

EFFECT OF POLYMETRIC TRAINING IN THE DEVELOPMENT OF SOME TYPES OF MUSCLE STRENGTH AND ACHIEVEMENT OF THE EFFECTIVENESS OF THE LONG JUMP FOR THE DISABLED (DEAF AND DUMB)

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Abstract

The sports activities for the impaired hearing and freely considered an entertainment aspect before accomplishment and at the same time working to raise or increase social cohesion and inclusion in society and thus achieved an adjustment with self and others through the practice of sports activities and making good relations with others is an important part of the life of people with disabled hearing , neediest are equipped with self - confidence and made him feel appreciated and that the interest.

Research problem. Through the experience of researcher they found that there is a weakness in not using exercises and the biometric stages for the technical performance of the effectiveness of the long jump and the need for these exercises in order to improve performance and achievement.

Research hypotheses .There are significant differences between the tests of muscle strength and completion for the effectiveness long jump players deaf and dumb.

The use of the biometric and special exercises to develop the skill of long jump contributed to developing muscle strength and thus achieve the objectives and hypotheses.

KEYWORDS: POLYMETRIC. JUMP. TRAINING. DEAF AND DUMB.

1. INTRODUCTION

The sports activities for the impaired hearing and freely considered an entertainment aspect before accomplishment and at the same time working to raise or increase social cohesion and inclusion in society and thus achieved an adjustment with self and others through the practice of sports activities and making good relations with others is an important part of the life of people with disabled hearing , neediest are equipped with self- confidence and made him feel appreciated and that the interest of others and this all helps him to continue in the areas that would improve the potential itself without despair and cooperation to become useful and productive element then can recognize the disabled hearing and how to deal with others and thus comes out of seclusion and accept his disability audio, increasing his experience and maturity and culture, linguistic and social and sports activities .thus

can be used in the treatment of many problems for the deaf and dumb, progress levels in various sports is the result of the use of methods or Modern training methods through systematic training and rated based on scientific bases which enabled the individual athlete to reach the highest level of sports championships despite the rosy picture offered by the world's screens, indexes advanced Iraqi steps forward, especially in the long jump and the fun events to feature its exciting and attractive and competitive and break records and this certainly will require the use of special training to help them evolve to achieve the indices and the Caliphate Researchers to use the exercises the biometric to believe that these exercises have great impact to reach higher technique and achievement here is the importance of research.

2. RESEARCH PROBLEM

Hearing disability with their different degrees is one of common types of disabilities occurring among people and groups that have not yet attained equal opportunities of education like their peers from students and this of course will not prevent them from being talented but in another area as the broad jump players which require a physical capabilities and specifications as each phase of her long jump performance of motor skill as well as motor and rebuilt, through the experience of researcher they found that there is a weakness in not using exercises and the biometric stages for the technical performance of the effectiveness of the long jump and the need for these exercises in order to improve performance and achievement also noted that there are weaknesses in the application of professional stages by all the jumpers clearly starting by Approaching and ending in landing and that all these factors affect the level of technical performance and the level of achievement in the long jump with jumpers so felt researchers studying this problem in order to reach appropriate solutions that will help in the development of technical performance and achievement of the effectiveness of the long jump.

3. RESEARCH OBJECTIVES

The Research aims to:-

- 1- Development of training curriculum for the biometric method.
- 2- Identify the muscle strength and achievement of effective player's long jump the deaf and dumb.
- 3- Learn about the impact of the training in the development of some types of muscle strength and achievement for the long jump players for deaf and dumb

4. RESEARCH HYPOTHESES

There are significant differences between the tests of muscle strength and completion for the effectiveness long jump players deaf and dumb.

5. RESEARCH METHODOLOGY

The researchers used experimental method in a group with two tests in line with the nature of the problem.

6. RESEARCH SAMPLE

The research sample is chosen by the intentional way of Club ashno'na in the Paralympic team in Diyala Governorate, (4) players.

UNIFORMITY BETWEEN THE RESEARCH SAMPLES

The researchers calculated the Torsion coefficient to identify the homogeneity of the sample in the variables height, age and weight, as shown in table (1), and have limited Torsion coefficient between (-3, + 3) which indicates the homogeneity of the sample.

