Effect of S.A.Q. Exercises on some Physical and Skill Abilities in Young Tennis Players

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Research introduction and problem:

The SAQ exercises have been recently used by beginners and high level athletes as they attribute to developing and improving the level of performance.

Scientists stated that the SAQ term was derived from the first letters of speed, agility and quickness. Quickness is the ability to perform sequential and similar movements in the shortest possible time that is it needs time to reach the maximum speed. Agility is the individual's ability to change his body positions or the speed of changing direction whether with the whole body or parts of it. Quickness does not need this time but it is the maximum muscular contraction or the motor response of the muscle in the shortest possible time. The SAQ training system is modern and integrated aiming at improving competence and coordination between eye and hand and the speed of response (17: 18) (20: 20).

Several researchers and specialists in the athletic field indicated that there was a strong correlation between physical abilities and the level of skill performance as the athlete would not master essential skills of the type of the physical activity in which he specialized in case of his lacking physical abilities of such type of activity and good performance of the motor skill would not be succeeded unless he depends chiefly on the necessary physical fitness aspects (9: 15) (11: 92)(14).

That was in agreement with what achieved by several scientists that exercising the skill only would not be enough to improve such skill and to get fruitful results as improving the skill should be accompanied with improving motor abilities of the skill itself and it is necessary to prepare the athlete to reach the highest level of performance through scientific training methods and techniques in the light of the overall concepts of direct effect on the young player and the extent of his ability of achievement via his physical, skill and technical preparation (16)(7: 16).

Tennis is not only an important sport but it is also the most common and prevalent in the progressed countries of the world in addition to its fun and excitement and being suitable for all ages. Also attacking performances in tennis have special nature depending on foot and arm work and coordination between them and tools being used such as the ball and racquet requiring its performers to

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flow, to move, to act quickly and to exert effort and hence, the strength of performance would be accompanied with speed.

The researcher indicated that the sport of tennis required its performers to move quickly as well as recognizing and observing quick movements depending greatly on speed and agility and consequently, coaches should follow up everything new in the field of training constantly to be able to present the best to improve the level of performance of beginners and to have them gain confidence.

The researcher noticed that tennis coaches were interested in making beginners train on forehand and backhand strokes. However, their performance was slow and they were unable to recognize well the response speed, movement was not performed smoothly, errors were emerged lying in hardening the body because of so much variation in individual differences among beginners and small training age. In the limit of the researcher's perusal of researches and Arabic and foreign studies, she found that Arabic researches were few in introducing the effect of SAQ exercises that made the researcher plan such exercises to help perform quickly in the proper time to approach the optimal training and mechanism of performance.

Research procedures:

Method: It was the experimental method by making a layout of two groups representing the experimental and control groups and the pre and post-measurements.

Sample: It was chosen randomly and intentionally from tennis beginners at Al-Gala'a Sporting Club, Misr Al-Jadida district. Beginners were not enrolled in the sports federation and their ages ranged from 9 to 14 years comprising (40) players.

Table (1)
Numerical classification of the research sample

Experimental group	Control group	Pilot sample (Res. People)	Players excluded
20	20	12	11

The research sample was chosen for the following reasons: the researcher's membership with the sporting club and the coach cooperated with the researcher to facilitate application of the procedures.

Normality of the research sample distribution: Skewness coefficient was computed after carrying out scientific coefficients on the tests as illustrated in Tables (2&3).

Table (2)

Arithmetic mean, standard deviation and skewness coefficient of the research sample in anthropometric variables (n=40)

Variables	Measuring unit	Arithmetic mean	Standard deviation	Skewness co.
Age	Year	18.350	0.437	1.285
Height	cm.	164.150	4.515	0.101
Weight	kg.	59.650	5.759	-0.312

The results in Table (2) indicate that the sample distribution is normal as the skewness coefficient ranges from (1.285 to -0.312) lying between (±3) and consequently, the research sample represents a normal community in the research variables.

