Effects of the Specific Training (Exercises) on Improving the Performance Level of the Basket Skill on the Parallel Bars According to the Biomechanical Determinant.

Haytham Abd El Razzak Ahmed Dessoky

Department of exercises and gymnastics, faculty of Physical Education, Alexandria University, Egypt.

Abstract

The research aims to try to identify the effects of the specific training (exercises) on improving the performance level of the basket skill on the parallel bars according to the biomechanical determinant. The researcher has used the descriptive and the experimental methods by using pre- and post-tests on one experimental group.

The sample was selected by the Purposive Sampling Technique from the first and second class players in the Alexandria Sporting Club for the sports season of 2009/2010. The main research sample is (8) players trained together. The study is applied to them as one experimental group. The researcher has used the specific training (exercises), the tests and measurements of fitness, and the evaluation of the technical performance level. The results revealed that the use of the specific exercises improved the technical performance level of the basket skill on the parallel bars, in light of a good knowledge of the biomechanical aspects of the skill.

The researcher recommends applying the specific exercises with the same intensity, repetitions, and intermediate rests on the gymnasts for their role in improving the technical performance level for the basket skill on the parallel bars.

Key words: specific training (exercises), basket skill, the biomechanics determinant.

Introduction:

Gymnastics is considered to be one of the activities that require a great effort to learn and master. This is due to the multiplicity and difficulty of its skills and its various apparatuses, in addition to the unique characteristics required during the performance; such as, controlling the body and its different parts in unfamiliar situations, as well as, performing the movements in the space, at different heights and at varying speeds. Considering all of this, as well as the instantaneous control of the technical performance which plays a key role in the evaluation, adds to the difficulty of the sport (5: 3), (11: 97).

The specific exercises are defined [Ahmed Bayoumi (2004)] as assisted exercises that aim to prepare and enhance the motor skills related to the type of sporting activity, by trying to operate and build the body according to the skill's requirements (1: 91)(.)

George Glassman (2005 AD) agrees with Misai and John (1999 AD), that the primary purpose of the specific exercises is to enhance the sense of movements and the general artistic shape of the skill, and also to make the players more self-confident (34: 10) (39: 95).

In gymnastics, the ideal movement is represented as one of the dynamic patterns of the artistic tracks that relates to the highest level of performance for the player. This depends on the technical capabilities of the coach and the player. It comes only from the results of scientific studies.

No doubt, the coach in the field of gymnastics must care about monitoring the properties of the ideal theoretical curves and compare this with the players' performance during the training plans (23: 15-16).

Roy (1994 AD) says that "the identical performance for the skill's movements, by using the operating muscles, has an effective impact on improving and enhancing the physical characteristics; thus raising the effectiveness of the motor performance" (40: 166).

The performed exercises, that are in a consistent manner with the nature of the skill's performance, and also the use of the operating muscle group in the skill, have an effective impact on improving the physical characteristics; thus raising the technical performance level for the skill required to be performed (15:22)(.)

The basket skill is considered one of the most important skills in modern gymnastics. It is performed on the parallel bars and comes under the Fourth Group, where this skill spread largely in the last World Championship, with a diversification in the execution's methods to take advantage of its difficulty. It leads to raising the level of the performed movement and also qualifies the player to get advanced positions on this device. This skill comes under the group of Difficulty (D).

The researcher has selected this skill because of its importance. The player gets 0.04 from the degree of difficulty (D) when performing it, and when developing it to the difficulty (E), by performing it with a half-turn, the player gets 0.5 of the degree of difficulty. Also; when he performs it with a full turn (F difficulty), he gets 0.6 from the degree of difficulty. When he performs it with two turns and a half (G), he gets 0.7 from the degree of difficulty. All of this is according to the classifications of the International Federation of Gymnastics (2009-2012) (38: 118) attachment (1).

Despite the importance of the skill, there is insufficient information about the skill structure in the different stages, and also a lack of knowledge about: the schedule time divisions of the track of movements and their horizontal and vertical components for a person's center of gravity, the speeds and their horizontal and vertical components for a person's center of gravity, the angular velocity of a person's center of gravity through the various performance stages, and the amount of horizontal and vertical displacement for a person's center of gravity through the various performance stages. Also, defining the technical performance ideally represents a solution to this motor problem (10: 301). Also, we can depend on the sporting technique to be at high levels for athletic players as a standard model when evaluating the technical performance (14: 237), (9: 8), (23: 97).

