Scholar's Digest- Journal of Multidisciplinary Studies
Volume 3, Issue 8, August - 2024
ISSN (E): 2949-8856
Scholarsdigest.org

THE CONTRIBUTION OF CERTAIN PHYSICAL TESTS IN DEVELOPING THE SKILL PERFORMANCE LEVEL IN FOOTBALL FOR JUNIORS

T.Dr. Ahmed Ali Abdullah Ahmed Al-Jubouri
Ministry of Education / Kirkuk Education Directorate, Iraq

A. T. Ibrahim Ahmed Najm
Ministry of Education / Kirkuk Education Directorate, Iraq.

A.T. SALIM IBRAHIM ALI
Ministry of Education / Nineveh Education Directorate, Iraq
Ahmed.ali.abdullah191@st.tu.edu.iq

Abstract
Using pre- and post-measurements for each group, the researcher employed an experimental design with two groups—one experimental and one control. The North Oil Club Academy's young football players for the 2023 training season made up the research population. In order to represent 50% of the research population, a sample of 36 juniors was purposefully selected, and they were split into two equal groups of 18 juniors each at random. Between the pre- and post-measurements of the experimental group, there were statistically significant changes in favor of the post-measurement regarding the level of contribution of specific physical tests in raising the skill performance level of junior football players. With notable variations in the improvement rate in the contribution of specific physical tests in developing the skill performance level in junior football players in favor of the experimental group, the suggested training program demonstrated a positive impact on improving the components of specific physical fitness (speed, agility, accuracy, and speed-strength).

Keywords: Physical tests, skill performance level, juniors.

Introduction

The foundation of the idea of physical fitness for football players is the physical demands of a game of the game. This is one of the foundational elements of football because it calls for quick running to try to get possession of the ball before the opposition, constant play for the entire duration of the game—which frequently goes longer than expected—as well as quick switching of positions and direction (Amr Allah Al-Basati, 1998, p.76). Football players need to be highly physically fit, both anaerobically and aerobically, to improve their speed, vertical leap, power, endurance, and other fundamental qualities that will help them dominate the game from start to finish (D.G. Bin Eliyahu, 1996, pp. 115–120).

According to Mohammed Reda Al-Waqqad (2003), the degree of physical preparation and the development of the fundamental elements of physical fitness—strength, speed, endurance, flexibility, agility, and skill—are what determine whether players or teams

perform at high levels at all technical stages and achieve the desired sports outcomes. These components are among the most significant characteristics of a football player, making them essential goals in training regimens meant to enhance both overall and specialized physical preparation (p.115).

Football is made up of three primary components, according to Roy Ress and Cor Van Dermeer (1997): skill performance, tactical performance, and fitness. A player's ability to perform skillfully is severely impacted by their level of physical fitness, particularly in the latter stages of a game. It is therefore a waste of time and energy to emphasize tactical performance without near-ideal player performance (p. 57–58).

The development of both football abilities and physical fitness components should occur simultaneously, according to Martin Bidzinski (1996). With time, we find that applying the training program increases passing, receiving, running with and without the ball effectiveness in part due to physical conditioning. When assessing a football player's performance, it's important to consider their ability to perform under pressure from the game, their physical condition, and their psyche (p. 25–27).

Football is a team sport that is built on speed, as evidenced by its fast accelerations, rapid decelerations, abrupt direction changes, and quick starts and stops. This was noted by Adam Brewer (2004). Efficiency in talent is important, but if a player can't get the ball before the defense, it doesn't matter how good they are. Although some may contend that genetics plays a major role in determining speed, speed is something that can be learned and improved. Improvements in performance technique, training for explosive power generation, and raising fast-twitch fiber activity can all increase speed even if individual differences in the proportions of fast and slow-twitch muscle fibers determine speed (p.6).

According to Hassan Al-Sayed Abu Abduh (2001), skill performance level training is essential for building the bulk of the daily training unit and for maintaining player performance accuracy. To evaluate player ability and skill, these drills can be carried out in a timed or spaced manner, with either passive or active defenders (p.152).

Research Aim:

The purpose of this study is to determine how specific physical examinations affect junior football players' ability to perform at a higher level by:

1. Creating a training regimen to raise junior football players' ability and performance levels.
2. Determining how the training regimen affects junior football players' development of physical traits.