Table (3)

Arithmetic mean, standard deviation and skewness coefficient of the research sample in physical and skill variables (n=40)

Variables	Tests	Units	AM	SD	Skewness co.
Physical	30m sprint	sec.	38.42	6.7392	0.113
	Zigzag run between funnels	sec.	6.86	0.5973	-0.916
	Quickness of passing a tennis ball to the ball	sec.	54.60	3,94	-0.55
	Hexagonal motor balance	time	42.163	6.271	-0.381
	Enumerated circles	time	22	1.34	-0.41
Skill	Quickness of performing forehand stroke	No.	1.533	0.724	1.166
	Quickness of performing backhand stroke	No.	0.733	0.578	0.085

The results in Table (3) show that the distribution of the research sample is normal as the skewness coefficient range from (1.166 to 0.085) meaning that it lies between (±3) and consequently, the research sample represents a normal community in the research variables.

Research sample equivalence:

After assuring of the normal distribution of the research sample in variables under investigation, significance of differences were computed between the two research groups to make sure that the two groups are equivalent as illustrated in tables (4&5) below.

Table (4)

Significance of differences between the experimental and control groups in anthropometric variables (n=40)

Variables	Units	Experimental group (n=20)		Control group (n=20)		$X_1^- - x_2^-$ difference	*t*- value
		X_1^-	SD_1	x_2^-	SD_2		
Age	**Year**	18.267	0.450	18.233	0.430	0.033	0.283
Height	**cm.**	163.933	4.646	164.167	4.662	-0.233	0.184
Weight	**kg.**	58.633	5.236	59.667	5.967	-2.033	1.203

Tabulated *t* value at 0.05 significance level and degree of freedom of 58 = 2.01.

The results in Table (4) show that there are no significant differences between the experimental and control groups meaning that the two groups are equivalent in such variables.

Table (5)

Significance of differences between pre-measurements of the experimental and control groups in physical and skill variables

variables	Tests	Units	Experimental group (n=20)		Control group (n=20)		Diff. between means	*t*- value
			X^-	SD	x^-	SD		
Physical	30m sprint	sec.	38.9556	7.20402	37.9816	6.35846	-0.87400	0.445
	Zigzag run between funnels	sec.	6.9012	.63232	6.9236	.57053	-0.07760	-0.446
	Quickness of passing a tennis ball to the ball	sec.	54,95	4.30	55,25	3.49	-1.3	1,15
	Hexagonal motor balance	time	42.168	6.747	43.158	5.694	-1.990	1.135
	Enumerated circles	time	21.95	1	21.45	1.31	0.60	1.53
Skill	Quickness of performing forehand stroke	No.	1.667	0.802	1.400	0.621	0.267	1.339
	Quickness of performing backhand stroke	No.	0.833	0.592	0.733	0.556	0.200	1.249

Tabulated *t* value at 0.05 significance level and degree of freedom of 58 = 2.01.

The results in Table (5) show that there are no significant differences between the two groups in the pre-measurements of physical and skill variables meaning that the two groups are equivalent.

Tools of collecting data:

1- **Reviewing basic data to get some data concerning the research sample such as the training age and date of birth**
2- **Scientific references and related studies: References viz. (1), (2), (4), (5), (13), (18), (19), (20) and (21) were used to compile the skill physical fitness components, tests to assess them, tests of the level of skill performance and the layout of SAQ exercises.**

3- **Web. sites to help make the layout of SAQ exercises in addition to exercises to develop straight forehand and backhand strokes.**
4- **Devices and tools being used: They included restameter, measuring tap, medical balance, stopwatch, lime, funnels, tennis racquets and balls.**
5- **Interview to get the initial information to build forms of discovering the experts' opinion to outline the following:**
   - **A. Physical fitness components, attachment (1), and tests of their assessment, attachment (2). Tests were assigned according to percentages given to them, attachment (3).**
   - **B. Tests of skill performance of straight forehand and backhand strokes, attachment (4). Tests were assigned as per percentages related to them, attachment (5).**
   - **C. Contents of training units by using SAQ exercises and the results were defined, attachment (6), according to the experts' opinion.**
6- **Tests:**
   a. **Tests of physical fitness components were outlined via reviewing scientific references viz. (2), (4), (12)& (13) in addition to the experts' opinion. Through the forms of piloting the experts' opinion, those tests were stated. A survey form was prepared to define the suitable tests to measure physical fitness components as illustrated in table (6)**

