

THE EFFECT OF USING SPECIAL HIGH INTENSITY TRAINING (MAXIMUM STATIONARY AND CURLING) ON SOME FITNESS COMPONENTS FOR (14 – 16) YEAR OLD JUNIORS

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Abstract

The level of fitness components changes with long studying periods starting from the level of juniors till achievement level according to their abilities. Therefore, it is important to develop some fitness components for junior ages: (14 – a6) years old to be consistent with requirements of athletics activity quality wrongly. This formed the problem of the study that says that there is a vacillation in performing training during exercise process despite their talents and being selected due to special tests. Therefore, the researchers decided to dedicate a special study through the use of special high intensity training with (maximum stationary and curling) methods. The study aims to prepare training or define the effect of this training on some fitness components and define preference of the effect of high intensity training with (maximum stationary and curling) methods for junior ages between 14 and 16 years old. Both researchers used the empirical method in solving study problem. The sample was selected purposively and divided into two groups randomly: first group (5 athletes) and second group (5 athletes) as well as performing homogeneity and asymmetry in variables of the study. The study concluded that high intensity training with (maximum and stationary) methods are more influencing than the curling training method except in some variables such as explosive power of arms, speed strength for right and left legs. Both researchers recommended the necessity of using special high intensity training with (maximum and stationary) methods at fitness components training for juniors aging 14 to 16 years old and conduct further studies on other samples for sport events and activities for various age categories (physical and psychological ones).

Keyword: High Intensity Training, Fitness, juniors

1. INTRODUCTION

Fitness components play an important role in sport training in particular as they give sufficient opportunity to build the body during training stages. In addition, the world is witnessing a great success in all sport areas and activities for various ages due to the development of these components through general and particular physical preparation and conditioning. Development of fitness components is determined in athletic work in general through distinct dynamic work using strength, speed and endurance in addition to other physical attributes. This cannot be achieved unless through comprehensive physical preparation that leads to adapt body apparatus in performing motor skills as a result of using their related training in training process. Accordingly, this helps late playing and recovery during training with different competitors and various age categories through applied training for preparation stages from their beginning till their end. The level of these components changes with the length of practice period starting from the level of juniors till high achievement level according to their abilities.

Therefore, it is important to develop some fitness components for junior ages between 14 and 16 years old in a way suitable to requirements of athletics activities quality in particular. Here, the significance of the study lies in using high intensity training with (maximum stationary and curling) methods and their effect on some fitness components of junior ages between 14 and 16 years old to reach the best sport achievements with trainers.

Problem of the Study:

Young athletes differ during practicing sport events in terms of fitness components and their production in training at building stage. Individual fitness plays an effective role in obtaining performance in response to speed, strength, endurance and other attributes. Through their academic and field experience, their follow-up of age categories in particular, the researchers noticed that there is a vacillation in performing training although they are talented and selected due to special tests. Therefore, the researchers decided to dedicate a special study through the use of special high intensity training with (maximum stationary and curling)

methods to determine their effect on some fitness components of junior ages between 14 and 16 years old to form a training method besides other methods by trainers and workers in this field and categories in order to reach the best sport achievements.

2. OBJECTIVES OF THE STUDY:

- 1- Preparing special high intensity training with (maximum stationary and curling) methods for junior ages between 14 and 16 years old.
- 2- Define the effect of using special high intensity training with (maximum stationary and curling) methods on some fitness components for junior ages between 14 and 16 years old.
- 3- Define preference of the effect of using special high intensity training with (maximum stationary and curling) methods for junior ages between 14 and 16 years old.

3. HYPOTHESIS OF THE STUDY:

There are statistically significant differences between the two empirical groups between pre- and post-tests in variables of the study for sample members.

4. METHODOLOGY:

The nature of the problem determines the used research methodology. Therefore, the researchers used the empirical method as it is proper to the nature of the study problem. The empirical method is defined as “an intentional and accepted change to conditions determining a certain action with observation of resulting changes from the action itself” (1:136).

