EVALUATING THE EFFECT OF 12-WEEK TENNIS EDUCATION ON THE PERFORMANCE DEVELOPMENT OF STUDENTS TAKING PHYSICAL EDUCATION AS AN ELECTIVE COURSE

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ABSTRACT

The aim of this study is to investigate 12-weeks tennis main technics exercises' effects on students' performance developments who are taking physical education lesson and are now student at Süleyman Demirel University Emergency Vocational School.

Group's mean of ages was defined 19.79±0.6 year, mean of lenghts was defined 1.66±1.6 m/cm, mean of weights was defined 62.58±12.6 kg.. Tennis teoric and exercise education was applied to students as 12 weeks, 2 days a week and 2 hours a day. To the research gruop, flexibility, vertical jump, standing long jump, right-left handgrip strength, leg strength, back strength and ITN Technical Test were applied. SPSS programme was used for analyzing datas statistically. Paired t Test was applied as statistical process. Datas were evaluated significance level of p<0.05.

There were not found differences in flexibility, vertical jump, standing long jump, leg and back strength(p>0.05), but differences found in right-left handgrip strength and ITN technical performance(p<0.05).

As a result, 12-week tennis education improved the students' performances positively.

Keywords: Tennis, ITN, Performance

INTRODUCTION

Physical education is described as applications including a set of selected activities in which factors supporting physical, social and cognitive development are present throughout education period (Asna and Aktas, 1987).One reason for university students to do exercises is their intend to be healthy. Doing these physical activities regularly provides staying of physiological functions at high levels (Karaca, 2002).

Sports occupies an important place for the education of young generations in terms of physical and psychological point of view and nowadays physical education and sports became a part of general education in education programs of developed countries.

Because the purpose of physical education and sports is to have a contribution to the aims of general education via motions (Calis et al., 1992).

Today sports is emerged as a phenomenon which addresses many targets at the same time. On the one hand it becomes an alternative against physical inactivity and monotony as a result of technological means prepared by modern life, on the other hand it is accepted as a way of staying healthy (Gorucu, 2001).

In spite of technological progress, ambulance workers should succeed rescue and carriage works by their own muscular force and muscular stability. This situation presents the necessity for ambulance workers to do exercises

regularly (Levk et al., 2007).

MATERIALS and METHOD

In this study, 29 students getting education in the department of First Aid and Emergency Occupation High School at Suleyman Demirel University who take elective physical education course voluntarily participated. This research is limited with the student group taking education at Suleyman Demirel University. It is accepted that this selected sample represents the universe. Applications of 12-week elective physical education course for students were carried out in tennis courts present in west campus of Suleyman Demirel University. Totally 4-hour tennis course education in a week (2 days a week and 2 hours a day) was given to the students in the research group including both theory and applications.

In the first days of tennis course studies, basic warm-up exercises, using tennis racket, exercises with and without tennis ball, main techniques and fundamentals were taught.

The scope, content, period and the level of difficulty for the applied motions in the study were increased. Every lecture constituted of 15-min basic warm-up, 45-60 min main stage and 15-min cooling stage.

The tests that were considered to be applied to the students of First Aid and Emergency Occupation High School were repeated twice. Before these tests, information was gathered about all students regarding their states of health and whether they had disabilities or not. Information was also given to all students participated in this study and it was provided that the best as well as the healthiest measurements were taken. For the aim of providing sufficient participation to the researches, it was tried to improve the levels of motivations. Data collection process for the research group was carried out in Performance Test Laboratory present in Ataturk Sports Hall of Suleyman Demirel University. The measurements of the research group were taken between 14.00 and 16.00.

Body Weight Measurement

Precision electronic weighing 0.5 kg with the athletes on the SEGA brand just shorts and t-shirts with bare feet while there has been weighed.

Length Measurement

SEGA having accuracy of 0.1 m was measured with the scale mark length.

Flexibility Test

This test individual trunk and lower extremities was applied to measure flexibility. Athletes to the test stand bare feet propped in a way that is straight.Athletes body forward, taking care not to bend the knee and extend forward as far as it goes. In this way, the athletes tried to stop at the farthest point. The test was repeated three times and the higher value was recorded.

Vertical Jump Test

Take the brand jumper meters in certain areas of the athlete's abdomen and attached to the waist in the hands, knees 90 degrees flexion position after coming to fall vertically into certain areas were asked to jump again. After three attempts made from the best high values were recorded in cm.

Long Jump by Standing

The subjects marked the line of contact with the rear pair of legs that has spread to the farthest point. The line closest to the starting line with the athletes cm distance between the trace left. were recorded as.

Right-Left Hand Grip Strength Test

Hand grip strength, lower back muscles in addition to is a function of the muscles in the forearm. 8 different muscles in the first degree and working as an anchor on the other hand for hand grip strength as help from a muscle contraction work. Hand grip strength measurements usually taken alive, but can also be done in a sitting position. Hand grip strength measurements were recorded in the three re-done and the best value.

