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The Effect Of Basketball Training On Agility Of Children

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Abstract

This study has been done for the aim of determining the effects of basketball practices on agility and a number of physical and motorial features. The research group of thisempirical researchstudy in which pretest and posttest are made as a quantitative research models,consisting of a control and an experimental group, consists of 12 years old 60 boys who played basketball (n=30) and didn't play (n=30. Basketball practices made with the player (research) group for 16 weeks but no practices made with the non-player (control) group. Before practices(pre-test) and after practices (post-test) height, weight, right flexibility, left flexibility, illinuois agility, vertical jump, stabile jump and balance features of children's who are in the experimental and control groups in the study, has been measured with necessary techniques and data are gathered.Gathered data have been analized with SPSS 25.0 statistic analyze program and findings are gained. In this context , T test for the analyze of independent variable data in the normally distributed variables, Mann-Whitney U test which is one of the non-parametric tests,for the analyze of non-normally distributed variables and Wilcoxon signed rank test for detecting the change between groups have been chosen. As a result of this study it's stated that basketball practices are caused a significant change on boys' height, right flexibility, left flexibility, illinuois agility, balance and stabile jumping features who are in the experimental group. With comparing the boys' pre-test post-test measurements who are in non player control group, it's indicated that there is a significant change on height, weight, right flexibility, left flexibility and balance features. Also, comparing two groups' pre-test measurements, a difference is detected on the side of control group that non-players of basketball before about right flexibility, left flexibility and balance features but a change is detected on the side of experimental group that players of basketball before about illinuois agility, vertical jump and stabile jump features. In this study, when we compared the post-test measurements of the groups, it's detected that there is a differentation about right flexibility feature on the side of control group and a change about illinuois agility, vertical jump, balance and stabile jump features on the side of experimental group.

Key words: Basketball, Agility,Practice, Motorial Feature

INTRODUCTION

Players do lots of quick moves and short distance run during the competititon in basketball games. The aim is winning the game by making pressure on the oppenent with sudden and quick attacks, speedig up the game. However they have to be successful at the defence with the same tactics (25)

Players speed and moves are some of the most dominant features of his/her athletic skills. In a basketball game players never hit the top speed; repeating short and fast rus are more frequent. For example the skill of speeding up as soon as possible(acceleration) is knowns as the best qualification at games like basketball. Also acceleration and speed are known as seperate and special qualifications.

Basketball, as a branch, is a kind of sport that needs motorial qualifications to be at top. Anaerobic power gains importance as energy sistems and correspondingly there is a harmony between quickness, timing and strenght. It is an activity that combined with making existing athletic position stronger with vertical jump, balance, skill,

ability, timing, rhythm and speed and supporting these qualifications to make technical moves more smooth and easy (12). Bompa (1998), claims that the best ages for starting to basketball are 7-8, for learning 10-12, for specializing and high performance 20-25. According to Sevim (2002), first achievements phase is 20-22 ages, ideal achievement ages are 23-36 and maturity and high level achievement ages are between 27-30 for the basketball players.

Agility is expressed as changing direction quickly among series of movements and a coordination ability that makes body and joints move forward (15, 26, 30). With agility it is the essential aim to make whole body organs or some parts reaching the ideal angular values that needs to be. For this reason a move ensuring agility with a spurt, shape, move or event may be expressed as a qualificaiton of praparing and making quickly the moves that known or unknown before (24). Çeviklik Agility is a motorial component that can be developed and trained with a progressive training education (16, 9).

Basketball, as a branch, is a kind of sport that needs motorial qualifications to be at top. Anaerobic power gains importance as energy sistems and correspondingly there is a harmony between quickness, timing and strenght. It is an activity that combined with making existing athletic position stronger with vertical jump, balance, skill, ability, timing, rhythm and speed and supporting these qualifications to make technical moves more smooth and easy (12).

The essential aim of the whole trainer and players is to catch the best performance on the branch they're working. Therefore it is important to use scientific disciplines to ensure optimum performance. It is important to use scientific techniques at every sport branch to improve player's poerformance. Certainly the improvement of player's motorial features can be created with exercises and trainings about sport branches (17).