The most suitable tests to measure physical fitness components

No.	Variables	Physical fitness component tests	Units
1	Quickness	30m sprint	Sec.
2	Agility	Zigzag run between funnels	Sec.
3	Speed	The modified speed of passing the ball to the wall.	Sec.
4	Balance	Hexagonal motor balance	Time
5	Coordination	Enumerated circles.	Time

   b. **Skill tests: a survey form was prepared to underline the suitable tests, attachment (4) after making reference limitation of tests of skill performance (2), (4) and representing the same to the experts and defining the most important tests as in table (7)**

Tests assessing the straight forehand and backhand strokes

Variables	Skill tests
Forehand stroke	The modified test of performing forehand stroke.
Backhand stroke	The modified test of performing backhand stroke, attachment (5).

Pilot study: the sample was chosen randomly from tennis beginners of the research people consisting of (12) young players with effect from 24-28/6/2018 for the following targets:

- **To assure of the extent of suitability of physical and skill tests for the research sample and scientific coefficients of tests under investigation.**

- **Identifying administrative and managerial aspects of the research and assuring of the suitability of the role given to the assistants.**
- **Conducting a workout of a training unit to make sure that its content was understandable, the time division was correct and the SAQ exercises could be executed and they were suitable for this age group.**

Results of the pilot study:

Tests were assured that they were suitable and beginners understood methods of performance after making the following modifications:

- **The test of passing the ball against the wall: a tennis ball was used in replacement of a basketball and hence, the test was renamed as the speed of passing the tennis ball against the wall and the examinee had to stand at a line drawn on the ground at the distance of the wall by 2.50m instead of 2.70m.**
- **The test of the quickness of performing the forehand stroke: the examinee had to stand at the distance of 4m instead of 8m from the wall.**
- **The test of the quickness of performing the backhand stroke: the examinee had to stand at the distance of 3m instead of 8m from the wall.**
  - **The scientific coefficients of the tests were assured and female assistants understood their role given to them in the process of measurement and registration.**
  - **The training unit was suitable for the sample, time allocated to each part of the unit was appropriate and meanwhile, time assigned to exercises groups within the unit was good and SAQ exercises were suitable for the age of the sample individuals.**
  - **Similar exercises to the nature of performance were chosen and directed towards muscles associated with the performance.**

Scientific coefficients of the tests being used:

I. Validity of physical and skill tests: comparison between the upper and the lower quartiles of the research people of total of (12) and their scores were arranged in ascending order to outline the upper quartile computing (3) and the lower quartile computing (3). Significance of differences between the upper and the lower quartile were computed as illustrated in Table (8)

Significance of differences between the upper and the lower quartiles in physical and skill tests ($n_1=n_2= 3$)

variables	Tests	Units	The upper quartile		The lower quartile		Diff. between means	*t*-value
			$\bar{X}$	SD	$\bar{x}$	SD		
Physical	30m sprint	sec.	31.1369	2.13935	38.3938	5.65444	7.2569	**4.328***
	Zigzag run between funnels	sec.	6.0362	.49966	6.8992	0.5001	0.8630	**4.402***
	Quickness of passing a tennis ball to the ball	sec.	15.7	2.07	19,55	4,69	-3.85	**3,29***
	Hexagonal motor balance	time	34.630	0.520	48.603	0.473	13.973	**34.53***
	Enumerated circles	time	15.40	0.84	20.78	1.92	-5.38	**8.05***
Skill	Quickness of performing forehand stroke	No.	2.333	0.577	0.667	0.577	1.667	**3.536***
	Quickness of performing backhand stroke	No.	1.667	0.577	0.333	0.577	1.333	**2.938***

Tabulated *t* value at 0.05 significance level and degree of freedom of 4 = 2.78.

The results in Table (8) show that there are significant differences between the upper and lower quartiles in physical and skill tests in favor of the upper quartile as the computed *t* value ranges from (2.938 to 34.53) i.e. exceeding the tabulated *t* value meaning that the validity of such tests is high.

II. Reliability of physical and skill tests:

It was assured that they were reliable by the test and retest method at the end of the first application in the period between 24 &25/6/2018 and after 3 days from the end of the second application on 27&28/6/2018 on a sample from the research people. The researcher considered that order and conditions of the tests were similar in the two applications and correlation coefficient was computed.