Sample of the Study

Both researchers selected the sample purposively among athletes of “the Olympic Champion” project at Al Arabi Club center (10 athletes) with ages ranging between 14 and 16 years old forming 100% of original population. Note that the sample trained on a general and integrated structure. Moreover, the researchers divided sample members into two empirical groups randomly. The first group (5 athletes) uses maximum and stationary high intensity training, the second group (5 athletes) uses curling high intensity training to determine the effect of these exercises on some fitness components. In addition, the researchers conducted homogeneity and asymmetry between members of the sample as shown in tables (1) and (2) as follows:

Table (1) Arithmetic mean, Standard Deviation S.D and Skewness Coefficient for Members of the Sample in variables of: (length, weight and age) for homogeneity purpose:

Serial	Variables	Units	Mean	Median	S.D	Coefficient	Significance
1	Age	Years	15.35	15	0.455	0.76	Significant
2	Length	Cm	161.5	161.5	2.75	0.87	Significant
3	Weight	Kg	58.9	58	1.34	0.880	Significant

* A sample is homogeneous if skewness coefficient value is between (3±)

Table (2) Arithmetic means, Standard Deviations S.D and (T) Value for Test Results of both Empirical Groups for Homogeneity Purpose:

Variables	First Group		Second Group		(T) Counted Value	(T) Tabulated Value	Significance
	Mean -	S.D	Mean -	S.D			
Strength & Explosive Strength	266.3	6.00	264.8	7.79	2.105		Random
Throwing a baseball 350 gm – m – cm	5.80	3.168	5.82	3.28	0.159		Random
Speed strength: 5 hops, farthest distance, right leg – m – cm	10.75	1.05	10.74	0.94	0.619		Random
5 hops, farthest distance, left leg – m – cm	10.37	0.94	10.33	0.96	0.08		Random
Endurance, torso (abdomen) strength endurance – number	46.1	2.84	47.3	2.86	0.62		Random

Speed endurance, running 600 m – sec	1.38	0.045	1.37	0.03 9	0.58	2.10	Random
Speed, maximum speed (30 m) – sec	4.15	0.22	4.14	0.23	1.06		Random
Flexibility, torso bend – cm	8.7	1.82	8.9	1.37 0	1.07		Random
Agility, zigzag run (20 m) – sec	9.133	0.43	9.157	0.40 7	0.128		Random
Balance, stationary balance - sec	16.44	0.88	16.55	0.88 5	0.29		Random

Tabulated (T) Value under freedom degree (N= 2) and significance level (5%)

Steps of the Study:

Tests:

The researchers conducted tests based on reference survey that is appropriate to this age category (14 – 16 years). They are multiple, but the following components were selected: (explosive strength: long jump from stationary legs, throwing 2 kg medicine ball as an explosive strength for arms and speed strength: 5 hops to the farthest distance, endurance test including torso (abdomen) endurance strength and speed endurance (600 m), speed: 30 m dash, maximum speed, flexibility: torso bend exercise, agility: 30 m zigzag run, balance: stationary balance exercise).

After that, these tests were conducted according to requirements that suit members of the sample.

Pre-Tests:

The researchers conducted pre-tests (with assistant work team) to evaluate the level of the sample and determine the actual level of sample members for whom the program was set (2012) as tests are considered one of the important means to evaluate the level reached by athletes in addition to show how viable any training program is (11:3). Pre-tests were conducted as they are important in evaluating the athlete's condition before conducting the training program at 3:00 pm on Sunday 22/03/2015 till Tuesday 24/03/2015 as follows:

- 1- Sunday (22/03/2015): strength tests including explosive strength from stationary for legs, throwing 2 kg medicine ball as an explosive strength for arms, speed strength for legs 5 hops to the farthest distance, maximum speed, endurance test including torso (abdomen) endurance strength with (10 min) breaks within tests.
- 2- Tuesday (24/03/2015): Flexibility tests: torso bend exercise, speed: 30 m dash, maximum speed, agility: zigzag run, balance: stationary balance exercise and speed endurance (600 m) with (10 min) breaks within tests.

Training Program:

The researchers prepared a special training program for each training group consistent with age category as follows:

- The training program lasted for (12 weeks) for (3 training units a week). There were total 35 training units from 01/04/2015 till 30/06/2015 on Saturdays, Mondays and Wednesdays. Training generally included building process and two empirical groups. Concerning the used intensity, the first group trained with intensity of (75-90%) at the form of training load curling and grading. As for repetitions, groups, break periods, these were set according to the needed intensity requirements, curling within the week, along the training period and for both groups. When it comes to the second group, it trained using maximum intensity (90%) showing that consistent load regarding the ability of the athlete and it was fixed along implementation of the training course.
- Exercises were selected according to variables of the study including legs explosive strength, ball throwing for arms, speed strength for legs as well as endurance, flexibility, agility and balance exercises. All of these exercises were performed using assistant means considering individual differences among members of the sample according to abilities.