The mechanical factor is considered to be one of the most important factors for the motor performance evaluation. This factor, in the excellent biomechanical analysis, outstands objectivity in assessment because it depends on quantitative variables and studying the kinematics characteristics of performance. So, it contributes in improving and enhancing the motor performance (24: 232).

Therefore, the researcher benefited from the study conducted by Hazem Hassan Mahmoud Abdullah (12) to make an analytical study for some of the biomechanical characteristics for the basket skill on the parallel bars; which contributed positively in learning and developing the skill under study and led in helping to spread the skill among the Egyptian players. All of this will reflect positively on the level of performed motor movements. So, the researcher makes a training program with specific exercises for this skill through a correct and scientific method. All this comes through the pre-analysis to know the distinguished biomechanical characteristics to be put in the training program, as described in the attachment (2).

Objectives of the research:

1. Identifying the impact of the specific exercises on enhancing the fitness factors of the basket skill on the parallel bars in light of the biomechanical determinant.

2. Identifying the impact of the specific exercises on enhancing the technical performance of the basket skill on the parallel bars in light of the biomechanical determinant.

Research Hypotheses:

1. 1 - Performing the specific exercise program through the biomechanical determinant of the basket skill has a positive impact on enhancing the fitness factors related to the skill.

2. 2 - Performing the specific exercise program, through the biomechanical determinant of the basket skill has a positive impact on enhancing the technical performance level of the skill on the parallel bars.

The Research Procedures:

Research Methodology:

The researcher used the descriptive method and the experimental method, through using the pre- and post-tests, on one experimental group because of its suitability for the nature of the study.

Research Frames:

Population frame:

Firstly- Photos of (10) ten attempts of a first-class player in the Sporting Club, while performing this skill on 25/10/2005 in the gymnastics hall in the Club, were taken by using a video camera brand Sony (SONY) DCR-TR230E (video signal colors PAL). This lens zooms automatically to 25 times optical and 700 times digitally. Then, the best attempt was selected by a committee from approved judges in the Egyptian Federation of Gymnastics, headed by an international judge, to analyze it mechanically. This shot was done by Hazem Hassan Mahmoud Abdullah (2005) (12). From these photos, the researcher extracted the biomechanical factors related to the basket skill. He could then use these factors to prepare the training programs on scientific and biomechanical basics.

Secondly: The research sample was selected by the propulsive sampling technique, which represents all the population community. The sample included teams of first and second class in the Alexandria Sporting Club. The number of players was (8) (eight. The study was applied to them as one experimental group. All pre- and (post-

tests) were done in the Alexandria Sporting Club's hall. Table (1) shows the main variables of age, height, and weight of the research group.

Table (1)
The Arithmetic Mean, the Standard Deviation, and the Coefficient of Skewness
of the Experimental Research Group in the Basic Measurements

Tests	Statistical Connotations			
	Arithmetic Mean	Median	Standard Deviation	Coefficient of Skewness
Age (year)	20.245	20.2	0.666	0.217
Weight (kg)	61.764	61.57	2.975	0.875
Height (cm)	171.830	171.615	3.197	0.136

It's clear from Table 1 that the coefficients of skewness for the selected variables are limited between +3, which demonstrates that the sample was distributed fairly.

Place Frame:

All pre- and (post-tests), and the performing of the training program, were held in the hall of the Alexandria Sporting Club.

The Time Frame:

The researcher performed the first exploratory study on a sample similar to the study sample; from outside the main sample, and also from the same research population community, for the following:

- To ensure validity of apparatus and tools and to ensure the suitability of the training program for the research sample. This was on Sunday, 7/3/2010 AD.

- Performing the (pre- tests) in the period from Monday, 15/3/2010, to Wednesday, 17/3/2010.

- Applying and implementing the research in the period from Saturday, 20/3/2010, to Thursday, 3/6/2010.

- Performing the (post- tests) in the period from Saturday, 5/6/2010, to Monday, 7/6/2010.

The primary exploratory study, the research's tests and the implementation of the proposed program were applied during the sports season 2009/2010. The main experiment was applied through (a long) period of (12) twelve weeks, sequentially, with (6) six training sessions per week, for a grand total of (72) seventy-two training sessions. Each session lasted for 240 minutes. The weekdays from Saturday through Thursday, were the days selected to perform the main experiment on the research's group at (5) five o'clock in the evening. Fridays were the days off.

