, and the ratios obtained by dividing the skewness and kurtosis values by the standard error. When the skewness and kurtosis coefficients were evaluated, it was accepted that all scores had normal distribution standards within ± 3 . According to Kalaycı and the researchers, the coefficient values in the ± 3 range can be considered as an acceptable situation (Büyüköztürk, 2007). After the evaluations, Independent T test was used to compare two independent groups. A value of $p < 0.05$ was considered statistically significant in the analysis.

Findings

Table 2. Age groups flexibility pre-test-posttest values table

Group	Variable	Test	n	X±Sd	t	p
2010-2011	Flexibility (cm)	Pre-Test	20	25,58±5,11	-1,791	,089
		Final Test	20	26,05±4,56		
2012-2013	Flexibility (cm)	Pre-Test	20	26,20±4,64	-3,823	,001*
		Final Test	20	27,20±4,67		

When Table 2 is analyzed, it is determined that there is no statistically significant difference in flexibility pre-test post-test parameters according to 2010-2011 age groups. According to 2012-2013 age groups, it was determined that there was a statistically significant difference in flexibility pre-test post-test parameters.

Table 3. Age groups speed test pre-test-posttest values table

Group	Variable	Test	n	X±Sd	t	p
2010-2011	30 m. Speed (sec)	Pre-Test	20	4,98±,43	1,750	,086
		Final Test	20	4,88±,46		
2012-2013	30 m. Speed (sec)	Pre-Test	20	5,24±,38	5,766	,000*
		Final Test	20	4,83±,41		

When Table 3 is examined, it was determined that there was no statistically significant difference in 30-meter sprint pre-test post-test parameters according to 2010-2011 age groups. According to 2012-2013 age groups, it was determined that there was a statistically significant difference in 30 M. sprint pre-test post-test parameters.

Table 4. Table of pre-test-posttest values between 2010-2011 and 2012-2013 age groups

Variable	Group	n	X±Sd	t	p
Flexibility (cm) Pre-Test	2010-2011	20	25,58±5,11	-,405	,688
	2012-2013	20	26,20±4,64		
30 m. Speed (sec) Pre-Test	2010-2011	20	4,98±0,44	-2,015	,051
	2012-2013	20	5,25±0,38		

When Table 4 was analyzed, it was determined that there was no statistically significant difference in flexibility pre-test and 30 m. sprint pre-test parameters according to age groups.

Table 5. Table of pre-test-posttest values between 2010-2011 and 2012-2013 age groups

Variable	Group	n	X±Sd	t	p
Flexibility (cm) Final Test	2010-2011	20	26,05± 4,56	-,788	,436
	2012-2013	20	27,20±4,67		
30 m. Speed (sec) Final Test	2010-2011	20	4,88± 0,46	,319	,752
	2012-2013	20	4,84±0,42		

When Table 5 is analyzed, it is seen that there is no statistically significant difference in flexibility post-test 30m. It was determined that there was no statistically significant difference in the speed post-test parameters.

Discussion and Conclusion

In this study, speed and flexibility values of football players were determined with the training programs applied during the preparation period. The 30-meter sprint values we obtained from the results of the research differ from the sprint values of boys aged 11-12 years (Müniroğlu et al., 2000) and 10-12 years (Saygın & Mengütay, 2006). Again, the speed values of the athletes with an average age of 13.12±0.80 years were lower (Saygın & Özşaker, 2012). In our study, although there was no difference in the sprint parameter at the end of 6 weeks, a positive increase in performance was observed, thus, it is similar to the studies stating that sprint performance increased at the end of 12 weeks (Kürkçü, 2009) and 5 weeks (Voelzke et al., 2012) training. Compared to the study that found a significant relationship between speed and explosive power performance in similar age group child tennis players (Yıldız et al., 2018), no relationship was found in our study in which we evaluated the relationship between flexibility and speed. After 3 months of training (Baron et al., 2020; Gjinovci et al., 2017), there was an improvement in speed (Baron et al., 2020; Gjinovci et al., 2017), while in our study there was an improvement in 1.5 months. The flexibility test values in team sports players with an average age of 13.41±0.63 years (Saygın and Özşaker, 2012), 10-11 years old students (Kılıç, 2007), only 10 years old (Güler, 2003) and 10-12 years old male athletes (Pekel et al., 2006; Saygın and Mengütay, 2006) differed from the flexibility values of soccer players of the same age group in our study. It is an interesting result that the flexibility values obtained in our study and the flexibility values obtained from boys of the same age group (Polat, 2002) on non-sportsmen are close. At the end of the study, it is important that coordination and balance training in the preparation period has a positive effect on speed and flexibility parameters, as well as having a positive effect on performance and preventing injuries.

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