Table (1). Tests of homogeneity with the height, age, weight and value of between Torsion coefficient members of the experimental group

Torsion coefficient	Standard deviation	The mediator	Center	Statistical methods Variables
1.01	1.79	168.50	169.50	Length
0.00	1.29	23.50	23.50	The temporal age
1.01	1.44	66.50	67.00	Weight

7. IDENTIFICATION TESTS

Through research we reference using the following tests:

I. TEST OF STRENGTH WITH SPEED.

First: the trunk: abdomen test (10 sec) 1-329

The aim of the test: Measuring power with speed to the trunk.

Tools used: Stopwatch, Hall, terraces, registration form.

Performance description:

N. type of trunk bending forward with two legs fixed (10 sec) then record count number.

B. hung up on bars with lifting legs (90) parallel to the ground.

II. LEGS: PARTRIDGE FAR (RIGHT, LEFT) FOR (10) SEC ^[345-1]

THE AIM OF THE TEST: measurement the Force with the speed of the two legs

TOOLS USED: Stopwatch, measuring tape, a wide square, and registration form.

PERFORMANCE DESCRIPTION: Stand on one foot the Partridge to the maximum distance on line drawn on the ground in time (10 sec) without stopping or touching the ground with any part of the body except the Partridge foot and then revert to the second foot and measuring the level three times and take the best bid.

TEST OF ACHIEVEMENT OF LONG JUMP

The aim of the test: measuring the achievement of long jump [51-2]

Tools used: Track and field stadium, the field for the long jump, the registration form.

Description: all players were tested together to ensure a competitive and may start the test as follows. When the player hear the call , he takes a preparedness from the beginning, the player jogging into the field and then jump and was given six attempts for each player and the best effort is taken and register the achievement in its own registration form.

PRE-TEST:-

Tribal tests has been done on the research sample in the effectiveness of the long jump at 10 am starting on Wednesday 27/11/2013-28/11/2013.

Has been testing

1. Wednesday 27/11/2013 testing muscle strength (strength with speed) for each of (the arms, trunk, legs).
2. Thursday, 28/11/2013 completion test
3. These tests were done on the Sports Club Stadium of Diyala , alkatonfi forum in diyala Province.

CURRICULUM:

A period of implementation of the training curriculum took (8) weeks, three training modules (weekly)

The number of modules (24) training module was applied in the period 1/12/2013 and up to 1 March 2014 as "the biometric exercises, special force exercises are more influential force, must be consistent and maximally agree with competition exercises in term of form and the curve and speed . the development of the force during the pre-trial phase to reach the level of maximum strength and development process is designed to master the movements included the optional or compulsory program in the development process are consistent in nature with the nature of muscular contraction in the performance Exercises and development of force during President phase in the late part of training "[55-3]

POST-TEST:-

After applying the training curriculum to develop muscular strength within specified time duration, the researcher did tests at 10 a.m. on Sunday, 2/3/2014 by the method and the same circumstances where tribal tests done as follows:

1. Sunday, 2/3/2014 muscle strength test (strength with speed) for each of (the arms, trunk, legs)
2. Monday, 3/3/2014 long jump achievement test

8. RESULTSAND ANALYSIS AND DISCUSSION

Statistical research data is processing using appropriate statistical methods

Table (2). Shows the arithmetic mean, standard deviation and the value of (T) calculated and indexed sample research in the present variables

Tests	Measurement Unit	Measurement of tribal	Telemetric	The value of calculatedT	The value of the indexed T	Level indication

		O	P	O	P			
Test of strength with speed of the trunk and the back	Time/k	12.25	0.95	15.50	1.29	3.80	3.18	moral
. Test of strength with speed of the two legs right	M	31.20	1.15	24.00	0.76	9.79	3.18	moral
Test of strength with speed of the two legs left	M	31.40	0.69	33.92	0.95	4.63		moral
achievement	M	4.92	0.33	5.51	0.19	0.914		Not significant

The degree of freedom (3) and the possible error (0.05).