Research Hypotheses:

1. There are statistically significant differences in favor of the post-measurement between the pre- and post-measurements of the experimental group regarding the degree to which specific physical tests contribute to the development of junior football players' skill performance level.
2. In favor of the post-measurement, there are statistically significant differences between the pre- and post-measurements of the control group regarding the degree to which specific

physical tests contribute to the development of junior football players' skill performance level.

3. The post-measurements of the experimental and control groups show statistically significant variations in the relative contributions of specific physical tests to the development of junior football players' skill performance level, with the experimental group's post-measurement showing a greater advantage.

4. The experimental group showed higher progress rates than the control group in the degree to which some physical tests contributed to the development of junior football players' skill performance level.

Research Method:

Using pre- and post-measurements for each group, the researcher employed an experimental design with two groups—one experimental and one control.

Research Population:

The North Oil Club Academy's young football players for the 2023 training year made up the research population.

Research Sample:

36 juniors were purposefully selected as a sample, accounting for 50% of the research population. They were split into two equal groups, each with eighteen juniors, at random:

1. Experimental Group: Made up of eighteen juniors who were trained in accordance with the prescribed curriculum.
2. Control Group: 18 juniors who participated in the regular club curriculum.

Sample Homogeneity and Equivalence:

Prior to program implementation, the researcher made sure the research sample was homogeneous, considering factors that can affect the study's findings, as the following table illustrates.

Table (1): Arithmetic Mean, Standard Deviation, Median, and Skewness Coefficient for the Variables (Height, Weight, Age) for the Experimental and Control Groups: N1 + N2 = 36

No.	Variables	Unit	Experimental Group				Control Group			
			M	SD	Median	coefficient of skewness	M	SD	Median	coefficient of skewness
1	Length	CM	148.08	5.14	147	0.63	146.17	5.24	146	0.095
2	Weight	KG	40.67	5.33	38.5	1.22	40.42	4.80	38.5	1.2
3	Age	Year	11.43	0.14	11.42	0.30	11.51	0.23	11.54	0.45-

Table No. (1) makes it evident that all of the experimental group's skewness coefficient values fell between (0.11 and 1.22), whereas the control group's values varied between (0.095

and -0.45). For the variables of height, weight, age, and training age for both the experimental and control groups, these values are within the range of (+3), indicating that the research groups are homogeneous.

Table No. (2) The mean, standard deviation, and T-value for the average performance of physical tests between the experimental and control groups in the pre-test. N1+N2=36

Variables			Unit	Experimental Group		Control Group		Dif. Between Means	(T) Value
				M	SD	M	SD		
Force with Speed	Triple jump of stability on the right foot	distance	M	3.880	0.381	3.898	0.380	0.018	0.110-
		time	Sec	1.677	0.157	1.662	0.156	0.015	0.217
		speed	M/S	2.336	0.361	2.400	0.362	0.064	0.412-
	Triple jump of left-footed stability	distance	M	3.742	0.678	3.760	0.680	0.018	0.062-
		time	Sec	1.835	0.134	1.822	0.135	0.013	0.253
		speed	M/S	2.088	0.281	2.063	0.334	0.025	0.188
	Triple jump of stability with both feet together		M	4.168	0.368	4.186	0.367	0.018	0.114-
Speed	Run 18m		Sec	3.649	0.299	3.635	0.299	0.014	0.114
	Run 10m		Sec	2.049	0.098	2.057	0.118	0.008	0.167-
zapping	Running 10m from standing		Sec	2.713	0.119	2.699	0.119	0.014	0.287
Agility	4 × Run 10m Shuttle		Sec	12.725	0.533	12.711	0.533	0.014	0.064

The tabulated T-value at the 0.05 significance level = 2.074

Given that the tabulated T-value is higher than the estimated T-value at the 0.05 significance level, Table (2) clearly shows that there are no statistically significant differences in the average performance of physical tests between the experimental and control groups. This suggests that the two groups are equivalent.

3/4 - Study Implementation Procedures:

3/4/1 - Reference Survey:

A reference survey of studies, research, and scientific references was conducted to assist the researcher in determining the following:

3/4/1/1 - Selection of physical tests.

3/4/1/2 - Design of skill performance tests under investigation.

3/4/1/3 - Determination of the content of the training program and the components of the training units.