This study is carried out for specifing the impact of basketball practices on 12 years old boys' agility and some kind of physical and motorial features.

MATERIAL & METHOD

Research Model

Study is carried out with experimental model including pre-test, post-test control (G1) and experiment(G2) groups. In the model dependent variable is 12 years old boys' Height-Weight Measurements, Right and Left Flexibilities, Vertical Jump, Stabile Jump, Illinuois Agility Test and Balance Test results, independent variable is "Basketball Practices and Trainings".

Population and Sample

Study group of thisresearch is consists of total 60 male students, 30 players of basketball (n=30)from Konya Ayyıldız Basketball Clup at Konya city center and 30 non-players of basketball or any other sports (n=30) from Konya Esentepe College.

In the study basketball practices organized for the kids in experimental group for 16 weeks three days a week. Every week on Wednesdays, Fridays and Sundays between 18:30-20:00 warm-up and stretching for 15 minutes, then technical and tactical basketball practices are done. Then relaxing time given for 15 minutes. On the other side in control group at the same time there wasn't any additional training and practice except their P.E lesson and sports in their schools.

Data Collection Tools

Height and Weight Measurements: Hights of the kids who joined the experimental study have been measured twice with naked feet with a stadiometer that measures ±1 mm before and after the experimental study. And the weights have been measured with a bascule(Tanita401 A, Japan) that measures with ±100 gr sensivity as they are wearing just shorts and t-shirts.

Right and Left Flexibility Measurements: Flexibility measurements of the subjects have been done on the flexibility table. Subjects sit, they reach their naked feet to the test table without bending them, they push forward the ruler with their left and right hands on that table as far as they, they wait at the top distance for 1-2 seconds and the stretching distance have been noted as cm. This activity have been done twice as a trial with both right and left

hands and once for main and the biggest value is accepted.

Vertical Jump Measurements: For making the vertical jump measurements of participants it's been wanted from them to put their hands on their waist on exact squat position and try to jump as far as they can with full power without any springiness on their knees. Time has been started with participant's vertical jump and stopped when he touched the platform back. In this way participant's jumping levels have been measured from the time they stayed on air..In here it's assumed that the paticipant's position stayed the same when he jumped and came down to the platform. It's been conditioned for participants to not change place forward, back or sides and to keep their hands on their hips among jumpings during the test. Test has been repeated twice for the best result and the highest value is accepted.

StabileJump Measurements: For making the two feet long distance stabile jump measurements of participants they've been kept their feet together and toe edges at the back of the springboard. They've been wanted to bend their knees and stretch their both arms backwards. At this position they've seconds. For the best scores it's repeated twice with a full recovery and the best one's recorded.

Balance Measurements: For the balance measurements of participantsthey put their one foot to the feet kit and bends the other one back and they hold them with their hands at the same side and stands like flamingos. Thet try tos tay balanced with their free hand. They hold the helpers' arms and keep their balance, when they leave it their time starts. Time will be stopped on deformation of the position, on slip of foot, hand's leaving the leg and it is noted. Falling number is noted in 60 seconds. If there would be 15 falls in 30 seconds zero score is noted. On other assessment total number of falls or losing the balance in 60 seconds. The test has been repeated twice fort he best scores and the best measurement lavues are saved.

Data Analysis

Measured data has been analyzed using the SPSS 25.0 program. Both pre and advanced analyze techniques has been used for statistical analyze of data. Averages of whole test measurements of group been jumpedas far as possible by pushing their legs and flinging their arms forward. They've tried to come down on their both feet without falling down. After jumping distance of the nearest toe to the starting point has been noted as cm. Test has been repeated twice and the highest value is written.