Methods and Tools of Data Collection:

Based on the analysis results obtained from the research of Hazem Hassan Mahmoud Abdullah (12), the researcher put the following technical guidelines: Attachment (2)

In light of the foregoing, and to identify the impact of the biomechanical determinant on learning the basket skill, the biomechanical determinants have been converted to physical characteristics, serving the research through designing the appropriate training program. Therefore, the appropriate tests have been made for the basket skill in light of the biomechanical determinants: Attachment (3)

Evaluating the Technical Performance Level:

The technical performance level of the Basket skill was evaluated by a committee of international judges and by the first class judges in artistic gymnastics men, according to the International Gymnastics Code of Points. The number of judges was seven (7). They assessed the performance level of the skill of the first and second class players according to the technical and formalist performance – pre and post the experiment.

All points were fifteen (15), distributed as the following:

- Five (5) points for the technical performance which was given by the one, (D) judge.

- Ten (10) points for the formalist performance of the Basket skill by six, (E) judges.

Scientific Treatments of the Used Tests:

Validity Coefficient:

The researcher has used the discriminant analysis to find the Validity of the tests. The researcher applied the tests

under study into two groups; one of them was a discriminant group that was the same used sample to find the Validity of the tests, the second was a non-discriminant group (juniors) from the same research population (community) and from outside the main research sample. This second group had the same number of players as the first sample as shown in Table (2)).

Table (2)
Validity Coefficients of Physical Tests and the Performance Level of the Skill under Study

Statistical Implications	Variables	Discriminant Group No. of players=5		Non- Discriminant Group No. of players=5		Variance Between Two Means	T Value	Validity Coefficient
		-Mean	±Standard Deviation	-Mean	±Standard Deviation			
Max. strength	Right Fist's Strength	73.455	1.440	69.064	3.046	4.391	4.322**	0.837
	Left Fist's Strength	65.818	2.272	62.184	2.346	3.635	3.691**	0.794
explosive power	Lower Abdomen Muscles	11.834	0.562	9.809	1.321	2.025	4.676**	0.856
	Upper Abdomen Muscles	13.246	0.767	10.158	2.232	3.088	4.340**	0.838
	Lower Muscles of the Back	13.545	0.522	12.157	0.918	1.389	4.360**	0.839
	Upper Muscles of the Back	14.364	0.809	12.184	1.338	2.180	4.625**	0.853
	Triceps Brachii Muscle of Shoulder	12.735	0.491	9.705	2.023	3.029	4.827**	0.863
	Levator Scapulae Muscle of Shoulder	11.874	1.211	9.666	1.721	2.207	3.479**	0.776
	Stretching Planche	11.315	0.791	9.322	1.600	1.994	3.704**	0.795
strength endurance	Press Planche on the Parallel Bars	7.721	1.237	4.710	2.044	3.011	4.180**	0.828
	Bend the Arms from the Handstand	9.636	0.809	7.455	1.695	2.182	3.853**	0.806
	The Angular V Support	5.636	0.809	3.455	1.695	2.182	3.853**	0.806
Motor Range	The Motor Range of the Shoulders	53.545	1.809	58.545	4.298	5.000	3.556**	0.783
Stretching Muscles	The Hamstring Back Muscles of Thighs	13.818	1.601	16.545	2.339	2.727	3.191**	0.748
Muscle Ability	Climbing the Rope for 4 m	5.686	0.199	6.279	0.398	0.593	4.422**	0.842
Evaluating the Technical Performance of the Basket Skill from 15 Points		12.167	0.540	8.862	2.017	3.305	5.249**	0.880

** At the significant level 0.01 = 3.36   *** At the significant level 0.05 = 2.31**

It's clear from Table (2) (the significant variances between the discriminant and non- discriminant groups to find the validity of physical tests and to evaluate the technical performance level of the skill) that there are significant variances in all the physical and technical variables between the two groups, in favor of the discriminant group. The value of the calculated (T) ranges from 3.191 to 4.827 and these values at the significant level of 0.05. Also, the validity coefficient ranges from 0.748 to 0.863, which confirms that the variables are valid, and they measure what they put for.

Reliability Factor: To identify the Reliability Degree of the tests under study, the researcher used the Test and Retest Method. By applying the tests, and re-applying them after a period of ten (10) days, on a group of junior players from outside the main research sample and from the same research population (community).