Can be seen from table 3 that the arithmetic circles in the tribal test in research variables influence the biometric training in the development of technical performance and achievement of the effectiveness of the long jump for the disabled (deaf and dumb) (the biometric) and the test of strength with speed (trunk, legs, and achievement) (12.25) (31.20) (31.40) (4.92) respectively and the standard deviations of (0.95) (1.15) (0.69) (0.33) respectively

While the mathematical communities in the test in the variables in question the same effect of the biometric training in the development of technical performance and achievement of the effectiveness of the long jump for the disabled (deaf and dumb) (the biometric) and the test of strength with speed (, trunk, legs, and achievement) (15.50) (24.00) (33.92) (5.51), respectively, with standard deviations of (1.29)(0.76)(0.95)(0.19), respectively. and values of calculated (t) (3.80)(9.79)(4.63)(0.914), while the value of (t) indexed (3.18) level indication (0.05) and the degree of freedom (3), the calculated value is larger than the indexed signifying moral differences between the two tests, the tribal and the post and in the variables under research except (xD) effect the biometric training in the development of technical performance and achievement of the effectiveness of the long jump for the disabled (deaf and dumb)and for the post test

9. DISCUSSION OF TEST RESULTS WITH SPEED AND FORCE THE TRUNK AND LEGS AND ACHIEVEMENT.

Shown in table (3) significant differences between the two tests, the tribal and the post test of research sample and the researchers attribute to the fact that this moral differences due to the training curriculum which included vocabulary helped to use loads of different stressed the development of muscular strength and the severity (60-75%) from The maximum that individual can accomplish. Which led to the increase in tool enough to stimulate the physiological processes in addition to the occurrences of these exercises and the duration of the rest periods between duplicates and aggregates has helped this all develop strength with speed to develop muscular strength

.this most important muscles that depend on the type of training effectiveness used during performance which leads to accomplishment in addition to using exercises that have a relationship in development such as physical exercises, which included strengthening exercises for abdominal muscles individually for their look, and the use of duplicate special exercises had a big role in strengthening the abdominal muscles involved in performance and these exercises fall within the principle of privacy training that contributed to the performance test enough so that stress results for the study by a researcher (Abdul Razzak Kadhim), which reaffirmed "the use of developing muscle strength through the use of exercises The performance was a positive influence in the development of some special skills in addition researchers finds that power with speed to the abdominal muscles are developed through training to force her role in developing some skills and where the abdominal muscles play an important role "[91-4]

The researchers also attributed the development of sample will develop strength with speed of the muscles of the legs because exercises used in training curriculum by way of exercises the biometric in addition to the training problem with load components using special instruments and tools to develop this capacity in this regard (Talha hussam aldeen), "the growth of muscle strength by using special exercises and tools has exceeded the growth of some species" [197-5]. I also agree with the (Mohammed Mahmoud ' Abdul Dayem and others) [463-6] "that the rate of force gained using exercises to devices of more than isotonic, anthropometric exercises that power with speed consist of power and speed they could further increase the components and habit be the best way to increase the component of force [72-7] , the researchers through the development of training curriculum and focus on developing the characteristic force as fast as the top speed and performance by screwing set (60-75%) [113-8]

With regard to the non-development of achievement the researchers attribute that because of achievement can only be developed through short periods of work and exercise that generated high levels of technique and long jump performance skill needed for the accomplishment of the year with its various and specific exercises, commensurate with the requirements of muscle as well as the use of intensity depending on the platform of vocabulary every athlete and the capacity of the selected comfort between repetition and totals by using the training tools that make this job far from previous training means that this type of training is training that can used for all levels and ages as possible and individual sports, especially in games where the muscle Force Commander.

10. CONCLUSIONS

The use of the biometric and special exercises to develop the skill of long jump contributed to developing muscle strength and thus achieve the objectives and hypotheses.

1. The use of the biometric exercises like jumping skill mobility and muscle paths developed and led to the development of capacities and the development of performance skills at the same time.
2. The training curriculum that was used had a positive impact and effective development of muscle strength, which reflected the performance of long jump.

11. RECOMMENDATIONS

The need to emphasize that the biometric exercises similar to the performance of motor speed and track participation and development of General muscle when exercising the long jump.

1. Requirements necessary to perform the exercises the biometric and use scientific methods.
2. Accreditation form on the biometric exercises in the training curriculum for the different categories even involves development of muscular strength and power plus speed, especially at senior levels.