Illinuois Agility Measurements: For making the illinuois agility measurements of participants, firsta test section has been set which has 5 m width, 10 m lenght, and with 3 cones on a flat line with 3.3 m spaces on the middle side. Test consists of 40 meters straight run with 180 degrees turning at each 10 meters and 20 meters slalom run between cones. An electronic stopwatch with photocell that can measure with 0.01 sec. sensivity has been set at the starting point of test section. Before the test the section's been introduced, and the participants have been informed and allowed to make workouts with low tempo. Then participants make 5-6 min. warm-up and stretching practices with a low tempo that they settled theirselves. It's been wanted from participants to start from the starting point lying down on their face and their hands on the same level with their shoulders and touching the ground. Finishing time of the section has been noted

and standard deviation have been identified and shaped on the pre-analyze techniques. Whether the data have a normal distribution or not has been tested with the One-Sample-Kolmogorov-Smirnov test. After this test a normal distribution has been seen about height, stabile jump, height 2, weight 2, vertical jump and balance 2. It's stated that the other weight, right flexibility, left flexibility, illinuois agility, vertical jump 2, balance, right flexibility 2, left flexibility 2, illinuois agility 2, stabile jump datahasnt got a normal distribution.

In-group comparisons have been made at the analyze of data showing normal distribution by using T Test for Independent Variables(IndependentSample T Test)

On the other hand at the analyze of data not showing normal distribution the necessary comparisons are made by using Mann-Whitney U Test because non-parametric tests gives us more powerfull results.

Wilcoxon Signed-Rank Test has been used for identifying that wheather there is a meaningful change between experimental and control groups or not.

RESULT

Tablo 1: Descriptive Statistics of Groups Pre-test and Post-test Measurements

Variables	Pre-test and Post-test Measurements	Control Group (G1) (n=30)		Experimental Group (G2) (n=30)	
		$\bar{X}$	Ss	$\bar{X}$	Ss
Height (m)	**pre-test**	1,66	0,095	1,66	0,105
	post-test	1,69	0,090	1,67	0,102
Weight (kg)	**pre-test**	60,27	17,84	58,91	13,24
	post-test	62,06	17,52	59,09	12,83
Right Flexibility (cm)	**pre-test**	27,90	8,00	22,27	3,39
	post-test	23,23	7,26	19,93	2,80
Left Flexibility (cm)	**pre-test**	26,20	7,83	21,87	2,82
	post-test	21,90	7,01	19,23	4,45
İllinuois Agility (sec.)	**pre-test**	20,66	1,70	18,47	1,50
	post-test	20,48	2,27	17,96	1,66
Vertical Jump (cm)	**pre-test**	28,76	7,94	36,44	8,96
	post-test	29,17	7,77	35,81	6,79
Balance	**pre-test**	9,43	5,48	5,33	4,28
	post-test	4,46	2,97	7,06	2,34
Stabile Jump (m)	**pre-test**	1,50	0,22	1,72	0,31
	post-test	1,48	0,22	1,78	0,34

***P<0.05**

When the Table 1 examined the height pre-test value of Control Group was 1.66± 0.095 m before while the post-test valuewas1.69± 0.090 m, the weight pre-test value was 60.27± 17.84 kg before while the post-test valuewas62.06± 17.52 kg,the right flexibility pre-test value was 27.90 ± 8.00 cm before while the post-test valuewas 23.23 ± 7.26 cm, the left flexibility pre-test value was 26.20 ± 7.83 cm before while the post-test valuewas 21.90 ± 7.01 cm, the illinuois agility pre-test value was 20.66 ± 1.70 sec. before while the post-test value was 20.48 ± 2.27 sec., the vertical jump pre-test value was 28.76 ± 7.94 cm. before while the post-test valuewas29.17 ± 7.77 cm, the balance pre-test value was 9.43 ± 5.48, before while the post-test value was 4.46 ± 2.97, the stabile jump pre-test value was 1.50 ± 0.22 m before while the post-test value was 1.48 ± 0.22 m.

The height pre-test value of Experimental Group was 1.66± 0.105 m before while the post-test value was 1.67± 0.102 m, the weight pre-test value was 58.91± 13.24 kg before while the post-test value was 59.09± 12.83 kg, the right flexibility pre-test value was 22.27 ± 3.39 cm before while the post-test value was 19.93 ± 2.80 cm, the left flexibility pre-test value was 21.87 ± 2.82 cm before while the post-test value was 19.23 ± 4.45 cm, the illinuois agility pre-test value was 18.47 ± 1.50 sec.before while the post-test value was 17.96 ± 1.66 sec.,the vertical jump pre-test value was 36.44 ± 8.96 cm before while the post-test value was 35.81 ± 6.79 cm, the balance pre-test value was 5.33 ± 4.28 before while the post-test value was 7.06 ± 2.34, the stabile jump pre-test value was 1.72 ± 0.31 m before while the post-test value was 1.78 ± 0.34 m.