Study Procedures:

As indicated in the following tables, the researcher used the test-retest method to calculate reliability and the criterion-related validity to calculate validity when calculating the scientific coefficients (validity and reliability) for the physical tests:

Table 3: Validity Coefficient of Physical Tests: N1+N2=36

Variables			Unit	Upper Half		Lower Half		Dif. Between Means	(T) Value
				M	SD	M	SD		
Force with Speed	Triple jump of stability on the right foot	distance	M	3.625	0.219	4.326	0.258	0.701	3.112
		time	Sec	1.547	0.048	1.783	0.113	0.236	2.995
		speed	M/S	2.113	0.114	2.693	0.229	0.58	3.085
	Triple jump of left-footed stability	distance	M	3.453	0.445	4.288	0.253	0.835	3.174
		time	Sec	1.607	0.155	1.923	0.039	0.316	3.292
		speed	M/S	1.881	0.211	2.471	0.341	0.59	2.871
	Triple jump of stability with both feet together		M	3.996	0.170	4.555	0.238	0.559	3.053
Speed	Run 18m		Sec	3.327	0.161	3.768	0.264	0.441	3.005
	Run 10m		Sec	1.968	0.0286	2.113	0.063	0.145	3.043
zapping	Running 10m from standing		Sec	2.512	0.0812	2.738	0.094	0.226	3.065
Agility	4 × Run 10m Shuttle		Sec	12.122	0.350	13.016	0.441	0.894	2.974

The tabular value of "t" at a significance level of 0.05 = 2.074

At a significance level of 0.05, Table (3) displays statistically significant differences between the upper and lower halves of the physical fitness tests, favoring the upper half and demonstrating the validity of the tests.

Table (4) Reliability Coefficient for the Means of Physical Fitness Test Measurements N=36

Variables			Unit	First Measure		Second Measure		Dif. Between Means	(T) Value
				M	SD	M	SD		
Force with Speed	Triple jump of stability on the right foot	distance	M	3.975	0.428	3.847	0.444	0.128	0.914
		time	Sec	1.665	0.148	1.641	0.146	0.024	0.882
		speed	M/S	2.403	0.345	2.361	0.335	0.042	0.887
	Triple jump of left-footed stability	distance	M	3.87	0.554	3.896	0.561	0.026	0.829
		time	Sec	1.765	0.196	1.708	0.169	0.057	0.883
		speed	M/S	2.176	0.409	2.304	0.428	0.128	0.813

	Triple jump of stability with both feet together	M	4.275	0.349	4.223	0.468	0.052	0.862
Speed	Run 18m	Sec	3.548	0.289	3.484	0.271	0.064	0.832
	Run 10m	Sec	2.04	0.088	2.051	0.095	0.011	0.821
zapping	Running 10m from standing	Sec	2.625	0.144	2.57	0.167	0.055	0.811
Agility	4 × Run 10m Shuttle	Sec	12.569	0.6003	12.585	0.696	0.016	0.845

Table (4) makes clear that the measures of physical fitness tests had reliability coefficients ranging from 0.811 to 0.914, all of which are high reliability coefficients.

3/6- Statistical Procedures:

SPSS and Excel were the computer applications used to do the statistical analysis. The researcher employed the following statistical techniques to meet the study goals and evaluate the hypotheses:

- Mean
- Standard Deviation
- Correlation Coefficient
- Skewness
- t-Test
- Improvement Ratio

4/1- Presentation and Discussion of Results:

Table (5) presents the mean, standard deviation, and calculated t-value between pre-test and post-test measurements for the experimental group in the averages of physical fitness test scores. N = 18

Variables			Unit	Pre- Measure		Post-Measure		Dif. Between Means	(T) Value
				M	SD	M	SD		
Force with Speed	Triple jump of stability on the right foot	distance	M	3.880	0.381	4.563	0.446	0.683-	5.189
		time	Sec	1.677	0.157	1.497	0.089	0.18	-3.273
		speed	M/S	2.336	0.361	3.167	0.489	0.831-	4.678
	Triple jump of left-footed stability	distance	M	3.742	0.678	4.501	0.300	0.759-	4.376
		time	Sec	1.835	0.134	1.52	0.189	0.315	-4.842
		speed	M/S	2.088	0.281	3.21	0.616	1.122-	6.497
	Triple jump of stability with both feet together		M	4.168	0.368	4.733	0.372	0.565-	4.371
Speed	Run 18m		Sec	3.649	0.299	3.145	0.239	0.504	-4.863
	Run 10m		Sec	2.049	0.098	1.888	0.095	0.161	-3.678
zapping	Running 10m from standing		Sec	2.713	0.119	2.461	0.161	0.252	-4.431
Agility	4 × Run 10m Shuttle		Sec	12.725	0.533	11.653	0.476	1.072	-5.342

Table (5) presents statistically significant differences in all average scores of physical fitness tests for the experimental group between the pre- and post-test measures, with a preference for the post-test data. At a significance level of 0.05, the computed t-values are higher than the tabulated t-value of 2.201.