Table (9)

Correlation coefficients between the first and second applications of physical and skill tests (n=12)

variables	Tests	Units	1st application		2nd application		*r*-value
			$\bar{X}$	SD	$\bar{x}$	SD	
Physical	30m sprint	sec.	38.3938	5.65444	38.1454	5.58589	0.990*
	Zigzag run between funnels	sec.	6.8992	0.50011	6.8885	0.48862	0.999*
	Quickness of passing a tennis ball to the ball	sec.	19.55	4,69	19.25	5.07	0.781
	Hexagonal motor balance	time	41.888	6.166	41.321	5.823	0.948*
	Enumerated circles	time	21.70	1.25	21.30	0.67	0.88*
Skill	Quickness of performing forehand stroke	No.	1.333	0.779	1.437	0.900	0.951*
	Quickness of performing backhand stroke	No.	1.000	0.603	0.917	0.669	0.902*

Tabulated *r* value at 0.5 significance level and degree of freedom of 10 = 0.576.

The results in Table (9) illustrate that there a significant correlation between the first and second applications as the computed value of *r* ranges from (0.781 to 0.999) exceeding the tabulated *r* value and meaning that the tests being used are reliable.

Conducting the research experiment:

Pre-measurements: They were conducted on the two research groups in variables from 3/7/2018 to 5/7/2018 where the anthropometric measurements and physical and skill tests were carried out according to descriptions and conditions of performance of each test and using the same persons of the process of measurement and the researcher performed an example of physical and skill tests.

Application of the research experiment:

The experimental group: the research experiment was applied from 10/7/2018 to 6/9/2018 for 8 weeks at the rate of 2 training units per week for total of (16) weeks for each group. The training unit lasted (60) min., whereas the training units of SAQ exercises were rotated by speed exercises with their types (20 exercises), agility exercises (26 exercises), attachment (7), in physical preparation part, skill exercises for straight forehand and backhand strokes (37 exercises), attachment (8), in the main part. Exercises were distributed according to the proposed training units for the

experimental group, attachment (9). Time of the training units was distributed as shown below:

Table (10)
Distribution of time of training units for beginners in tennis in the experimental group

Units (1-2) for forehand stroke		Units (3-4)for backhand stroke	Units (5-16) for forehand and backhand strokes
Preliminary part:	**(5) min. administrative work (taking absence, preparing tools, warm-up**		
Physical preparation: - **Speed exercises with their types (Quickness, speed of response, speed, reaction speed).** - **Agility exercises**	**(15) min** **(15) min.**	**(15) min.** **(15) min.**	**(10) min.** **(10) min.**
The main part: (as per units) **- Skill exercises for straight forehand and backhand strokes.**	**(20) min.**	**(20) min.**	**(30) min.**
Final part:	**(5) min. cool down exercises for the body and returning tools.**		

The control group: It was trained from 10/7/2018 to 6/9/2018 with the same training units and time of the experimental group. The part of physical preparation with (18) exercises of the straight forehand and backhand strokes were executed together with the traditional exercises, attachment (8). The preliminary and final parts were identical with them according to the training units proposed for the control group, attachment (10).

Table (11)
Distribution of time of the training units for the control group

	Units (1-2) for forehand stroke	Units (3-4) for backhand stroke	Units (5-16) for forehand and backhand strokes
Preliminary part (5) min.	**Administrative work (taking absence, preparing tools and warm up**		
Physical preparation and the main part (50) min.	**Skill exercises for straight forehand and backhand strokes together with traditional exercises.**		
The final part (5) min.	**Cool down exercises for the body and returning tools.**		

Post-measurements: they were carried out for the experimental and control groups in variables under investigation under the same conditions by which the pre-measurements had been conducted with the same order and conditions from 11/9/2018 to 13/9/2018. After completing this process data were tabulated and prepared for statistical analysis.

Statistical treatments:
Arithmetic mean, standard deviation, correlation coefficients, improvement ratios, skewness coefficient.