Post-Tests

The researchers conducted post-tests in the period from 02/07/2015 till 04/07/2015 at Al Shaab International playground to determine the levels of sample members for both empirical groups after giving training units. The same procedures of pre-tests were followed with attendance of the assistance work team.

Discussion of Findings:

Table (3): Arithmetic means, Standard Deviations S.D, Tabulated & Counted (T) Value for Post-Tests of the First Group (Curling):

Variables	Pre-Tests		Post-Tests		(T) Counted Value	(T) Tabulated Value	Significance
	Mean -	S.D	Mean -	S.D			
Strength & Explosive Strength	266.3	6.00	272.5	7.97	2.34	2.26	Significant
Throwing a medical ball 2 kg / gm	5.80	3.168	5.84	3.29	1.257		Insignificant
Speed strength: 5 hops, farthest distance	10.75	1.05	10.85	1.02	1.532		Insignificant
5 hops, farthest distance, left leg – cm	8.05	0.969	8.695	1.051	1.525		Insignificant
Endurance, torso (abdomen) strength endurance – once	46.1	2.84	54.3	4.005	5.470		Significant
Speed endurance, running 600 m – sec / min	1.38	0.045	1.36	0.214	2.566		Significant
Speed, maximum speed (30 m)	4.15	0.22	4.11	0.180	5.846		Significant
Flexibility, torso bend – cm	8.7	1.82	12.8	1.56	6.040		Significant
Agility, zigzag run (20 m) – sec	9.133	0.43	8.245	0.447	10.27		Significant
Balance, stationary balance - sec	16.44	0.88	19.37	3.74	11.62		Significant

Tabulated (T) Value under freedom degree (N= 1) and significance level (5%) = 2.26

Table (4): Arithmetic means, Standard Deviations S.D, Tabulated & Counted (T) Value for Pre & Post-Tests of the Second Group (Stationary):

Variables	Pre-Tests		Post-Tests		(T) Counted Value	(T) Tabulated Value	Significance
	Mean -	S.D	Mean -	S.D			
Strength & Explosive Strength	264.8	7.79	286.6	5.16	.234	2.26	Significant
Throwing a medical ball 2 kg / gm	5.82	3.28	6.60	1.242	2.61		Significant
Speed strength: 5 hops, farthest distance, right leg	10.74	0.94	.11.6	0.785	2.51		Significant
5 hops, farthest distance, right leg – cm	10.33	0.96	10.55	0.67	2.90		Significant
Endurance, torso (abdomen) strength endurance	24.3	2.86	33.6.	2.282	3.77		Significant
Speed endurance	1.37	0.039	1.31	0.38	2.45		Significant
Speed, maximum speed (30 m)	4.13	0.23	4.06	0.250	2.31		Significant
Flexibility, torso bend – cm	8.9	1.370	13.8	1.988	2.487		Significant
Agility, zigzag run (20 m) – sec	9.157	5.407	7.99	0.427	2.742		Significant
Balance, stationary balance - sec	16.55	0.885	20.15	5.524	0.787		Insignificant

Table (5) Arithmetic means, Standard Deviations S.D and (T) Value for Pre- 7 Post-Tests (Curling & Stationary):

Variables	First Group (Curling)		Second Group (Stationary)		(T) Counted Value	(T) Tabulated Value	Significance
	Mean -	S.D	Mean -	S.D			
Strength & Explosive Strength - Long jump from stationary	272.5	7.97	286.6	5.16	2.23.		Significant
Throwing a baseball 2 kg	5.84	3.29	6.60	1.242	2.34		Insignificant