Table (3)
Reliability Coefficients of the Physical Tests and the Technical Level of the Performance

Statistical Implications / Variables		The First Implementation		The Second Implementation		Variance Between Two Means		T Value	Reliability Coefficient
		-Mean	±Standard Deviation	-Mean	±Standard Deviation	-Mean	±Standard Deviation		
Max. strength	Right Fist's Strength	71.259	3.233	70.473	3.592	0.786	2.003	1.842	0.876
	Left Fist's Strength	64.001	2.922	63.473	2.378	0.528	2.394	1.034	0.918
explosive power	Lower Abdomen Muscles	10.821	1.434	10.417	1.532	0.405	0.954	1.990	0.924
	Upper Abdomen Muscles	11.702	2.269	11.078	2.291	0.625	1.730	1.694	0.864
	Lower Muscles of the Back	12.851	1.018	12.617	1.070	0.234	0.595	1.842	0.888
	Upper Muscles of the Back	13.274	1.552	12.910	1.641	0.363	0.980	1.737	0.890
	Triceps Brachii Muscle of Shoulder	11.220	2.113	10.715	2.133	0.505	1.454	1.629	0.906
	Levator Scapulae Muscle of Shoulder	10.770	1.840	10.408	1.731	0.362	1.300	1.307	0.849
	Stretching Planche	10.319	1.600	9.849	1.633	0.470	1.371	1.606	0.953
strength endurance	Press Planche on the Parallel Bars	6.215	2.257	5.531	2.437	0.685	1.690	1.900	0.943
	Bend the Arms from the Handstand	8.545	1.711	7.955	1.864	0.591	1.403	1.976	0.877
	The Angular V Support	4.545	1.711	3.955	1.864	0.591	1.403	1.976	0.883
Motor Range	The Motor Range of the Shoulders	56.045	4.111	56.636	3.749	0.591	2.955	0.938	0.888
Stretching Muscles	The Hamstring Back Muscles of Thighs	15.182	2.403	15.955	2.572	0.773	2.069	1.752	0.919
Muscles Ability	Climbing the Rope for 4 m	5.983	0.431	6.070	0.425	0.088	0.285	1.445	0.932
Evaluating the technical performance of the Basket skill from 15 points		10.515	2.222	9.925	2.329	0.590	1.517	1.824	0.900

* At the significant level 0.05 = 2.26

It's clear from Table (3) (the variances between the first and second implementation of the two discriminant and non-discriminant groups to find the reliability of the physical tests and the technical level of the performance) that there aren't significant variances in all physical variables and the level of technical performance between the first and the second implementation, where the reliability coefficient is between 0.849 to 0.953. This confirms that the variables are reliable and they give the same results if re-applied again on the same sample at the same conditions.

The Tools Used:

First: The measuring devices.

- Stadiometer device to measure the height (cm).

- Calibrated medical balance device for measuring the weight (kg).

- Manometer device for measuring the strength of the fist (kg).

- Stop Watch (1/100 seconds) to determine the time of the tests, the rest duration, and the training time.

- Parallel bars apparatus

- Pommel horse apparatus

- Climbing rope, up to 4 m

- Tape measure

- Legal mats

The second Exploratory Study:

The second exploratory study was applied in the period from Tuesday, 9/3/2010 AD, to Wednesday, 11/3/2010 AD, on four (4) players from the first class; aiming to:

- Ensure from the appropriation of the proposed specific exercises in using the assisted apparatus for the skill under study.

- Determine the actual average time for each exercise, by taking the pulse as an indicator.

- Determine the intensity of the exercises, the number of the exercises sets, and the repetition for each set.

- Ensure that all players (study sample) perform the basket skill on the parallel bars.

- Know to what extent the assistant could understand how to perform the tests.

The Proposed Training Program:

1 – The Designing Steps for the Training Program:

The researcher has designed his proposed training program through the best methods and principles of planning and designing the programs; which can be concluded from the views of some specialists, the scientific references, previous studies, and researches. Attachment (4), (5)

(2-) The Applying Steps of the Research Pretests:

Pretests were done in the period from Monday, 15/3/2010 AD, to Wednesday, 17/3/2010 AD, on the study sample to **Presenting and Discussing the Results:**

measure the physical characteristics and to evaluate the technical level of the performance of the skill under study.

(3)- Applying the Research Experiment:

The main experiment was applied in the period from Saturday, 20/3/2010 AD, to Thursday, 3/6/2010 AD.

Post-Tests:

The post-tests were done in the period from Saturday, 5/6/2010 AD, to Monday, 7/6/2010 AD, on the study sample, to measure the physical characteristics and to evaluate the technical level of the performance of the skill under study.