Table 2: Comparison of the pre-test measurement values between groups

Variables		G 1 Control Group (n=30)		G 2 Experimental Group (n=30)		P
		$\bar{X}$	Ss	$\bar{X}$	Ss	
Height (m)	**pre-test measurement**	1,66	0,095	1,66	0,105	0,939
Weight (kg)	**pre-test measurement**	60,27	17,848	58,91	13,24	0,871
Right Flexibility (cm)	**pre-test measurement**	27,90	8,00	22,27	3,39	0,002*
Left Flexibility (cm)	**pre-test measurement**	26,20	7,83	21,87	2,82	0,006*
İllinuois Agility (sec.)	**pre-test measurement**	20,66	1,70	18,47	1,50	0,000*
Vertical Jump (cm)	**pre-test measurement**	28,76	7,94	36,44	8,96	0,001*
Balance	**pre-test measurement**	9,43	5,48	5,33	4,28	0,003*
Stabile Jump (m)	**pre-test measurement**	1,50	0,22	1,72	0,31	0,003*

***P<0.05**

It's been stated that there is statisticly no significant difference (p= ,939; p> ,05) at height pre-test measurement values between Control Group ($\bar{X}$=1.66; SS= 0,095) and Experimental Group ($\bar{X}$=1.66; SS= 0,105). It's been stated that there is statisticly no significant difference (p= ,871; p> ,05) at weight pre-test measurement values between Control Group ($\bar{X}$=60,27; SS= 17,848) and Experimental Group ($\bar{X}$=58,91; SS= 13,24). There is a statisticly significant difference (p= ,002; p< ,05) at right flexibility pre-test measurement values between Control Group ($\bar{X}$=27,90; SS= 8,00) and Experimental Group ($\bar{X}$=22,27; SS= 3,39). There is a statisticly significant difference (p= ,006; p< ,05) at left flexibility pre-test measurement values between Control Group ($\bar{X}$=26,20; SS= 7,83) and Experimental Group ($\bar{X}$=21,87; SS= 2,82). There is a statisticly significant difference (p= ,000; p< ,05) at illinuois agility pre-test measurement values between Control Group ($\bar{X}$=20,66; SS= 1,70) and Experimental Group ($\bar{X}$=18,47; SS= 1,50). So it's been identified that the illinuois agility values of the basketball playing kids before practices are better then the non-players. There is a statisticly significant difference (p= ,001; p< ,05) at vertical jump pre-test measurement values between Control Group ($\bar{X}$=28,76; SS= 7,94) and Experimental Group ($\bar{X}$=36,44; SS= 8,96). There is a statisticly significant difference (p= ,003; p< ,05) at stabile jump pre-test measurement values between Control Group ($\bar{X}$=1.72; SS= 0.31) and Experimental Group ($\bar{X}$=1.50; SS= 0.22). There is a statisticly significant difference (p= ,003; p< ,05) at balance pre-test measurement values between Control Group ($\bar{X}$=9.43; SS= 5.48) and Experimental Group ($\bar{X}$=5.33; SS= 4.28).

Table 3: Comparison of the post-test measurement values between groups.

Variables		G 1 Control Group (n=30)		G 2 Experimental Group (n=30)		P
		$\overline{X}$	Ss	$\overline{X}$	Ss	
Height (m)	**post-test measurement**	1,69	0,090	1,67	0,10	0,549
Weight (kg)	**post-test measurement**	62,06	17,52	59,09	12,8	0,456
Right Flexibility (cm)	**post-test measurement**	23,23	7,26	19,93	2,80	0,009*
Left Flexibility (cm)	**post-test measurement**	21,90	7,01	19,23	4,45	0,059
İllinuois Agility (sec.)	**post-test measurement**	20,48	2,27	17,96	1,66	0,000*
Vertical Jump (cm)	**post-test measurement**	29,17	7,77	35,81	6,79	0,001*
Balance	**post-test measurement**	4,46	2,97	7,06	2,34	0,000*
Stabile Jump (m)	**post-test measurement**	1,48	0,22	1,78	0,34	0,000*