Presentation and discussion of results,

Table (12)

Significance of differences between the pre and post-measurements of the experimental group in physical and skill tests (n=20)

variables	Tests	Units	Pre-measurements		Post-measurement		Diff. between means	*t*-value	Imp. %
			$\bar{X}$	SD	$\bar{x}$	SD			
Physical	30m sprint	sec.	38.8556	7.20402	28.6440	2.03760	10.21160	6.746	26.29
	Zigzag run between funnels	sec.	6.9012	0.63232	4.2232	0.50763	0.67800	6.126	11.55
	Quickness of passing a tennis ball to the ball	sec.	53.95	4.30	13.92	1.79	40.03	42.76*	74.19
	Hexagonal motor balance	time	41.168	6.747	18.565	4.908	22.603	13.691*	54.90
	Enumerated circles	time	21.95	1.00	13.35	0.85	7.20	22.42*	33.80
Skill	Quickness of performing forehand stroke	No.	1.667	0.802	8.700	1.126	-6.533	24.990*	392.29
	Quickness of performing backhand stroke	No.	1.233	0.592	5.567	0.728	-4.933	31.118*	592.53

Tabulated *t* value at (0.05) significance level and degree of freedom of (29) = 2.04.

The results in Table (12) show that there are significant differences between the pre and post-measurements of the experimental group by using SAQ exercises in the level of physical performance under investigation and the level of skill performance of straight forehand and backhand strokes in favor of the post-measurement. The ratios of improvement range from 11.55% to 592.53%).

This improvement could be due to the content of the training units of SAQ exercises which represent one of the training forms contributing to improving some special physical abilities where speed exercises of all kinds such as quickness, response speed, motor speed and speed of reaction (20 exercises) are rotated by agility exercises of multi-directions (26 exercises), attachment (7), in the physical preparation part and skill exercises for straight forehand and backhand strokes (37 exercises), attachment (8) and considering individual differences, diversity of training methods from easiness to difficulty and from simplicity to complex, repetition of application of the exercise, correction of errors at once, repetition and redoing and giving a chance to feedback to reach the required level of perfection, motivating them to make more effort and considering athletic training principles in respect of scalability, adjustment to exercises such as intensity, increasing the number of times to perform the same exercise in specific time and increasing the number of times to perform the same exercise together with shortening the time specified gradually, the principle of privacy, the principle of exclusivity to know points of excellence and weakness in beginners to take care of them when training and instruction, the principle of flexibility when meeting difficulties of some problems at the time of application, the principle of continuation in training by the way of no drop out of training as the constant training would help raise the level of physical and skill performance, reviewing the performance of the skill continuously by the researcher, performing a model of the exercises, continuing training and goodness of execution, repetition of performance by tennis beginners for accuracy and quickness of performance to show excellence of each other leading to perform exercises to the best possible form and consequently, all these had a positive effect on the efficiency of performance concerning quickness and accuracy of physical and skill performance.

The researcher suggested that the ratios of improvement could be related to the effective role of SAQ exercises in improving quickness helping generate muscular contraction leading to urge other sensory organs and consequently, the number of motor units in operating muscles would be increased on such joints being necessary for increasing the muscle strength. The improvement also could be due to the use of diversified exercises regularly and gradually. All these could have a positive effect on the efficiency of performance as the brain in turn did its part in regulating the performance in the light of the data it has obtained and hence, the performance efficiency would be enhanced for the experimental group.

That was in agreement with the studies of (17) & (18) that SAQ exercises contributed to improving time of acceleration and muscular power of feet, agility and speed and motivating muscular spinners leading to high tension in free motor units and urging other recipients working on the increase of the number of motor units that would be the reason for increasing the strength produced.

That explanation agreed with several scientists (5), (19), (10) & (16) that practicing the skill only could not be enough to improve it to gain fruitful results as besides the development of the skill, special motor abilities should be developed and the success in performing any skill would be in need of developing physical components that could contribute to its performance optimally.

These results were in harmony with those concluded by (1), (6) & (14) that developing physical characteristics whether to develop speed, performance accuracy or developing harmonic capabilities had a positive effect on the skill performance of beginners of ground tennis and that the skill performance could be closely related to physical abilities as perfection of skill performance could depend on the extent of developing the requirements of such performance of special physical and motor abilities, but the level of such skill performance would be often measured according to the range of gaining such special physical and motor characteristics by the individual (8: 189).

Therefore, the 1st hypothesis stating," there are significant differences and enhancement in percentages of ratios of improvement between the pre and post-measurements of the experimental group by using SAQ exercises in the level of physical and skill performance of straight forehand and backhand strokes in favor of the post-measurement" is established.