The Statistical Treatments:

The data of the research, related with results, was processed by using the SPSS program to find or calculate:

- The arithmetic mean

- Standard deviation (NOTE: MAKE SURE THESE BULLETS LINE UP)

- Coefficient of skewness, kurtosis

- Validity coefficient

- Reliability coefficient

- (T) Tests, variances of one group

- The percentage of improvement %

First, presenting the result:

Table (4)
Statistical Variances between the Pre- and Post-tests of the Physical Tests and the Technical Level of the Performance

Statistical Connotations / Variables		The Pretest		The Post-test		Difference between the Two Means		T Value	Percentage of Improvement %
		-Mean	±Standard Deviation	-Mean	±Standard Deviation	-Mean	±Standard Deviation		
Max. strength	Right Fist's Strength	66.149	2.717	73.705	1.727	7.556	3.686	* 5.798	11.423
	Left Fist's Strength	61.009	1.691	65.160	2.830	4.151	3.748	* 3.132	6.804
explosive power	Lower Abdomen Muscles	9.086	0.794	11.806	0.862	2.720	1.325	* 5.807	29.935
	Upper Abdomen Muscles	9.168	0.709	12.691	0.925	3.524	1.174	* 8.492	38.437
	Lower Muscles of the Back	11.574	0.592	13.875	1.126	2.301	1.296	* 5.021	19.882

Statistical Connotations / Variables	The Pretest		The Post-test		Difference between the Two Means		T Value	Percentage of Improvement %
	-Mean	±Standard Deviation	-Mean	±Standard Deviation	-Mean	±Standard Deviation		
Upper Muscles of the Back	11.609	0.525	14.071	0.858	2.462	0.860	* 8.096	21.207
Triceps Brachii Muscle of Shoulder	8.970	0.700	12.764	0.483	3.794	0.878	* 12.221	42.294
Levator Scapulae Muscle of Shoulder	8.858	0.473	12.421	1.029	3.564	1.201	* 8.392	40.234
Stretching Planche	8.483	0.574	11.515	0.940	3.033	1.003	* 8.553	35.750
strength endurance — Press Planche on the Parallel Bars	3.987	0.843	7.881	1.148	3.894	1.472	* 7.484	97.680
Bend the Arms from the Handstand	6.466	0.890	9.945	0.869	3.479	1.139	* 8.640	53.805
The Angular V Support	2.998	0.924	5.623	0.746	2.624	0.741	* 10.014	87.515
Motor Range — The Motor Range of the Shoulders	61.270	2.595	53.763	2.079	7.507	2.112	* 10.055	12.252
Stretching Muscles — The Hamstring Back Muscles of Thighs	19.000	2.000	13.445	1.581	5.555	2.567	* 6.121	29.237
Muscles ability — Climbing the Rope for 4 m	6.544	0.243	5.594	0.212	0.950	0.302	* 8.896	14.518
Evaluating the technical performance of the Basket skill from 15 points	8.138	0.526	12.091	73.705	3.954	0.877	* 12.752	48.587

* At the significant level 0.05 = 2.36

It is clear from Table (4) (variances between the pre- and post-tests of the research sample in the physical characteristics and the technical level of the performance) that there are variances between the two tests at the 0.05 level in all tests, as the value of (T) ranges between 3.132 to 12.221, and also the percentages of improvement range from 6.804% to 97.680%.

Discussing the Results:

It is clear from (T)able (4) (variances between the pre- and post-tests of the research sample in the physical characteristics and the technical level of the performance) that there are variances between the two tests at the 0.05 level in all tests, where the value of (T) ranges from 3.132 to 12.221, and these values are greater than the Tabulated value of (T) at 0:05. Also, the improvement percentage ranged from 6.804% to 97.680%.

The researcher refers to this progress as the training program, which includes the specific exercises. This program contains exercises which are similar in the time tracks with the skill's movements under the study. Both Talha Hussain (1993) and Kristy Browand [(1988), (19: 210), (37: 138)] agreed to this.

This kind of exercise is considered to be the most specialized level in enhancing the technical performance in the quality, quantity, and timely manner; according to the instantaneous use of these muscles within the technical performance.

Boy Readhed (1997) emphasized that the manner of the strength training must be appropriate to the working muscles and their contractions in the technical performance of the selected skill.

Therefore, the coach must prepare the player well, physically, to have a sufficient amount of power to help him to learn the performance of those highly difficult skills (31: 72).

The increase of the strength indicator in the fist's strength of the left and right hand, the explosive power of the upper and lower abdomen muscles, as well as the strength of the shoulder muscles, emphasizes the effectiveness of the training program.