***P<0.05**

It's been stated that there is statisticly no significant difference (p= ,549; p> ,05) at height pre-test measurement values between Control Group ($\overline{X}$=1.69; SS= 0,090) and Experimental Group ($\overline{X}$=1,67; SS= 0,10). There is statisticly no significant difference (p= ,456; p> ,05) at weight pre-test measurement values between Control Group ($\overline{X}$=62,06; SS= 17,52) and Experimental Group ($\overline{X}$=23,23; SS= 7,26). There is a statisticly significant difference (p= ,009; p< ,05) right flexibility pre-test measurement values between Control Group ($\overline{X}$=23,23; SS= 7,26) and Experimental Group ($\overline{X}$=19,93; SS= 2,80). There is statisticly no significant difference (p= ,059; p> ,05) at left flexibility pre-test measurement values between Control Group ($\overline{X}$=21,90; SS= 7,01) and Experimental Group ($\overline{X}$=19,23; SS= 4,45). There is a statisticly significant difference (p= ,000; p< ,05) illinuois agility pre-test measurement values between Control Group ($\overline{X}$=20,48; SS= 2,27) and Experimental Group ($\overline{X}$=17,96; SS= 1,66). There is a statisticly significant difference (p= ,001; p< ,05) vertical jump pre-test measurement values between Control Group ($\overline{X}$=29,17; SS= 7,77) and Experimental Group ($\overline{X}$=35,81; SS= 6,79). There is a statisticly significant difference (p= ,000; p< ,05) stabile jump pre-test measurement values between Control Group ($\overline{X}$=1,48; SS= 0,22) and Experimental Group ($\overline{X}$=1,78; SS= 0,34). There is a statisticly significant difference (p= ,000; p< ,05) balance pre-test measurement values between Control Group ($\overline{X}$=4.46; SS= 2,97) and Experimental Group ($\overline{X}$=7,06; SS= 2,34).

Table 4: Comparison of pre-test and post-test measurements of the Control Group.

Variables		Pre-test		Post-test		P
		$\overline{X}$	Ss	$\overline{X}$	Ss	
Height (m)	**G 1**	1,66	0,095	1,69	0,090	0,000*
Weight (kg)	**G 1**	60,27	17,848	62,06	17,527	0,000*
Right Flexibility (cm)	**G 1**	27,90	8,00	23,23	7,26	0,000*
Left Flexibility(cm)	**G 1**	26,20	7,83	21,90	7,01	0,000*
İllinuois Agility (sec.)	**G 1**	20,66	1,70	20,48	2,27	0,289
Vertical Jump (cm)	**G 1**	28,76	7,94	29,17	7,77	0,447
Balance	**G 1**	9,43	5,48	4,46	2,97	0,000*
Stabile Jump (m)	**G 1**	1,50	0,22	1,48	0,22	0,314

***P<0.05**

It's been stated that there is a statisticly significant difference (p= ,000; p< ,05) between pre-test height average measurement values($\overline{X}$=1,66; SS= 0,095) and post-test height average measurement values($\overline{X}$=1,69; SS= 0,090) of the Control Group. There is a statisticly significant difference (p= ,000; p< ,05) between pre-test weight average measurement values ($\overline{X}$=60,27; SS= 17,848) and post-test weight average measurement values ($\overline{X}$=62,06; SS= 17,527) of the Control Group.There is a statisticly significant difference (p= ,000; p< ,05)