Speed strength: 5 hops, farthest distance, right leg	10.85	1.02	11.65	0.785	1.89	2.10	Insignificant
5 hops, farthest distance, left leg	10.46	1.051	10.55	0.67	1.96		Significant
Endurance, torso (abdomen) strength endurance	54.3	4.005	.59.8	2.282	3.77		Significant
Speed endurance, running 600 m	1.36	0.214	1.31	0.38	2.17		Significant
Speed, maximum speed (30 m)	4.11	0.180	4.06	0.250	2.71		Significant
Flexibility, torso bend	12.8	1.56	13.8	1.988	4.37		Significant
Agility, zigzag run	8.435	0.447	7.999	0.427	7.79		Significant
Balance, stationary balance	19.37	3.74	20.15	5.524	5.98		Significant

Tabulated (T) Value under freedom degree (N= 2) and significance level (5%) = 2.10

5. DISCUSSING THE FINDINGS:

Results of statistical data analysis from testing the sample of the study showed that there are significant differences at all tests except the variables of: (throwing the ball with the arm in explosive strength and the 5 hops to farthest distance for right and left legs in speed strength training) for the first group which used special high intensity training using maximum curling method. Moreover, there were also significant differences in all tests except in balance (stationary balance) for the stationary group which used special high intensity training using maximum stationary method.

As for post-tests for the first and second groups, there are significant differences at all tests except the variables of: (speed strength training) and results were in favor of the group which used stationary maximum method as asserted by development ratio. All exercises were highly intense, but the difference was in method and function. The researchers attribute these significant differences to fitness components of this age category of the youth and the group which used maximum stationary method in exercises which contained high intensity, maximum and stationary methods. The used intensity was fixed during course implementation as well as organizational work of the used tools, connection between training quality (physical preparation based on motor learning of athletics skills) with fitness components which made the training affect the dynamics of variables, raise conditioning level and stabilization for members of the sample. This was asserted by Amer Fakher Shaghaty that exercises similar to the specified sport movement or competition showed that the requirements structure of effort and motor formation develop the abilities of endurance of speed, strength and other components (284:4). As for significance of differences for the group which used curling high intensity training, this curling method had a clear effect as a result in the training load and these are clear traditions about loads grading. The researchers attribute this effect to type of training methods and the used exercises. Concerning insignificance of differences for legs tests and speed strength, the researchers attribute it to close arithmetic means that resulted in insignificance. Risan Kherbit refers that load growth is only planned to be gradual. And it should even reach its maximum limits (280:5). The researchers attribute this significance in differences to the effect of special curling and stationary exercises which contain raising physical and functional competence, raising the ability of sample members to adapt and respond as a result of using both methods along the course period in terms of effort, time and actual exercise for this category (14 – 16 years old) because fitness components are an integrated system that raises general ability of adaptation and positive response to raise physical effort due to as certain training method (8:6).

6. CONCLUSIONS:

- 1- Special high intensity training with (curling) method has a positive role on some fitness components except in explosive strength of arms and speed strength (5) hops for farthest distance for right and left legs.
- 2- Special high intensity training with (maximum stationary) method has a positive role on fitness components except balance.
- 3- The second empirical group (maximum stationary) achieved better development rate than the first group (curling) for all variables of the study.

7. RECOMMENDATIONS:

- 1- It is necessary to use special high intensity training with (maximum stationary) method in fitness components training for junior ages (14 = 16 years old).
- 2- It is necessary to assert the use of special high intensity training during training stages of fitness components.

- 3- Conducting further studies on other samples for different events, sport activities and age categories (physically and psychologically).

Annex (1): A Model showing special high intensity training using (maximum stationary and curling) methods for a single training unit:

Training Unit	Exercise type	Intensity	Repetition	Breaks	Groups	Break within groups
First Group	1- Raising knee (30 m) and release forward (20 m) speed.	75% sec 35 sec/min	10	Beat return back	2	Beat return 90 b/min
	2- Thigh hit (30 m) and release for ward (20 m) speed.	80%	3	120 b/sec		
	3- Running with jumping 50 m then running for 50 m.	140 sec				
	4- Running (60 m) maximum speed.					
	5- Jumping on a box (49 cm) then down with forward leaning position and returning back to jump on box (39 sec).	90% 178				
	* Second group of maximum stationary training	90% b/min				
	1- Raising knee (30 m) and release forward (20 m) speed.	178 b/min				
	2- Thigh hit (30 m) and release for ward (20 m) speed.					
	3- Running with jumping 50 m then running for 50 m.					

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