The skill of basket is considered to be one of the skills that need as much power as possible in order to perform it in a perfect and excellent way. Also, John Geddert (2001) and Fred Turoff (1991) are in agreement with this. They stated that the skill of basket needs strength in the shoulder

muscles, in the abdomen muscles, and in the upper and lower back muscles. Also, they state that all these muscles have a great effect on the performance of this skill, according to the rise in the strength of these muscles. The more these strengths improved, the more the skill enhanced.

So, the attention should be paid in the preliminary stage to the motor range of the articular shoulders, and to stretching the articular pelvis so that the body with be like a straight-line. This is so the player can convert the kinetic energy in the beginning of the preliminary stage to the potential energy at the end of the preliminary stage, and at the beginning of the main stage (41: 360), (33: 2)(.)

We can also find that the muscles of the abdomen, the upper and lower back muscles, and the muscles of the shoulders have the main role in the main stage. This statement was agreed by John Hedrt and John Wcjlczuk. They state that the specific exercises like in this study to the muscles of the abdomen and the upper and lower back muscles, as well as the muscles of the shoulders, work on improving the technical performance (33: 2-4), (35: 4-6).

This symmetries with the conclusions of the studies of Yasser Dahroog (2000) (28), Reda Yousuf (2001) (16), Ahmad Mahmoud (2005) (3), Tamer Alshtehy (2006) (7), Samir Mustafa (2007) (17), and Ahmad Joseph (2007)(4). Their results point to the specific exercises contributing effectively in enhancing the fitness level, as well as improving and developing the level of technical performance.

Also James Ay (1985) (30) , M. Knudson (2002) (36) , and A & Cooper (1995) (32) pointed to the production capacity of muscle and motor increase significantly through the planned training, where it led to better compatibility.

Therefore, all of this pushed the researcher to make a standard training program, based on the biomechanical analysis for the exercises of the motor performance of the skill. Also, to use the qualitative analysis for the basic factors that contributes in achieving the best results for this skill.

Also, Talha Hossam El Din (1993), Sawsan Abdel Moneim, and others (1997) add that the reaction forces are one of the most important sources of the external forces which impact on the body movement. In addition, they add that the muscles are the source of the interior forces, which do not create by themselves any form of movement if there aren't any form of the external forces (19:46), (18: 214). This achieves the first hypothesis; which states that "Performing the specific exercise program through the biomechanical determinant of the basket skill, has a positive impact on enhancing the fitness factors related to that skill".

It is also clear from Table (4) (variances between the pre- and post-tests of the research sample in the physical characteristics and the technical level of the performance that there are variances between the two tests at the 0.05 level, where the value of (T) is 12.752, and the percentage of improvement reached to 48.587%.

In this current matter, Mohammed Ibrahim Shehata (1992) points that in order to enhance the technical performance in the sport of gymnastics, the similar exercises are the main mean to enhance the technical performance level of the motor skills (22:18) . At the same time, these results agreed with the study results of Ashraf Abdel-Moneim (2006), which states that "the training program has shown an improvement in the level and the effectiveness of the technical performance"(6: 63). These results also are consistent with Yasser Ali Qutb (2004), where he found that the exercises performed in the same conditions as in the technical performance achieve the synchronization between the physical characteristics and enhance the level of the technical performance (29: 99). This is supported by the results of the studies of Gmal Kamel Mattar (2004) and Ashraf Abdel Moneim Ahmad (2006). They state that the training program that uses the specific exercises enhances the technical performance level (8: 5) (6:41).

The researcher believes that if there is a great similarity between the training and the studied skill, this training will be characterized as specific training, and also, its effectiveness will increase through improving the performance of this skill. Also, the direction towards specializing and employing the gained muscle ability, by applying the horizontal and vertical technical part of the skill, has shown a positive impact on improving the similar movements, which led to enhance the level of the skill's performance. These results are consistent with Yasser Ali Qutb (2004), where he states "the exercises that are done in similar conditions with the technical performance work on improving fitness, achieving the synchronization between the physical characteristics, and enhancing the level of the technical performance"(29 : 99). This achieves the second hypothesis, which states that "Performing the specific exercise program through the biomechanical determinant of the basket skill, has a positive impact on enhancing the technical performance level of the skill on the parallel bars".