between pre-test right flexibility average measurement values ($\bar{X}$=27,90; SS= 8,00) and post-test right flexibility average measurement values ($\bar{X}$=23,23; SS= 7,26) of the Control Group.There is a statisticly significant difference (p= ,000; p< ,05) between pre-test right flexibility average measurement values ($\bar{X}$=27,90; SS= 8,00) and post-test right flexibility average measurement values ($\bar{X}$=23,23; SS= 7,26) of the Control Group.There is a statisticly significant difference (p= ,000; p< ,05) between pre-test left flexibility average measurement values ($\bar{X}$=26,20; SS= 7,83) and post-test left flexibility average measurement values ($\bar{X}$=21,90; SS= 7,01)of the Control Group.There is no statisticly significant difference (p= ,289; p >,05) between pre-test illinuois agility average measurement values ($\bar{X}$=20,66; SS= 1,70) and post-test illinuois agility average measurement values ($\bar{X}$=20,48; SS= 2,27) of the Control Group.There is no statisticly significant difference (p= ,447; p >,05) between pre-test vertical jump average measurement values ($\bar{X}$=28,76; SS= 7,94)and post-test vertical jump average measurement values ($\bar{X}$=29,17; SS= 7,77) of the Control Group.There is no statisticly significant difference (p= ,314; p >,05) between pre-test stabile jump average measurement values ($\bar{X}$=1,50; SS= 0,22) and post-test vertical jump average measurement values ($\bar{X}$=1,48; SS= 0,22) of the Control Group.There is a statisticly significant difference (p= ,000; p< ,05) between pre-test balance average measurement values ($\bar{X}$=9.43; SS= 5,48)and post-test balance average measurement values ($\bar{X}$=4,46; SS= 2,97)of the Control Group.

Table 5: Comparison of pre-test and post-test measurements of the Experimental Group.

Variables		Pre-test		Post-test		
		$\bar{X}$	**Ss**	$\bar{X}$	**Ss**	P
Height (m)	**G 2**	1,66	0,105	1,67	0,102	0,006*
Weight (kg)	**G 2**	58,91	13,24	59,09	12,83	0,387
Right Flexibility (cm)	**G 2**	22,27	3,39	19,93	2,80	0,003*
Left Flexibility(cm)	**G 2**	21,87	2,82	19,23	4,45	0,001*
İllinuois Agility (sec.)	**G 2**	18,47	1,50	17,96	1,66	0,001*
Vertical Jump (cm)	**G 2**	36,44	8,96	35,81	6,79	0,314
Balance	**G 2**	5,33	4,28	7,06	2,34	0,015*
Stabile Jump (m)	**G 2**	1,72	0,31	1,78	0,34	0,035*

***P<0.05**

It's been stated that there is a statisticly significant difference (p= ,006; p< ,05) between pre-test height average measurement values ($\bar{X}$=1,66; SS= 0,105) and post-test height average measurement values ($\bar{X}$=1,67; SS= 0,102) of the Experimental Group. There is a statisticly significant difference (p= ,387; p> ,05) between pre-test weight average measurement values ($\bar{X}$=58,91; SS= 13,24)and post-test weight average measurement values ($\bar{X}$=59,09; SS= 12,83) of the Experimental Group.There is a statisticly significant difference (p= ,003; p< ,05) between pre-test right flexibility average measurement values ($\bar{X}$=22,27; SS= 3,39) and post-test right flexibilityaverage measurement values ($\bar{X}$=19,93; SS= 2,80) of the Experimental Group.There is a statisticly significant difference (p= ,001; p< ,05) between pre-test left flexibility average measurement values ($\bar{X}$=21,87; SS= 2,82) and post-test left flexibility average measurement values ($\bar{X}$=19,23; SS= 4,45) of the Experimental Group.There is a statisticly significant difference (p= ,001; p< ,05) between pre-test illinuois agility average measurement values ($\bar{X}$=18,47; SS= 1,50) and post-test illinuois agility average measurement values ($\bar{X}$=20,48; SS= 2,27) of the Experimental Group.There is no statisticly significant difference (p= ,314; p> ,05) between pre-test vertical jump average measurement values ($\bar{X}$=36,44; SS= 8,96) and post-test vertical jump average measurement values ($\bar{X}$=35,81; SS= 6,79) of the Experimental Group. It can be seen that the practices as a experimental work didn't cause a significant change on vertical jump features of the experimental group that consists of basketball playing boys. There is a statisticly significant difference (p= ,035; p< ,05) between pre-test stabile jump average measurement values ($\bar{X}$=1,72; SS= 0,31) and post-test stabile jump average measurement values ($\bar{X}$=1,78; SS= 0,34)of the Experimental Group.There is a statisticly significant difference (p= ,015; p< ,05) between pre-test balance average measurement values ($\bar{X}$=5,33; SS= 4,28) and post-test balanceaverage measurement values ($\bar{X}$=7,06; SS= 2,34) of the Experimental Group.