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APPENDEGES

Appendix 1: sample of weekly training module

day	Vocabulary training module	Duplicates	Comfort periods		Intensity
			Between iterations	Between groups	
Saturday	1. jump (Partridge on right leg)	3	2	5	85%
	2. jump (Partridge on left leg)	3	2	5	
	3. jump (by legs 30 meters)	5	2	5	
	The pit	10	1	5	
	4. jump over the hurdle height 91 cm bars(10 bars)	5	1		
	5. constant ran for 15 minutes				

Monday	Iron				75%
	Half dbeni	10 * 3	1, 5	3	
	A quarter of debni	10 * 3	1, 5	3	
	Bing Preis	10 * 3	1, 5	3	
	Shoulders exercise carry a weight of 2.5 kg	30 * 2	2	3	
	A light trot around the pitch for the 1000 m				
Wednesday	Ran 30 meters	3	3	2	90%
	Ran 50 m	3	3	2	
	Ran 120	3	3	2	

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INJURY PREVENTION IN TEAM SPORTS - A SURVEY OF EXISTENCE AND SHAPE

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Abstract

Background: Physical activity is important at any age but unfortunately sports results in a lot of damages. 15% of all recorded injuries at emergency departments in Sweden are sports injuries the most common injury amongst children under 16 year. Many studies have been conducted to investigate how best to avoid sports injuries, but the question is whether this knowledge translated into practice in sports clubs.

Aim: The purpose of this study is to investigate the incidence and degree of injury prevention in various team sports (football, handball, ice hockey and floor ball). In addition, it aims to describe the prevalence of injury prevention among different ages and genders.

Method: Questionnaire survey in spring 2010. The questionnaire was self-developed and the study group consisted of 42 teams in ice hockey, football, handball and floor ball. The teams was established in Skåne and the age range of the teams ranged from 12 years up to the senior teams.

Results: The results showed that injury prevention is used in football, handball, ice hockey and floor ball, but to varying degrees. Heating and stretching before or after training and matches was used frequently by all teams in all sports. Other prevention measures differed between the different sports. Football and handball focused mainly on stretching and strength training, and jumping and landing exercises in handball. Floor ball had generally lower averages in the majority of the areas, but its results in stability training was relatively high. Ice hockey teams had the highest averages in general and focused mainly on stretching and balance training. Mental training, jumping and landing training, balance training and stability training was used to a small extent. Senior teams used the injury prevention more than the youth teams. The difference between the sexes could be mainly seen among the youth teams. 57 % of the teams had cooperation with medical professionals and in 21% of those teams, this person had any part in the injury prevention training.

Conclusion: Injury prevention is used by the sports clubs, but not as much. This is despite the high injury rate and despite several studies that have investigated and determined appropriate preventive measures. Comparison of the results was complicated because the response alternatives in the survey and the absence of teams with girls in ice hockey. But the results that the study shows were that ice hockey was the sport that used the most injury prevention, and there was a clear difference between the senior and youth teams. The difference between boys and girls were mainly seen in the youth teams where guys and girls focused on different areas. The majority of the coaches who participated in the study had some kind of trainer education, and we therefore believe that education about the injuries and its prevention should be included at the start of training steps.

KEYWORDS: HANDBALL. SPORT INJURIES. TRAINING. PREVENTION

1. INTRODUCTION

Regular physical activity is clearly important for all age groups. Whatever the reasons for an active lifestyle is fun, social cohesion or competition aspect, he knows that

The health benefits are many. Physical and mental satisfaction, increased stress resistance, increased self-confidence, height living age and reduced risk of several diseases are just some of health benefits associated with physical activity [1, 2].

But unfortunately, sportsmen also involve the risk of musculoskeletal injuries and acute injuries that can provide sequel. Sports injuries account for about 16% of all recorded injuries in emergency departments in Sweden and for children under 16 years is the sport most common cause of damage [3]. All injuries are not serious but in contact sports such as football and handball occurs alarmingly many serious injuries such as anterior cruciate ligament injuries. These injuries can then become a problem not only for the individual athlete, but also from an economic perspective, because the damage requires care and can even lead to long absence from work [4].