Leg Power Test

Athletes straight back out on the dynamometer platform, knees bent between 130-140 degrees is the case. The handle is grasped in case palms facing the body.

Chain to form the desired angle of the knee is adjusted. Athletes without using your back muscles stretch slowly but strongly. The indicator reached a maximum at the point dynamometer stops. Search for a minute the best value 3 trial has been built.

Back Power Test

Athletes strained knee position after identifying the dynamometer stand on their feet stretched arms, back straight and hold it firmly with the body tilted slightly forward of the hand dynamometer pulls up the maximum amount of housing vertically. After a 5-minute warm-up drive was repeated three times. The best results were recorded.

ITN Performance Test

Sufficiently warmed up and ready for students before the test was taken. Before each test section (FH & BH, Vole, Service) 4 trial was granted players. Students have the right to refuse to kick the ball before it is fed. If contact occurs balls that hit were evaluated. In cases where the line of the ball falls consistently high scores were evaluated. Measurements during the evaluator's authority is valid, and he gave the final decision.

All scores after each stroke and was noted at the end of each chapter. After the test measures student

evaluation form and signed by the assessor and forms files were.

- ITN Test Procedure

Location shot in the depth measurement - power measurement, including (Total 10 strokes, respectively, one forehand, one (backhand) Location kick in the sensitivity measurement - power measurement, including (6 strokes, as with the first forehand parallel, 1 backhand parallel and six strokes, respectively 1 forehand cross, one backhand cross) Vole move depth measurement - power measurements included (Total 8 strokes, as with one forehand, one backhand) Service - power measurement, including (a total of 12 services, each targeted to the 3 service) Mobility (Agility measurement) test

Statistical Analysis

The findings in the evaluation of the program SPSS 18.0 for Windows was used. Student group pre-post-test values for the comparison group, according to the paired 't' test was used.

FINDINGS

Comparison of Pretest-Posttest Measurements of the Research Group

Table 1. Physical Information About Research Group

Parameters	N	Minimum	Maximum	Mean
Age (year)	29	19.00	22.00	19.79
Height (m/cm)	29	1.56	1.92	1.66
Body weight(kg)	29	40.00	100.00	62.58

Table 2. Comparison of Pretest-Posttest Measurements of the Flexibility Test Belonging to the Research Group

Parameters	Art. Mean± SD	Diff. of Art. Mean	t	P

Flexibility (pretest) (cm)	20.6±7.5	0.8	-1.194	.243
Flexibility (posttest) (cm)	21.4±6.4	0.8	-1.194	.243

A statistical difference was not found in the comparison of pretest-posttest measurements of the flexibility test belonging to the research group (p>0.05).

Table 3. Comparison of Pre-Post Measurements of the Vertical Jumping and Long Jump by Standing Tests Belonging to the Research Group

Parameters	Art. Mean± SD	Diff. of Art. Mean	t	P
Vertical jumping (pretest) (cm)	31.0±10.2	1.9	-1.735	.094
Vertical jumping (posttest) (cm)	32.9±11.2	1.9	-1.735	.094
Long jump by standing (pretest) (m/cm)	1.3±,.2	0	-643	.526
Long jump by standing (posttest) (m/cm)	1.3±.2	0	-.643	.526

A statistical difference was not found in the comparison of pre-post measurements of the vertical jumping and long jump by standing tests belonging to the research group (p>0.05).

Table 4. Comparison of Pre-Post Measurements of the Power Tests Belonging to the Research Group

Parameters	Art. Mean± SD	Diff. of Art. Mean	t	p
Right hand power (pretest) (kg)	28.7±11.1	2.3	-2.850	.008
Right hand power (posttest) (kg)	31.0±9.7	2.3	-2.850	.008
Left hand power (pretest) (kg)	28,0±11,4	2	-2.433	.022
Left hand power (posttest) (kg)	30,0 ±9.9	2	-2.433	.022
Leg power (pretest) (kg)	68,2±34,4	0.3	-.059	.953
Leg power (posttest) (kg)	68,5 ±33,9	0.3	-059	.953
Back power (pretest) (kg)	70.5±33.5	1.7	-.972	.339
Back power (posttest) (kg)	72.2±34.3	1.7	-972	.339

While a statistical difference was found between right-hand grasping power and left-hand grasping power by

comparing pre-post measurements of power tests belonging to the research group (p<0.05), a statistical difference was not found in leg and back powers (p>0.05).

Table 5. Comparison of Pre-Post Measurements of the ITN Technical Test Belongign to the Reseacrh Group

Parameters	Art. Mean± SD	Diff. of Art. Mean	t	p
ITN (pretest)(grades)	41.0±8.6	31.6	-26.570	.000
ITN (posttest)(grades)	72.6±8.3	31.6	-26.570	.000

A statistical difference was found in comparison of pre-post measurements of ITN technical test belonging to the Research Group (p<0.05).

DISCUSSION

The aim of this study was to investigate the effect of 12-week tennis technique applications for students getting education in the department of First Aid and Emergency Occupation High School at Suleyman Demirel University who take elective physical education course on their performance development.