DISCUSSION

As a result of studies have been carried out to observe the effect of basketball practices on 12 years old boys' agility and a series of physical and motorial features;

When we compared pre-test values between groups it's been stated that the heights and weights are equal and there is no significant difference between. Thus, Danacı (10)'s study that couldn't find a significant difference between the heights and weights of 14-16 years old adolescents who are doing and not doing sports shows pharallelism with our results. It's confirmed that the agility, vertical jump, stabile jump feature levels of the twelve years old boys who play basketball before basketball practices are better thatn the boys who didn't play. At this juncture it can be said that basketball sport improves kids' agility, vertical jump and stabile jump features. Likewise Danacı (10) has claimed that motorial features and and vertical jumps of sportsmen develops better than the non-sportsmen group. Also basketball playing boys' right flexibility, left flexibility and balance abilities before practices are weaker than non-player boys is one of the other results of this study.

When the last-test measurements of experimental and control groups are compared it's been concluded that height and weight averages are still equal and there is no change between groups. The process and practices effected the groups in the same way and groups showed no change from each other. But the significant change on heights inside each group mathces up with lots of results in litterateur (8, 27, 34, 32).

When the last-test measurements of experimental and control groups are compared it's been concluded that there is a significant change about their right flexibility, left flexibility, illinuois agility, vertical jump, stabile jump and balance measurement averages and the groups are not equal about these features.

From the all last-test results of illinuois agility, vertical jump, balance and stabile jump features it's been concluded that experimental group is better than the control group.

It's been observed that the balance ability which was better on the side of control group before practices is changed after 16 weeks on the side of experimental group who played basketball. Practices improved balance performance of the kids playing basketball.

However it's been detected that there is a change on the side of experimental group about agility and jump features before and after the practices. It's because of the practices and exercises that the basketball playing kids done in the past already improved the agility and jump abilities of players Bonetto (6), Toumi et al. (30), Kubo et al. (18), Bavlı (4); It's been detected that the plyometric exercises that basketball players regularly do positively effected their vertical jump performances. In a study Demirarar (11), indicated that the basketball practices which is combined with suspension exercises positively effected the balance and vertical jump but didn't effect agility, and this supports our work's part about jump performance and matches up with the part about agility.

It's been concluded that experimental group's last-test right flexibility and left flecibility abilities are weaker than the control group. It's observed that the right and left flexibility features that was on the side of control group on the pre-test values didn't change at the post-test. Actually it is an important necessity to start sportive activities with stretching and movement width. Because the increment in ossification rate of joints with increasing age causes negative occasions like decrease in flexibility of muscle, gut and adhesives, cell decreases, dehydration and a wane of flexibility factors. A number of study shows that the best ages of flexibility practices for people to not lose their flexibility are between 11-14 ages (22). In our study we got stretching moves done by experimental group before practices. But it seemed that the time and the type of practices couldn't change flexibility abilities on the side of experimental group.

When pre-test and post-test parameters of control group are compared it's detected that there's a significant change on height, weight, right flexibility, left flexibility and balance features. Raise in heights and weights of the kids who're in adolescence ages acknowledge normal. Couldn't find a significant result about pre-test post-tests of right flexibility, left flexibility and balance values.

Again it's detected that there's no significant change on agility, vertical jump and stabile jump features of control group and pre-test post-test parameters are

equal. This result is important in terms of showing the impotance of exercises and practices and to improve motorial features. Thus the quality of agility requires association in speed, balance, power and coordination. Fort his reason, agility is s motorial ability that can be taught and improved with regular progressive(strengthening) exercises (16, 9). These statements explains the reason of result we found in our study. Because the agility capacities of experimental group who played basketball showed improvement with practices. But its considered to be some reasons are efficent on there's no significant change about vertical jump abilities. Bavlı (4), applied plyometric exercises before practices to one of the groups who he trained and the vertical jump performance performance differentiated on the side of experimental group who did that exercises.