Many sports injuries can be prevented [4]. In order to know how the injury should be treated and also how it can be prevented, it is important to know the causes and risk factors that can lead to an injury.

The risk factors can be divided into an inner group (individual risks) and an outer group (environmental hazards). Age, gender, previous injuries, fitness, body size, inadequate rehabilitation, mobility, muscle strength, anatomical abnormalities and psychological.

The risk factors in both the inner and outer group can seldom alone cause an injury, but together these factors contribute to exposing the athlete to injury [4].

Often included in injury prevention are: heating, stretching, taping / safety, protective equipment, proper equipment, appropriate evidence, appropriate training schedules, adequate rehabilitation after injuries, psychology and nutrition [5].

A number of risk factors and sports injuries can be influenced by loss prevention training. There are a lot of custom-designed prevention programs can be used. These programs must be cost effective, simple, and be valid during each workout to be easily accessible to all clubs and teams. Many studies have been conducted to evaluate different types of prevention programs and training schedules [10-16].

The aim of this study is to investigate the prevalence and severity of injury prevention in various team sports (football, handball, ice hockey, and floor ball). Second, the purpose of describing the incidence of injury prevention among different ages and genders.

Research questions used injury prevention in football, handball, ice hockey, and floor ball. Is there any difference in the choice of intervention programs among the various sports? What is the incidence of injury prevention in the age groups of youth and seniors? Is there a difference between Injury Prevention in female and male athletes? Are medical personnel available and performs that in this case Injury Prevention?

2. METHOD

This questionnaire was in spring 2012 as a cross-sectional study using a self-designed questionnaire. Based on the purpose of the study, developed questions designed a questionnaire.

This study was focused on examining the incidence of injury prevention in team sports. The survey was directed to four team sports where there is a lot of body contact: football, handball, ice hockey, and floor ball. They were active girls and boys from twelve years and up to the senior team, age, division of youth (12-15 years) and senior (16 -). The age range was chosen on the basis of Article studies demonstrated that children at the onset of puberty from about 12 years (girls) and 14 years (boys) has the fastest linear growth. The study showed that the active young people during this period are at greater risk of injury in skeletal bones growth zones which can lead to permanent injury in adulthood [8].

Senior group counted from 16 years because it is a common age to get up and train and play with the senior teams. This causes far greater training dose, tougher and more intense matches body contact, which may also increase the risk of injury such as overloading damage [9].

Table 1. The table shows the study group on the team level.

Teams	Senior teams (Men)	Junior teams (Boys)	Senior teams (women)	Junior teams (Girls)	Total
Football	1	6	1	2	10
Handball	2	3	2	2	9
Ice hockey	6	4	0	0	10
Innebandy	2	3	3	5	13
Total	11	16	6	9	42

42 teams participated in the survey. 60% (25 teams) were youth teams and the remaining teams (17 teams) was the senior teams. Among youth teams was 36% (9 teams) girl team and among senior teams was 35% (6 teams) women's team (Table1).

3. RESULTS

INCIDENCE OF INJURY PREVENTION IN FOOTBALL, HANDBALL, ICE HOCKEY AND INNEBANDY

Based on the questionnaire design can be inferred that injury prevention is used in football, handball, ice hockey and floor ball, but to varying degrees. Number of training differed between the different sports. Football Teams trained on average 2.5 times / week, handball teams 3.3 times / week, floor ball teams 2 times / week and ice hockey teams trained an average of 3.4 times / week. Of the 42 teams that participated in the questionnaire survey carried out all the teams warm up before each workout and these data are not presented in the figures. Stretching used an average of 2.4 times / week and was part of injury prevention used to the greatest extent in all of sports. Handball teams stretched the most times per week (3 times / week), while floor ball teams had the lowest number of times per week (1.9 times / week). 1.1 times / week, the mean for all sports for the use of strength training. Ice hockey teams were the teams who used strength training to the greatest extent (1.6 times / week) and the remaining sports had a value between 0.6 to 1.1 times / week. Balance training was used to a lesser extent, and the mean between sports was 0.9 times / week. floor ball teams used it only 0.3 times / week, while ice hockey teams used it seven times as often (2.1 times / week). Endurance training (long distance) was used in the average 0.7 times / week. 1 times / week, the mean among handball teams. Ice hockey teams used the endurance training half as often as handball teams (0.5 times / week) and floor ball teams mean fitness was 0.3 times / week. Mental training was the main factor in injury prevention, which had the lowest average in sports (0.5 times / week). Use of jumping and landing training differed greatly between the various sports. Handball teams had a mean of 2.4 times / week, while the remaining teams' average was 0.4 times / week. Stability training is used on average 0.9 times / week in all teams. Taping foot and knee pads were used by 69% (29 teams) of all teams. In 60% of the teams that used the taping was performed taping of the coach or assistant. Other tapes were performed by the players themselves, parents, materials manager or medical support.