Table (6): Mean, Standard Deviation, and Calculated t-Value Between Pre-Test and Post-Test Measurements for the Control Group in Average Scores of Physical Fitness Tests N=18

Variables			Unit	Pre- Measure		Post-Measure		Dif. Between Means	(T) Value
				M	SD	M	SD		
Force with Speed	Triple jump of stability on the right foot	distance	M	3.898	0.380	4.413	0.471	0.515	-2.414
		time	Sec	1.662	0.156	1.558	0.033	0.104	2.252
		speed	M/S	2.400	0.362	2.661	0.297	0.261	-2.287
	Triple jump of left-footed stability	distance	M	3.760	0.680	4.180	0.178	0.42	-2.207
		time	Sec	1.822	0.135	1.694	0.102	0.128	2.228
		speed	M/S	2.063	0.334	2.478	0.209	0.415	4.081
	Triple jump of stability with both feet together		M	4.186	0.367	4.445	0.251	0.259	-2.338
Speed	Run 18m		Sec	3.635	0.299	3.377	0.204	0.258	2.492
	Run 10m		Sec	2.057	0.118	1.964	0.061	0.093	2.245
zapping	Running 10m from standing		Sec	2.699	0.119	2.587	0.091	0.112	2.264
Agility	4 × Run 10m Shuttle		Sec	12.711	0.533	12.212	0.588	0.499	2.211

The table t-value at the 0.05 significance level = 2.201

Table (6) displays statistically significant differences, favoring the post-test measures, between the pre-test and post-test measurements for the control group in all average results of the physical fitness tests. The computed t-values exceeding the table value at the 0.05 significance level serve as an indicator of this.

Table (7) shows the mean, standard deviation, and calculated t-value between the post-test measurements of the experimental and control groups for the average results of the physical fitness tests. N1 + N2 = 36

Variables			Unit	Experimental Group		Control Group		Dif. Between Means	(T) Value
				M	SD	M	SD		
Force with Speed	Triple jump of stability on the right foot	distance	M	4.563	0.446	4.413	0.471	0.15	2.147
		time	Sec	1.497	0.089	1.558	0.033	0.061-	2.126-
		speed	M/S	3.167	0.489	2.661	0.297	0.506	2.929
	Triple jump of left-footed stability	distance	M	4.501	0.300	4.180	0.178	0.321	3.047
		time	Sec	1.52	0.189	1.694	0.102	0.174-	2.683-
		speed	M/S	3.21	0.616	2.478	0.209	0.732	3.731
	Triple jump of stability with both feet together		M	4.733	0.372	4.445	0.251	0.288	2.123
Speed	Run 18m		Sec	3.145	0.239	3.377	0.204	0.232-	2.443-
	Run 10m		Sec	1.888	0.095	1.964	0.061	0.076-	2.249-
zapping	Running 10m from standing		Sec	2.461	0.161	2.587	0.091	0.126-	2.254-
Agility	4 × Run 10m Shuttle		Sec	11.653	0.476	12.212	0.588	0.559-	2.453-

The critical t-value at the 0.05 significance level = 2.074

For every physical fitness test result, Table (7) demonstrates statistically significant differences between the experimental and control groups' post-test measurements, with the experimental group's post-test measurements being more favorable. The fact that the computed t-values are higher than the crucial t-value at the 0.05 significance level makes this clear.