Table (13)
Significance of differences between the pre and post-measurements of the control groups in physical and skill tests (n=20)

variables	Tests	Units	Pre-measurements		Post-measurement		Diff. between means	*t*-value	Imp. %
			$\bar{X}$	SD	$\bar{x}$	SD			
Physical	30m sprint	sec	38.9816	6.35846	36.4436	5.20150	1.2380	2.213	4.25
	Zigzag run between funnels	sec.	6.8236	0.57053	5.6428	0.36440	0.18080	2.290	3.65
	Quickness of passing a tennis ball to the ball	sec	55.25	3.49	30,15	2,54	25.1	27,58*	45,43
	Hexagonal motor balance	time	43.158	5.694	31.302	8.762	11.856	9.157*	27.57
	Enumerated circles	time	21.35	1.31	16.25	0.91	5.10	13.31*	24.59
Skill	Quickness of performing forehand stroke	No.	1.400	0.621	4.067	1.617	-2.667	8.353*	190.58
	Quickness of performing backhand stroke	No.	0.633	0.556	2.933	1.230	-2.300	8.595*	363.58

Tabulated *t* value at (0.05) significance level and degree of freedom of (29) = 2.04.

The results in Table (13) indicate that there are significant differences between the pre and post-measurements of the control group by using skill exercises for straight forehand and backhand strokes together with traditional exercises in the level of physical and skill performance in favor of the post-measurement and the ratio of improvement ranges from (3.65% to 363.58%).

The researcher thought that this improvement could be due to the content of the training units that included skill exercises for straight forehand and backhand strokes (18 exercises) in addition to traditional exercises, repetition the skill more than once, correction and evaluation of the performance, diversity of exercises by the researcher to master straight forehand and backhand strokes, repetition of the practice continually on strokes leading to conditioning the practice, motor compatibility and positive effect with the result that beginners became more effective in quickness and accuracy of performance and the exercise created an atmosphere of enjoyment, excitement and interesting that positively affected the ratios of improvement of the control group in raising the efficiency of physical performance and the level of performance of straight forehand and backhand stroke, hence, exercise compatibility and enhancement of physical and skill level could not be achieved or developed except through continuous and constant training (15: 72).

Consequently, the 2nd research hypothesis stating, "there are significant differences and enhancement in percentages of ratios of improvement between the pre and post-measurements of the control group" is established by using exercises to perform straight forehand and backhand strokes together with traditional exercises in the level of physical and skill performance in favor of the post-measurement.

Table (14)
Significance of differences between the post-measurements of the experimental and control group in physical and skill exercises

variables	Tests	Units	Experimental group n=20		Control group n= 20		Diff. between means	*t*-value
			$\bar{X}$	SD	$\bar{x}$	SD		
Physical	30m sprint	sec.	28.6440	2.03760	36.4436	5.20150	8.0996	7.549
	Zigzag run between funnels	sec.	4.2232	050763	5.6428	0.36440	0.5196	3.55
	Quickness of passing a tennis ball to the ball	sec.	13.92	1.79	30.15	2.54	-16.23	25.96*
	Hexagonal motor balance	time	18.565	4.908	31.302	8.762	-12.737	6.946*
	Enumerated circles	time	13.35	0.85	16.25	0.91	-1.50	5.58*
Skill	Quickness of performing forehand stroke	No.	8.700	1.126	4.067	1.617	4.133	11.586*
	Quickness of performing backhand stroke	No.	5.767	0.728	2.933	1.230	2.833	10.559*

Tabulated *t* test value at (0.05) significance level and (58) degree of freedom = 2.01

