

## **Effect of using the Swiss ball to improve the level of technical**

### **performance of some basic skills in basketball**

**\*Dr/ Alshimaa Abdel fatah Alkhfif**

#### **-Introduction and research problem:**

the exercises on Swiss ball has a great role in the muscles of the body as a whole development (functional strength) unlike sports training devices and other tools, which helps the instability of the ball during exercise makes the muscles of the body as a whole is working cooperatively to maintain the form of exercise and nature To avoid injury.

Swiss ball is the most ineffective in stimulating the muscles and make them into a state of readiness of the various burdens, increasing functional strength, a strength of all muscles starting from the Detailed thighs until the arms and raising the degree of functional strength of the body. (3: 20,19)

Hence the clear need for the exercises using the Swiss ball and to increase the balance to raise the efficiency of the work of the musculature of the player during different skills performance such as (pass,

dribble, shot) as well as the required accuracy and speed until smooth manner, without tension or excessive movements are skills that require performance kinetic has a high degree of compatibility in order to ensure good performance.

#### **Research aims:**

This research aims to design and implement a training program using the Swiss ball in order to identify its effect on both:-

1. the level performance of some physical variables for the research sample.
2. the level of technical performance of some basic skills for the research sample.
3. percentage improvement in the level of physical and skill performance for the research sample.

#### **research Hypotheses:**

- 1- There are differences of statistical significance between the average scores of the tribble and post measurement in

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\* Lecturer, Games Department of physical Education College, Sadat City University, Egypt.

improving the level performance of some physical variables for the research sample in favor of the post measurement.

2- There are differences of statistical significance between the average scores of the tribble and post measurement in improving the level technical performance of some basic skills in basketball for the research sample in favor of the post measurement.

3- there is an improvement between the percentage of the average scores of tribal and remote measurement in the level of physical and skill performance of the research sample.

**Research procedures:**  
**First, the research methodology:**

The **researcher** used the experimental method due to its suitability to the nature of this study, it has hired one of the experimental designs for one group of measurement using pre and post.

**Second: The research sample:**

Was selected sample research way deliberate on Team Sadat City University female students for the academic year 2014/2015 AD, and the number of exploratory sample (20) Students (10) Students from the research community and outside the core sample, (10) students from Team Menoufia University in order to conduct scientific transactions ( Believe – stability).

**The homogeneity of the sample:**

**Table (1)**  
**Statistical characterization of the sample individuals**  
**in the variables "Age – Height - Weight "n = 36**

Variables	measruing unit	mean	Median	Std Deviation	skewness
Age	Year	19.94	19.00	0.52	-1.51
Height	C.m	163.80	162.00	8.77	1.53
weight	K.g	62.67	63.50	3.64	-0.28

Table (1) shows that coefficients of torsion of research sample are between (+3, -3) in the variables of

(Age - Height - Weight) which indicates the coherence of the sample.

**Table (2)**  
**Statistical characterization of sample in the physical**  
**and skill tests individuals n = 36**

variables	Measure unit	mean	Median	Std Deviation	skewness
30m sprint	sec	7.95	7.50	1.24	0.58
Wide jump of stability	c.m	1.63	1.64	0.14	-0.43
Running in place for 2min	number	115.60	115.50	10.18	0.04
Running switchback to Barrow	sec	11.02	11.08	0.28	-0.79
Bend the trunk of sitting	c.m	2.80	2.50	1.55	0.86
dribble of running and then stop and pivot	sec	16.73	16.78	1.60	0.05
passing movement with receiving and stop	point	18.10	18.00	3.41	-0.09
dribble then jump shot	point	1.20	1.00	1.03	0.27
Tip-in shot	point	1.20	1.00	0.63	-0.13
dribble right	point	1.00	1.00	0.82	0.00
then lay-up left shot	point	0.70	1.00	0.68	0.43

Table (2) shows the homogeneity of the research sample in physical and skill tests, as the skewness of research sample are between (+3, -3) in the variables.