The basketball practices with plyometric exercises caused a significant change on basketball players's vertical jump and when two groups are compared there is a positive result on the side of experimental group (8). These results explains that standard trainings that we used in our research had no posivite effect on vertical jump performances of experimental group because of its content.

When pre-test and post-test parameters of experimental group are compared it's stated that it caused a significant change on height, right flexibility, left flexibility, agility, balance and stabile jump features. Besides, it can also be understood from the results that there is no significant change on weight averages. Başkal (3), stated that there is a statistic change on height averages between active basketball players and who stopped playing or who don't do any kind of sports. Uluçay (32), expressed that practices he made adolescence players to do increased participants' heights. And again Orhan et al.(23), confirmed that there is a significant increase on heights of group who skips rope as compaed with the group who does standard practices but there is no change on their weights. These studies sports our study.

In a different study Ateş et al.(1), confirmed the practices 16-18 years old male football players are doing caused an increase on players' body weights. Also Cicioğlu (7) detected a statisticly significant change between body weights of experimental groups sportsmen before and after practices.

A suggestive result couldn't be found from the both pre-test and post-test of experimental group about flexibility values. Yazarer et al. (33), couldn't detect a significant change on kid's flexibilities at summer school basketball practices. Orhan et al. (23), concluded that skipping rope and weighted rope practices didn't make a significant change on basketball players' flexibilites. These studies supports our research and Şen (27)'s study that detects an effect about flexibility on both experimental and control group also supports our research.

It's been concluded that our study made a statisticly difference on illinuois agility, balance and stabile jump features of experimental group. Thus, the results of the studies on this subject supports our study's results. Atılan (2), stated the impotance of practices to improve agility performances of sportsmen in a study that detecting strength exercises made by 12-14 years old basketball playing sportsmen effects the illinuois agility performances positively. With a research, Miller et al. (21) detected that 6 weeks of plyometric practices is effective on increasing the agility of sportsmen. Titiz (29), stated basketball practices have more positive effects on balance than sportsmen who don't do recovering exercises.

A significant result found when the experimental group's stabile jump pre-test and post-tests compared. Cicioğlu et al. (8), Gcmar (13), Şenel (28) and Günay et al. (14) recorded with their work on basketball players that horizontal jump values are improving. These studies shows parallelism with our study. Besides, a meaningful result couldn't be found on experimental group's vertical jump values. Atılan (2), with strenght practices made basketball players to do, couldn't find a statisticly significant change on sportsmens vertical jump. Within this context, there are study results that conflicts with our result as there are studies showing parallelism with our result. Thus, Kuter ve Öztürk (20) detected in their study that height results in a Turkey champion team with 14.5 age average as 58.73cm and 37.1cm in a team that hasn't got a rank. Kotzamanidis (19),indicated that plyometric exercises gave more positive results than physical education trainings on vertical jump features of adolescence kids in his study which compares physical education trainings with plyometric exercises on vertical jump features. While Günay et al. (14), states that plyometric trainings has a

positive effect on vertical and horizontal jump distances, Ateş et al. (1) concluded that plyometric exercises improve vertical jump feature in a research they did to detect the effects of plyometric training on 16-18 years old sportsmens strenght parameters. Yörükoğlu ve Koz (34) found that there is a significant change between basketball players' vertical jump who does trainings for five days and who does trainings for two days at summer school.

Consequently, when pre-test and post-test results of the kids in experimental group, a statisticly significant difference is found on their height, right flexibility, left flexibility, illinuois agility, balance and stabile jump values. When pre-test and post-test results of the kids in control group, a statisticly significant difference is found on their height, weight, right flexibility, left flexibility, and balance values. Besides when pre-test values of both groups are compared it's stated that there is a difference on the side of control group about right flexibility, left flexibility and balance features but there is a difference on the side of experimental group on illinuois agility, vertical jump and stabile jump. In the research when we compare the post-test measurement values between groups, it's detected that right flexibility feature changed on the side of control group while illinuois agility, vertical jump, balance and stabile jump features changed on the side of experimental group.

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