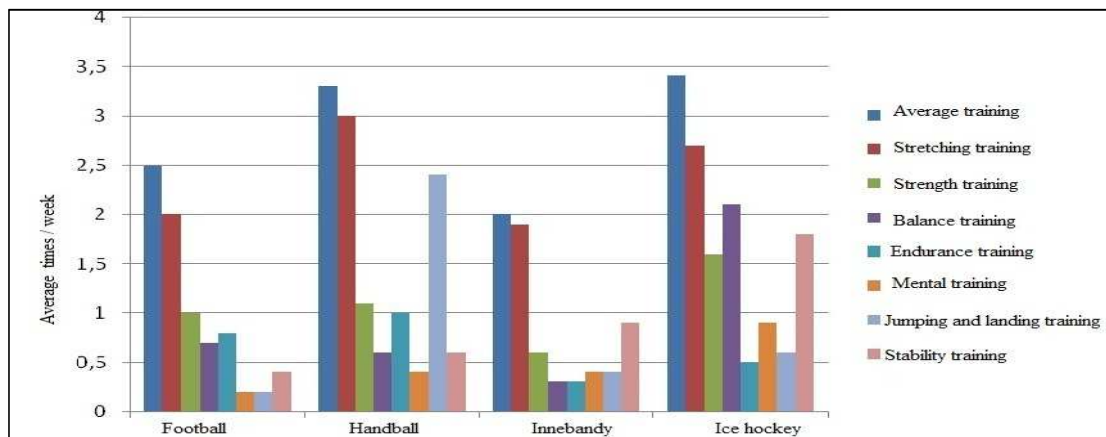


Figure 1. The figure shows the prevalence of various factors analyzed in injury prevention.

CHOICE OF PREVENTION PROGRAMS

There are differences in the choice of intervention programs among the various sports. The football teams focused primarily on stretching (2 times / week) and strength (1 times / week). Stretching (3 times / week), jumping and landing training (2.4 times / week) and strength (1.1 times / week) were the areas that were focused on the handball teams. floor ball teams had generally lower mean values of all factors in injury prevention and the highest values were found in the stretching (1.9 times / week) and stability training (0.9 times / week). Ice hockey team had the highest averages in many areas in addition to aerobic training, stretching and jumping and landing training where handball had higher values. The focus was mainly on stretching (2.7 times / week) and balance training (2.1 times / week) (Figure 1).

Within the teams that used the stability training is focused on different parts of the body. 77% (10 teams) of floor ball teams focusing on knee stability. 54% (7 teams) of the floor ball teams are focused on foot stability and 23% (3 teams) training back stability. The football teams will focus 50% (5 teams) on foot stability, 10% (1 team) also trains back stability. 56% (5 teams) of handball teams focusing on shoulder stability, 67% (6 teams) focuses on foot stability and 56% (5 teams) are training your knees up under her stability training. Ice hockey teams focuses primarily on back stability which 40% (4 teams) use. 20% (2 teams) are training knee stability while fully 50% (5 teams) did not specify which type of stability training is used.

54% of the teams said that stability training was conducted throughout the year, while 37% performed the stability training only during the preseason. 27% of the youth teams performed stability training all year and 53% said that it is only performed during the preseason. 54% of the youth teams focused their stability training on the feet and knees. The senior teams were used stability training throughout the year by 80% of the teams and the remaining teams (20%) had stability training during the preseason.