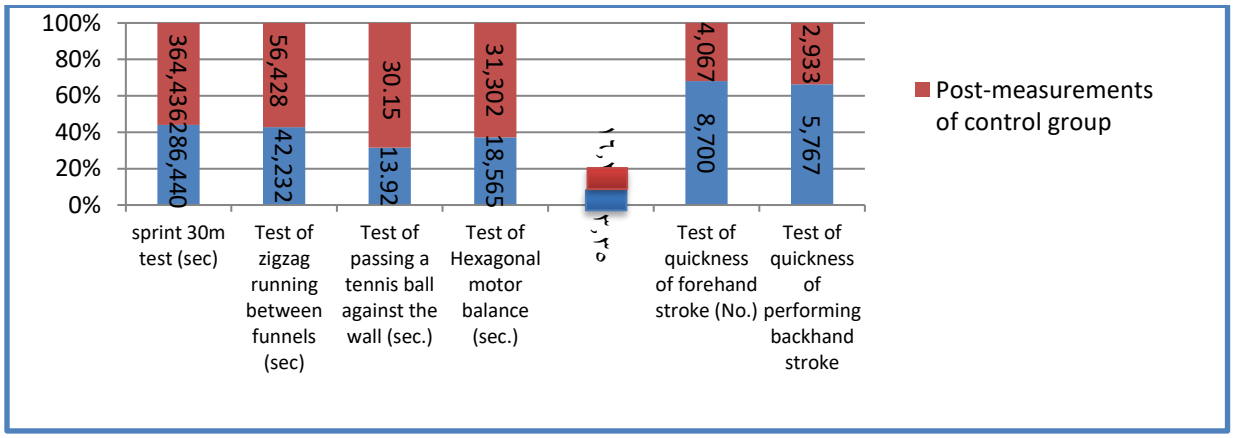

Fig. (1) illustrates significance of differences between post-measurements of the experimental and control groups in physical and skill tests.

The results in Table (14) clarify that there are significant differences between the post-measurements of the experimental and control groups in the level of physical performance under investigation and the level of performance of straight forehand and backhand strokes in tennis in favor of the post-measurement of the experimental group.

The researcher suggested that these significant differences would be related to the proposed SAQ training units which were rotated by quickness, agility and speed exercises in the same training unit with the result that the skill performance was quick, accurate, strong and perfect. When beginners had different physical abilities, they performed all skills very well. The physical component is one of the training corners to build and to gain confidence as well as mastering the performance.

By this way, the 3rd hypothesis stating, "there are significant differences between the post-measurements of the experimental and control groups in the level

of physical and skill performance in tennis in favor of the experimental group" is established.

Conclusions:

1- **The use of SAQ exercises in addition to exercises for mastering skill performance showed a positive effect on improving the level of physical and skill performance under investigation in beginners in the experimental group.**
2- **The use of exercises for mastering the skill performance of straight forehand and backhand strokes together with traditional exercises positively contributed to improving the level of physical and skill performance of tennis beginners in the control group due to regularity and continuity of performance.**
3- **The use of SAQ exercises with exercises for perfection of skill performance of the experimental group were better than those of the control group as diversity of exercises positively contributed to ratios of improvement in the experimental group exceeding those in the control group.**

Recommendations:

1- **SAQ exercises should be applied to different age groups as they positively contributed to the level of physical and skill performance.**
2- **SAQ exercises should be applied to other skill activities.**
3- **The results of the current study should be directed to tennis coaches as it is possible to make use of such results.**
4- **Coaches interest should be directed to apply SAQ exercises and to place them in difficulty graded exercises in respect of their composition that will make them more interesting and likeliness of what may happen in matches..**

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I. Arabic references:

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Effect of S.A.Q. Exercises on some Physical and Skill Abilities in Young Tennis Players

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Abstract

The researcher conducted the current study to identify the effect of SAQ exercises on some physical and skill abilities in young tennis players using the experimental method of two groups representing the experimental and control groups and applying the pre and post-measurements on the two groups. The sample was selected intentionally and randomly from tennis beginners at Al-Gala'a Sporting Club, Misr Al-Jadida District who were not enlisted in Sports Federation, their ages range from 9 to14 years and comprised (40) players. The experimental and control groups included (20) players each in addition to (12) players for the pilot sample. The experiment was applied in (8) weeks by (2) training units a week of total of (16) training units for each group and the training unit lasted (60) min. The results showed that the use of SAQ exercises in addition to skill performance perfection exercises had a positive effect on improving the level of physical and skill performance under investigation in young tennis players in the experimental group as there were significant differences between the pre and post-measurements of physical and skill variables and there were percentages of improvement greatly contributed to emerging such differences in favor of the post-measurement, meanwhile, percentages of improvement in the experimental group were better than those of the control group used the skill performance perfection exercises together with traditional exercises.

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