Table (8) Improvement Percentage Between Pre-Test and Post-Test Averages for the Experimental Group in Physical Fitness Tests N = 18

Variables			Unit	Pre- Measure	Post-Measure	Dif. Between Means	Improve %
				M	M		
Force with Speed	Triple jump of stability on the right foot	distance	M	3.880	4.563	0.683-	17.603
		time	Sec	1.677	1.497	0.18	10.734
		speed	M/S	2.336	3.167	0.831-	35.574
	Triple jump of left-footed stability	distance	M	3.742	4.501	0.759-	20.283
		time	Sec	1.835	1.52	0.315	17.166

		speed	M/S	2.088	3.21	1.122-	53.736
	Triple jump of stability with both feet together		M	4.168	4.733	0.565-	13.556
Speed	Run 18m		Sec	3.649	3.145	0.504	13.812
	Run 10m		Sec	2.049	1.888	0.161	7.857
zapping	Running 10m from standing		Sec	2.713	2.461	0.252	9.289
Agility	4 × Run 10m Shuttle		Sec	12.725	11.653	1.072	8.424

Table (8) demonstrates that there are variations in the experimental group's improvement percentages between the pre- and post-tests, with the post-test demonstrating greater improvement. The averages of the physical fitness tests show that the improvement percentage between the pre- and post-tests ranges from 7.857% to 53.736%.

Table (9) Improvement Percentage Between Pre-Test and Post-Test Averages for the Control Group in Physical Fitness Tests (N=18)

Variables			Unit	Pre- Measure	Post-Measure	Dif. Between Means	Improve %
				M	M		
Force with Speed	Triple jump of stability on the right foot	distance	M	3.898	4.413	0.515	13.212
		time	Sec	1.662	1.558	0.104	6.258
		speed	M/S	2.400	2.661	0.261	10.875
	Triple jump of left-footed stability	distance	M	3.760	4.180	0.42	11.170
		time	Sec	1.822	1.694	0.128	7.025
		speed	M/S	2.063	2.478	0.415	20.116
	Triple jump of stability with both feet together		M	4.186	4.445	0.259	6.187
Speed	Run 18m		Sec	3.635	3.377	0.258	7.098
	Run 10m		Sec	2.057	1.964	0.093	4.521
zapping	Running 10m from standing		Sec	2.699	2.587	0.112	4.149
Agility	4 × Run 10m Shuttle		Sec	12.711	12.212	0.499	3.926

According to Table (9) there are variations in the control group's improvement percentage between the pre- and post-test measurements, with the post-test measurement showing more improvement. The percentage change in average physical fitness test scores between the pre- and post-test periods ranges from 20.116% to 3.926%.

Table (10) Difference in the Improvement Percentages Between the Post-Test Averages of the Experimental and Control Groups in Physical Fitness Tests, N=18

Variables			Unit	Improve %		Difference
				Experimental	Control	
Force with Speed	Triple jump of stability on the right foot	distance	M	17.603	13.212	4.391
		time	Sec	10.734	6.258	4.476
		speed	M/S	35.574	10.875	24.699
	Triple jump of left-footed stability	distance	M	20.283	11.170	9.113
		time	Sec	17.166	7.025	10.141
		speed	M/S	53.736	20.116	32.63
	Triple jump of stability with both feet together		M	13.556	6.187	7.369
Speed	Run 18m		Sec	13.812	7.098	6.714
	Run 10m		Sec	7.857	4.521	3.336
zapping	Running 10m from standing		Sec	9.289	4.149	5.14
Agility	4 × Run 10m Shuttle		Sec	8.424	3.926	4.498

Table (10) presents variations in the percentage of improvement that were advantageous to the experimental group, which implemented the suggested training regimen. In terms of physical fitness tests, this percentage is higher than that of the control group, which followed the conventional training regimen; the disparities ranged from 32.63% to 4.396%.

4/2- Discussion of Results:

4/2/1- Discussion of Statistical Differences Between Pre-Test and Post-Test for the Experimental Group in Skill Performance (Under Study) and Physical Fitness Components:

The suggested training program, which comprised standardized workouts to enhance skill performance and was customized to the age group of the sample's football performance requirements, is credited by the researcher for this advancement. It allowed for the targeted direction of movements. This resulted in an increase in physical fitness components, which is in line with research by Osama Rateb (1999) and Abu Al-Ala Mohamed Abdel-Fattah (1997), who found that at this developmental stage, motor skills improve and muscle-nerve coordination increases, making compound exercises especially advantageous.

The study's initial hypothesis, which reads, "Some physical fitness tests contribute statistically significantly differently to improving junior football skill performance between the pre-test and post-test for the experimental group, favoring the post-test," has thus been verified.

4/2/2- Discussion of Statistical Differences Between Pre-Test and Post-Test for the Control Group in Physical Fitness Components:

In physical fitness tests, Table (6) demonstrates statistically significant differences favoring the post-test over the pre-test averages for the control group.