PREVENTION

Junior teams trained an average of 2.2 times / week. At 77% (1.7 times / week) of these training were performed stretching, at 50% of training conducted strength training and 23% of the training included endurance training. Balance training, jumping and landing training and stability training was conducted at 18% of training. Senior teams trained an average of 3.5 times / week. Stretching was performed at 80% of these trainings and 83% of training included strength training.

The balance training was conducted at 34% of training sessions were carried out and conditioning at 20% of the training instances. 40% of the training sessions included jumping and landing training and stability training. Mental training is performed more than twice as often among senior teams than among the junior teams (Figure 2).

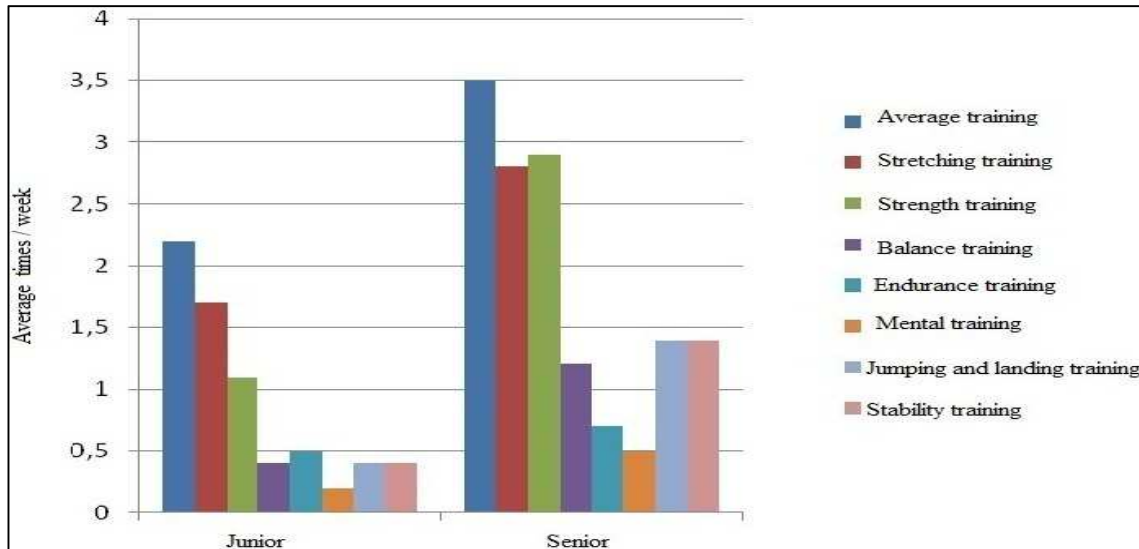
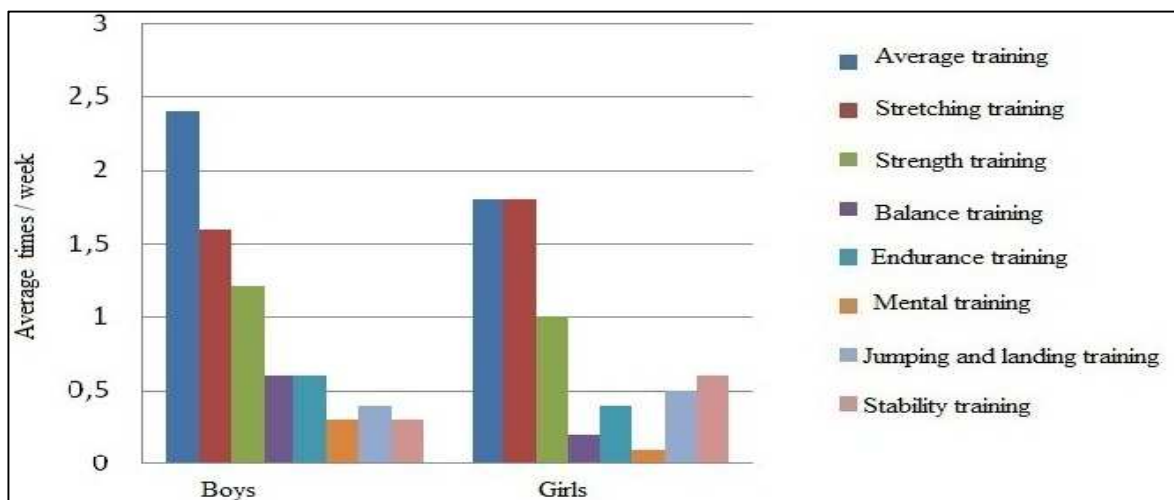


Figure 2. Shows the prevalence of various factors in injury prevention. The results are divided into junior and senior teams.