Conclusions:

In light of the study's procedures and results, the following could be concluded:

1. Taking into account the following factors during preparing and developing the training methods of the basket skill on the parallel bars:

    a. Timing parts of the skill, angle and joints of the body, and the biomechanical determinants have a great effect on designing the training program by using the specific exercises for this skill.

    b. Caring about the exercises to the maximum strength during the preliminary and the final stage. The researcher cared about this at the time of designing the training program.

    c. Caring about the exercises of the explosive power during the final stage and also during stretching the thighs and shoulder joints. The researcher cared about this at the time of designing the training program.

2. The designed and proposed training program through the biomechanical analyzing led to enhancing the special physical characteristics of the skill.

Recommendations:

In light of the study's procedures, analysis, and discussion; the researcher recommends the following:

1. Use the training program, which includes the specific exercises that are similar to the performance of the skill under study.
2. Use the exercises and their various and specific contents to enhance the fitness characteristics of the skill under study.
3. Give attention to the kinetic analysis to determine the status of a gymnast and to develop him through accurate details that are difficult to observe with the naked eye.
4. The need to direct the coaches, and the responsible persons of training processes, to use the specific exercises in the rest of the gymnastics skills on various apparatuses according to the biomechanical variables, rather than following the other rationing methods.
5. The use of the assisted apparatuses in gymnastics for the players, works on increasing the effectiveness of learning and improving the technical performance level.
6. Making further studies on the skills of gymnastics through using the specific exercises

to raise the performance level of the players on the different apparatuses of gymnastics.

References:

First: Arabic references:

1. Ahmed Elsayed Bayoumi : "The impact of a training program to develop Komi Kata on the effectiveness of the technical performance For juniors of judo , " Unpublished MA Thesis , Faculty of Physical Education, Tanta University 2004.
2. Ahmed Mohammed Khater , Ali Fahmi Bak : measurement in the field of sports , Modern Book House , edition Fourth 1996
3. Ahmad Mahmoud: "The impact of the specific exercises on the rates of progress on some of the basic skills of juniors of Karate," Unpublished MA Thesis , Faculty of Physical Education for Boys , Helwan University, 2005
4. Ahmed Yousef : " biomechanics of the performance of the circular reverse Kick as indicator of the specific training in the sport of Karate , " Unpublished MA Thesis , Faculty of Physical Education , University of Banha,2007
5. Adele Shenouda Saad , Samia Mansour Farghali : artistic gymnastics , Moltaka El –Fakr ,Alexandria, 1999
6. Ashraf Abdel Moneim Ahmed : "The impact of the use of barriers gymnastics and special exercises on the capabilities of the kinetics Selection and performance among junior ground movements in gymnastics under 10 years, "Ph.D. thesis (unpublished) , Faculty of Physical Education for Boys , Helwan University ,2006
7. Tamer Alshtihi : "Use some of biomechanical determinants as an indicator of the specific training and its impact on the level of the performance of some boxing skills , " unpublished Ph.D. thesis , Faculty Of Physical Education, University of Banha, 2006.
8. Kamal Jamal Mattar :: technical properties of some skills near the horizontal bar to develop the specific exercises , " Master Thesis , Faculty of Physical Education for Boys ,Helwan University, 2004.
9. Jamal Mohammed Aladdin: "biomechanical Introduction to assess the perfection of the technical performance in the field of sports ,Theoretical study , postgraduate studies, Faculty of Physical Education for Boys in Alexandria ,Helwan University, 1981
10. Jerhokhmut : biomechanics and the methods of the scientific research for sporting movements , translated KamalAbdul Hameed , Knowledge House , Cairo , 1987 AD .
11. Jehan Ahmad Badr : "The Effectiveness of balance training on the efficiency of the sensory sources of balance and the level of performance Skill to climb on the balance beam, " Scientific research publication , comprehensive research Journal, published by the Faculty of Physical Education for Girls , Zagazig University ,Volume II , Issue II, 2003.
12. Hazem Hassan Mahmoud, "an analytical study of some biomechanical properties of the pike sole skill to handstand on the parallel bars", the production of

scientific research, theories Applications, Faculty of Physical Education, Alexandria University, 2006.

13. Hosni Sayed Ahmad: "The impact of the use of certain methods to develop the sense of " Musculoskeletal "and the visual sensation on the speed of learning the front somersault on the hands , " Unpublished MA thesis , Faculty of Physical Education for Boys in Alexandria , Helwan University 1985.