**Third, tools and means of data collection:**

To collect data and information on this research was to use the following tools and methods:

**1. Reference Scan:**

The researcher conducted a survey of specialized studies in a game of basketball and scientific references in order to: -  
 (A) identify and inventory physical tests that are commensurate with the research sample. (B) identify and inventory skills tests that are commensurate with the research sample. (c) identify and record the contents of the training program.

**Fourth: Scientific transactions used for the tests:**

**1. Believe physical and skill tests: -**

The sincerity of tests on the players Team Menoufia University (distinctive group), on Sunday, 2/ 8/2015 AD in Stadium Monofia University, The second group students from the research community and outside the core sample (Group undistinctive) on Sunday, 2/ 8/2015 AD on the Faculty of Physical Education.

**Table (3)  
 Significance of differences between the distinctive and undistinctive Groups In physical and skill tests N 1 = N 2 = 10**

variables	Measurement unit	distinctive group		Undistinctive group		Means difference	'T' Test
		mean	s.d	mean	s.d		
30m sprint	sec	7.95	1.03	5.95	0.59	1.99	7.37*
Wide jump of stability	c.m	1.64	0.17	1.98	0.10	0.34	4.07*
Running in place for 2min	number	147.20	17.27	174.80	9.85	27.60	4.67*
Running switchback to Barrow	sec	11.14	0.65	9.94	0.63	1.21	7.33*
Bend the trunk of sitting	c.m	5.60	1.96	11.40	2.41	5.80	5.57*
dribble of running and then stop and pivot	sec	14.20	2.35	9.87	2.44	4.33	4.49*

**Follow Table (3)  
 Significance of differences between the distinctive and undistinctive Groups In physical and skill tests N 1 = N 2 = 10**

variables	Measurement unit	distinctive group		Undistinctive group		Means difference	'T' Test
		mean	s.d	mean	s.d		
passing movement with receiving and stop	point	20.50	5.17	32.50	3.31	12.00	7.14*
dribble then jump shot	point	1.40	0.84	2.40	0.70	1.00	3.00*
Tip-in shot	point	1.90	0.74	1.60	0.52	0.30	1.90*
dribble then lay-up shot	right	2.40	1.17	4.20	0.92	1.80	4.63*
	left	1.90	1.20	3.50	1.18	1.60	4.00*

The value of "T" Driven at the level (0.05) = (1.83)

Seen from the table (3) and no statistically significant difference between distinctive and undistinctive groups differences in physical and skill tests.

## 2. The stability of fitness and skill tests:

Has been found stability of tests on undistinctive group, on Sunday, 15/2/2015 AD.

**Table (4)**  
**Reliability coefficient of physical and skill tests N = 10**

variables	Measurement unit	Implementation first		Implementation second		Means difference	correlation
		mean	s.d	mean	s.d		
30m sprint	sec	5.95	0.59	5.87	0.52	0.08	0.95
Wide jump of stability	c.m	1.98	0.10	2.03	0.12	0.05	0.83
Running in place for 2min	number	174.80	9.85	176.10	9.09	1.30	0.63
Running switchback to Barrow	sec	9.94	0.63	9.86	0.61	0.08	1.00
Bend the trunk of sitting	c.m	11.40	2.41	11.40	1.84	0.00	0.91

**Follow Table (4)**  
**Reliability coefficient of physical and skill tests N = 10**

variables	Measurement unit	Implementation first		Implementation second		Means difference	correlation
		mean	s.d	mean	s.d		
dribble of running and then stop and pivot	sec	9.87	2.44	8.34	1.75	1.53	0.64
passing movement with receiving and stop	point	32.50	3.31	31.80	3.16	0.70	0.70
dribble then jump shot	point	2.40	0.70	2.50	0.53	0.10	0.72
Tip-in shot	point	1.60	0.52	1.90	0.57	0.30	0.68
dribble then lay-up shot	right	4.20	0.92	3.60	0.70	0.60	0.60
	left	3.50	1.18	2.70	1.16	0.80	0.64

The value of "R" Driven at the level  $(0.05) = (0.60)$

#### **Fifth: Training program: -**

##### **1.Steps Design for the training Program:**

The training program is designed beside the rest of the other physical elements of the game of basketball through: -

- keep the way wavey parts module.
- Apply the gradual formation of the load in every module parts.
- was legalized intensity training loads in accordance with the pulse rate.