The average age of students participated in the research was determined as 19.79±0.6 years, average height was determined as 1.66±1.6 m/cm and average body weight was determined as 62.58±12.6 kg.

Flexibility is doing movements in accordance with various regions of muscular system (Mengutay 1997). Some problems are encountered such as inadequate technique learning, high risk of injury and inadequate movement quality in people who have insufficient flexibility property (Alter 1996).

In our study, when means of flexibility values belonging to the students of First Aid and Emergency department were considered, it was found that pretest was 20.6±7.5 cm and posttest was 21.4±6.4 cm. Accordingly, a significant difference was not found between pretest and posttest values of flexibility values belonging to the students of First Aid and Emergency department (p>0.05).

Not having a significant increase in flexibility values can be related with applied education model which does not have components developing the flexibility property.

In the study of Turkmen et al. (2010) which was performed in order to investigate the effects of physical education and power development course of paramedic program students on body composition and physical performance, the flexibility values before exercise and   after exercise were found as 7.90±4.9 cm and 10.98±4.5 cm, respectively (p<0.05). The findings of this study and our study do not show parallelism in terms of flexibility values and this might be due to applied training models being different from each other.

In our study, pretest and posttest of vertical jumping means were found as 31.0±10.2 cm and 32.9±11.2 cm, respectively and those for long jump means by standing were given as 1.3±.2 m/cm and 1.3±.2 m/cm, respectively. A significant difference was not found between pretest and posttest measurements (p<0.05). No significant increase can be due to studies devoted to technical education rather than quickness in courses.

In the study of Turkmen et al. (2010) which was performed in order to investigate the effects of physical education and power development course of paramedic program students on body composition and physical performance, the vertical jumping values before exercise and after exercise were found as 29.34±5.1 cm and 30.87±5.1 cm, respectively.

It was determined that there was no significant increase in vertical jumping value before and after exercise (p>0.05).

In the study of Goksu et al. (2003) where the effect of 10-week exercise program applied to sedentary people on physical fitness and blood parameters was investigated, it was found that there was a difference in terms of increase in the results of vertical jumping test and this difference was not significant in terms of statistics (p>0.05). These studies have a quality that supports the findings of our study.

Atlı et al. (2001) compared biomotoric properties of tennis team sportsmen at Yuzuncu Yil University with sedentary and means of long jump by standing values belonging to sedentary group were found as 2.16 ± 0.20 m/cm.

In our study, right hand grasping power, left hand grasping power, leg power and back power in pretest measurements of power values were found as 28.7±11.1 kg, 28.0±11.4kg, 68.2±34.4 kg and 70.5±33.5kg, respectively while those powers in posttest measurements were found as 31.0±9.7kg, 30.0 ±9.9 kg, 68.5 ±33.9 kg and 72.2±34.3 kg, respectively.

A significant difference was not found for pretest and posttest leg and back power measurements (p>0.05), while there was a significant difference between right hand grasping and left hand grasping power measurements (p<0.05).

In the study of Turkmen et al. (2010) which was performed in order to investigate the effects of physical education and power development course of paramedic program students on body composition and physical performance, it was determined that significant increase in hand grasping power values of volunteer group at the end of training period indicated that this training was effective on power and persistence of power.

In the study of Ocak and Tortop (2012), the effect of 12-week folk-dances exercise program applied to young women on some physical fitness parameters was investigated and it was found that right hand grasping power mean values of experimental group before and after exercise were 27.0±4.1 kg and 30.7±4.2 kg, respectively and left hand grasping power mean values of experimental group before and after exercise were 26.1±4.8 kg and 27.8±4.6 kg,

respectively. This study supports the findings of our study.

In our study, pretest and posttest values of ITN technique performance belonging to our research group were found as 41.0±8.6 and 72.6±8.3, respectively. A significant difference was found between pretest and posttest measurements of ITN technique ($p<0.05$).

This significant increase can be related with the contribution of effective application of technique education model on the development of their technique performances.

In the study of Ozcan (2011), ITN test that was also used in our study was applied in order to determine the development of sportsmen. At the end of the research, it was indicated that developments at significant levels were observed in the group that took tennis education both by induction and deduction methods.

In a research where power was applied together with technique studies, ITN technique pretest and posttest of training group were found as 75±0.0 and 98±9.8, respectively. At the end of the research, it was determined that there was a significant difference between ITN grades of sportsmen in terms of statistics (Soyleyici, 2011). Although training model used in this study was different from the one used in our study, it was considered that they were similar in terms of development of technique performance.

CONCLUSION

As a consequence, it was observed that applications of 12-week basic tennis education for students of First Aid and Emergency occupation high school had contribution to positive developments in terms of tennis stroke techniques such as forehand and backhand together with auxiliary stroke such as volley and service. Moreover, it was also considered that they had a contribution substantially about technique and tactic which are the major indicative factors of tennis performance.

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