14. Hosni Sayed Ahmad: " Proposed Program using the learning technology and its impact on the development of some Specific physical abilities and the speed of learning the skill of (Altomas) on the Pommel horse , " research publication , the Journal of the theories and applications of the Faculty of Physical Education Boys , Alexandria University, 2004.

15. Rehab Rasha Mohamed: "the effectiveness of the selected specific exercises by using the assisted devices to improve the movement end for female gymnastics junior on the balance beam, " Unpublished Master thesis , Faculty of Physical Education , Tanta University, 2009.

16. Reda Yusuf: "proposed specific exercises in light of the kinematics characteristics of jumping skill with Rotation in the air for the karate players, "Unpublished Master thesis, Faculty of Physical Education , University of Menoufia 2001.

17. Samir Mustafa: "The impact of a training program using the specific exercises to achieve the requirements for upgrading to the Black Belt (Dan one), " Unpublished MA Thesis, College of Education Sports, Mansoura University, 2007.

18. Sawsan Abdel-Moneim , Essam Mohammed Amin, Helmi , Sabri Mohammed Omar , Mohammed Abdul Salam Ragheb :Biomechanics in the sports field , the first part , Knowledge House , Egypt, 1977

19. Talha Hussein Hossam El Din: foundations of kinetic and functional sports training, Dar Afakr El-Araby, 1993.

20. Adel Ali Abdalbesar : theories and scientific foundations of modern gymnastics exercises , Part II , Dar Afakr El-Araby , Cairo 1998.

21. Lilly sayed Farhat : measurement and testing in the Physical Education, the book Center for publication , first edition ,2001.

22. Mohammed Ibrahim Shehata : A Guide to Modern Gymnastics , second edition, knowledge , Alexandria, 1992

23. Mohamed Ibrahim Shehata : a system of the specific training for the Artistic Gymnastics Men , International Horus Foundation ,First Edition , Alexandria, 2011.

24. Mohammed Ibrahim Shehata , Ahmed Fouad El-Shazly : field applications of the motion analysis in Gymnastics , Egyptian Library for printing and publishing , Alexandria, 2006

25. Mohammed Ibrahim Shehata , Mohammed Jaber Brika : a Manual of measurements of physical and motor performance tests ,Maraf facility , Alexandria, 1996.

26. Mohammad Hassan Allawi : The Science of sports training , the thirteenth edition, Knowledge House , Cairo ,1994

27. Mohammad Hassan Allawi , Mohamed Nasr El Din Radwan : tests of motor performance , Dar fakar Araby,Cairo 2001.

28. Yasser Dahrooj : "The impact of the development of some motor skills on the performance of kata for karate juniors " Unpublished Master Thesis, Faculty of Physical Education for Boys in Alexandria , Alexandria University, 2000

29. Yasser Ali Kotb: "The impact of the specific exercises program using an alternative apparatus on the performance level of backward somersault on the balance beam, " unpublished Master thesis,

30. Faculty of Physical Education, University of Menoufia 2004

Secondly: Foreign references

31. Ay, james G, : the biomechanics of sports techniques, 3th,ed, prentice, hall international, Inc. 1985

32. Boy readhead : men, gymnastics couching manual, recommended reading for all coaches of boys men's, gymnastics by british gymnastics associations, brown publishers great britanin, 1997

33. Cooper, john m, & Adrian, marlene,j : biomechanics of human movement, second edition, wcb, brown & benchmark, 1995

34. Gedder . J : beginning uneven bars, www, USA-gymnastics. Org/publications/technique/2001.

35. Goreg Glassman : gymnastics& tumbling, crossfit santa cruz and is the publisher of the crossfit journal, Inc. 2005

36. Jo wcjlczuk, : north stars gymnastic academy, hey, that's a pretty goad drill, www,usa,gymnastics.org

37. Knudson, d, Morrison, c, : qualitative analysis of human movement, 2nd edition, human kinetics, 2002

38. Kristy browland : boys gymnastics rules Brice darbinbulsher ronssas, Missouri, U.S.A, 1988

39. Men's artistic gymnastic : international gymnastic federation code of points, new version, 2009 – 2012

40. Misia & john : effective coaching for children, first published by the crowood press ltd, ramsbury, Marlborough, Wiltshire sn8 2hr, 1999

41. Roy. j. l : the volue of gymnastic condition exercises to spees of learning selects gymnastic skills, in aonper completes research quartery, no, 1 , march, 1994

42. Turoff, f, : artistic gymnastics, comprehensive guide to performing and teaching skill for beginners and advanced beginners, by W.M.C. brawn publishers American, 1991