- **the content of the program:**  
The training program included:

- Drills year warm-up to prepare the various muscles of the body so as to stimulate blood circulation.

- physical exercises special exercises with use Swissball And the number (18) exercise.

- skill exercises And the number (20) exercise.

#### **Attachment (6)**

##### **2. Organize training method: -**

The **researcher** after reading many of the references and previous studies make the following steps to organize the program: -

A - the division of the preparation period to the stages.

B - the formation of the load degree through the stages of the program.

C - determine the proportion and severity of load weekly.

D - determine the weekly and daily training size.

Use the pulse **researcher** as an indicator for the legalization of contraception and point to

guide and evaluate the load and speed of performance and rest periods and the number of repetitions.

• The average pulse knowledge players exploratory study comfort = 65 n / m. Time.

**Table (5)**  
**Reached the target pulse according to the intensities of the various load**

S	Load intensity	Pulse rate	Benny load	Targeted pulse
1	<b>Maximum load</b> )69% - 50%(	132.5 : 158.15 p/m	55%	139.25 p/m
2			60%	146 p/m
3			65%	152.75 p/m
4	<b>Hefty load</b> )84% - 70%(	159.5 : 178.4 p/m	70%	159.5 p/m
5			75%	166.25 p/m
6			80%	173 p/m
7	<b>Medial load</b> )95% - 85%(	179.75 : 193.25 p/m	85%	179.75 p/m
8			90%	186.5 p/m
9			95%	193.25 p/m

**Sixth: The choice of assistants:**

The **researcher** chose three assistants of physical education.

**Seventh: exploratory study:**

The main objective of conducting surveys is to identify the difficulties they may encounter researcher and scientific transactions of the tests used and the appropriate tools and equipment used in the study and application of some units of the program.

**Eighth: Steps search application:**

**1. pre measurements:**

The **researcher** conducting pre measurement on Sunday, 15/2/2015 AD.

**2. Implementation of the basic experience:**

The researcher from the application of the program on Monday, 23.02.2015 AD-to-day Saturday, 9/05/2015 AD, and the duration of the program (12) a week.

**3. After measurements:**

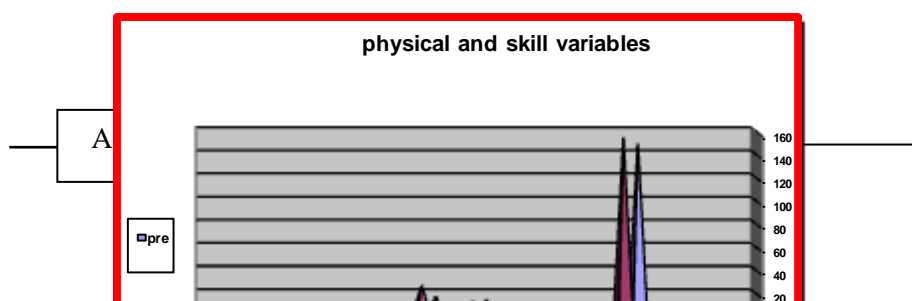
the post measurements of a sample search for variables physical and skill on Monday, 11.5.2015 AD.