The traditional training program, which developed individual performances using basic skill training methods, is credited by the researcher with the improvement observed in the control group.

Thus, the study's second hypothesis—that "some physical fitness tests contribute more to improving junior football skill performance than others, favoring the post-test—has been verified. There are statistically significant differences between the pre-test and post-test for the control group."

4/2/3- Discussion of Statistical Differences Between the Post-Test Measurements of the Experimental and Control Groups in Skill Performance:

The study's findings, which are displayed in Tables (6), (7), and (8), reveal that there were significant statistical differences, favoring the experimental group's post-test, between the control and experimental groups' post-test averages in all physical fitness tests at the 0.05 level. Significant statistical differences between the experimental and control groups' post-test measurements are displayed in Tables (9) and (10).

The suggested training program, which had a more favorable impact on the experimental group than the conventional program utilized for the control group, is credited by the researcher for this improvement. The training program's main emphasis was on how physical fitness assessments, particularly the post-test, may help junior football players perform better on the field.

5/1- Conclusions:

The researcher came to the following conclusions based on the study's findings as well as its goals and hypotheses:

1. The speed, agility, accuracy, and speed-strength components of physical fitness improved as a result of the suggested training regimen.
2. The experimental group benefited from variations in the percentage improvement in the contribution of certain physical fitness tests to enhancing junior football players' skill performance.

5/2- Recommendations:

The researcher suggests the following in light of the findings and conclusions of the study:

1. Putting the tests the researcher created to identify juniors' ability levels into practice.
2. Taking age group features into account when working with juniors to develop plans for level improvement that take into account their skills in terms of their physical, mental, motor, and social capacities.

3. To achieve the concepts of specificity, variation, and differentiation, coaches should concentrate on the caliber of skill performance and incorporate it in training sessions that get harder and harder until they resemble real-world situations.

References

I. Arabic References:

1. Abu Al-Ala Mohamed Abdel-Fattah. Sports Training and Physiological Foundations. Arab Thought House, Cairo, 1997.
2. Osama Kamel Rateb. Motor Development: A Comprehensive Approach to Child and Adolescent Development. Arab Thought House, Cairo, 1999.
3. Amr Allah Ahmed El-Basaty. Analytical Study to Determine the Components of Skill Performance in Football. Journal of Theories and Applications, Faculty of Physical Education for Boys, Alexandria University, 1998.
4. Jamal Ismail Mtaweh. Football Curriculum, Unpublished Memoirs, 1st Edition, 1997.
5. Hassan Said Abu Abduh. Modern Trends in Football Planning and Training. Al-Ishra'a Printing, Alexandria, 2001.
6. Hassan Said Abu Abduh. Skill Preparation in Football, Alexandria, 1998.
7. Abdou Saleh Al-Wahsh and Muftee Ibrahim Hamad. Fundamentals of Football. World Knowledge House, 1995.
8. Mohamed Hassan Allawi and Mohamed Nasr El-Din Radwan. Motor Performance Tests. Arab Thought House, Cairo, 1994.
9. Mohamed Reda Al-Wakad. Modern Planning in Football. Al-Saada Printing House, 2003.
10. Mohamed Abdel-Salam Abu Reiya. Design of a Battery of Skill Performance Tests for Football Players in the Arab Republic of Egypt. Unpublished Ph.D. Thesis, Faculty of Physical Education, Tanta University, 1999.

II. Foreign References:

1. Adam Brewer. The Need For Soccer Speed: A 9-Week Program That Will Add Skip To Your Steps And Spring To Your Jumps. MA, CSCS, NSCA's Performance Training Journal: A Free Publication Of The NSCA, 2004.
2. Ben Eliyahu, D.J. Developing Power, Speed, and Endurance in the Soccer Athlete. Journal of Sports Chiropractic & Rehabilitation, Baltimore (Maryland), 3, pp. 115-120, 1996.
3. Carlos Castagna, Grant Abt. Activity Profile of Young Soccer Players During Actual Match Play. Journal of Strength and Conditioning Research, vol. 17, no. 4, pp. 775-780, 2003.
4. George Beim. Principles of Modern Soccer. Houghton Mifflin Company, U.S.A, 1986.
5. Martin Bidzinski. The Soccer Coaching Handbook. The Crowood Press, JW Arrow Smith Ltd, Bristol, 1996.
6. Roy Ress & Corvan Dermeer. Coaching Soccer Successfully. Human Kinetics, 1997.