## Presentation and discussion of the results: -

**Table (6)**  
**Significance of differences between the mean of two measurements ( pre – post ) In physical and skill tests N = 16**

variables	Measure unit	pre measurement		post measurement		Means difference	'T' Test	Improvement ascriptions
		mean	s.d	mean	s.d			
30m sprint	sec	7.69	1.04	6.30	0.84	1.39	4.57	18.08
Wide jump of stability	c.m	1.68	0.22	1.90	0.19	0.22	3.48	13.10
Running in place for 2min	number	149.94	52.99	155.69	31.37	5.75	1.87	3.84
Running switchback to Barrow	sec	11.28	0.65	10.37	0.63	0.91	4.67	8.07
Bend the trunk of sitting	c.m	6.38	1.96	10.31	4.38	3.94	3.38	61.76
dribble of running and then stop and pivot	sec	15.17	3.48	13.70	1.74	1.47	1.90	9.69
passing movement with receiving and stop	point	17.88	4.21	27.38	7.06	9.50	4.36	53.13
dribble then jump shot	point	1.38	0.89	2.31	1.20	0.94	2.33	68.12
Tip-in shot	point	1.31	0.48	2.75	0.58	1.44	7.90	109.92
dribble then lay-up shot	right	1.56	1.09	3.19	1.22	1.63	4.62	104.49
	left	1.13	1.15	2.26	0.86	1.13	2.92	100

The value of "P" Driven at the level (0.05) = (1.75)





### Figure (6) Physical and skill tests

#### Second, discuss the results: -

**Researcher** discusses the findings of the reality of the research group and statistical data processors Statistical the Reference and previous studies framework as follows:

#### Discuss the results of the first hypothesis:

Through the significance of differences between pre and post measurements variables physical it was clear that there are significant differences between the measurement of pre and measurement of post in favor of post measurement in search variables.

The highest value has been reached for "T" calculated in the previous variables to variable agility reaching (4.67) while the lowest value for the "T" calculated in the previous variants of the variable antenna endurance reaching (1.87), as

the value of "T" calculated in variable speed (4.57) and variable flexibility (3.38) and variable muscle power (3.48).

This is consistent, taking into account many of the researchers of the importance of capabilities in physical and that positively contribute to the possibility of improving capacity skills I have beginners such as studying **Asaad Alkiky (2008 ) (5)** and the study of **Sulaiman Farouk (1993) (8)** where these studies concluded that the exercises using a Swiss ball affect the physical aspects, and realized that the health of first hypothesis of research.

#### 2- interpreting the results of skill variables: -

Through the significance of differences between pre and post measurements variables skill it was clear that there are significant differences between

the measurement of pre and measurement of post in favor of post measurement in search variables.

The highest value has been reached for "T." calculated in the previous variants of the variable shot accuracy reaching (7.90) while the lowest value for the "T" calculated in the previous variables to variable dribble where he was (1.90), as the value of "T" calculated in the passing variable (4.36) and variable jump shot (2.33) and variable lay-up shot right (4.62) and variable lay-up shot left (2.92).

And refers **Hal Wissel (1994) (1)** that the most effective way to develop basketball skills are exercise with the performance of these skills are soon to competition and this performance is called the basketball basics The skills are available capacity while the basics are the implementation of these capabilities, design of an educational program for some performances in skill It will lead to higher skills level of performance in terms of performance time and accuracy.

It is clear from Table (6) that increase rate of improvement

between the post measurements for pre measurements in skill variables, this is achieved the second hypothesis to research, That the program has improved the skills This is consistent with **Adel Ramadan study (2006) (2)** and the study of **Ali Ajami (2001) (4)**.

#### **First - conclusions: -**

Through the nature of this study and the sample and the methodology used and the results of the statistical analysis in the scope of this research to the researcher reached the following conclusions:

- Exercises using a Swiss ball a positive effect on improving the physical fitness and skill level of the variables in research.

#### **Recommendations: -**

The researcher was able to identify recommendations that benefit the work in the field of education beginner basketball as follows:

1. The need for the educational program includes in basketball many forms and different of exercises using the Swiss ball because of its significant impact on the team's progress levels of skill.

2. Carry out similar studies using a Swiss ball on different skills in the sport of basketball.

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