INDICES OF INJURY PREVENTION IN MEN AND WOMEN AND WOMEN

Among junior used stretching slightly more often among girls than among boys teams collagen (1.8 and 1.6 times / week). Jumping and landing training and stability training was also used more frequently among girls teams. The remaining factors (strength training, balance training, endurance training and mental training) that research showed higher values of boys agents compared with girls teams from junior teams. The guys trained an average of 2.4 times / week and girls 1.8 times / week (Figure 3).



Figur 3. Figuren visar förekomsten av skadeprevention uppdelat på killar och tjejer inom juniorslagen.

Senior of the teams results showed that men's teams made use of balance training twice as often as women's teams (1.6 and 0.8 times / week). Strength is used, however a greater extent in women's teams (3 and 2.8 times /

week). Other areas were similar when the differences were only 0.1 times / week between men's and women's teams. The boys trained an average of 3.7 times / week and the girls 2.8 times / week (Figure 4).

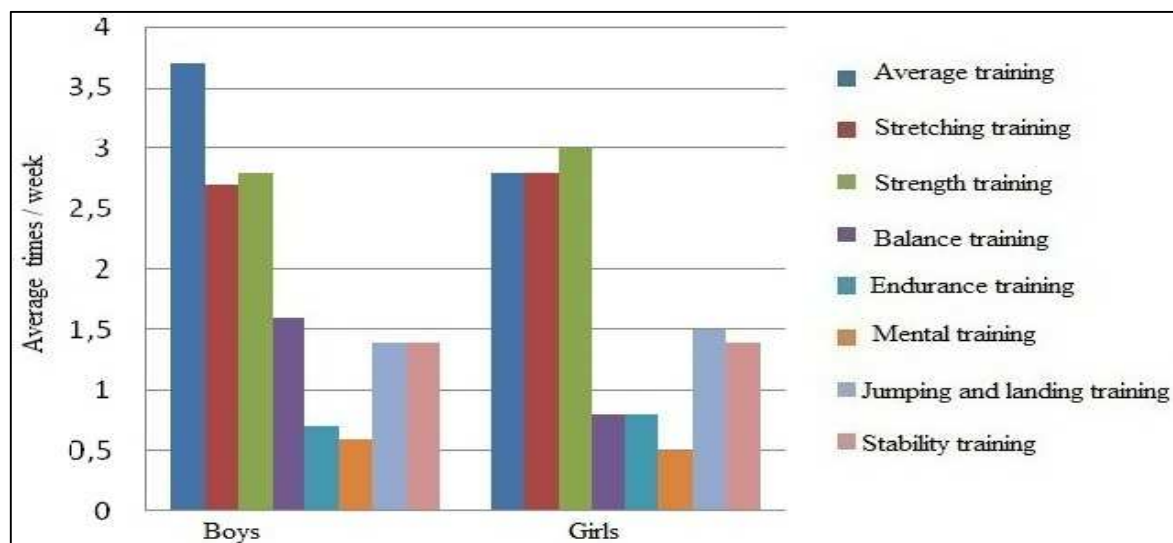


Figure 4. The figure shows the incidence of injury prevention divided into boys and girls in the senior teams.

THE PRESENCE OF MEDICAL PERSONNEL

57% (24 teams) of all teams have cooperation with any medical professionals. In 21% (5 teams) of these teams is the medically trained personnel responsible for any part of the injury prevention training. Of junior teams had 28% (7 teams) collaboration with health professionals but only 14% of these seven teams were medical personnel who were responsible for some part of the injury prevention training. The medically trained personnel were either doctor or physiotherapist.

In 67% (28 teams) of the teams took coach or assistant coach after an injury in the acute phase, while 26% (11 teams) stated that a medically trained personnel took care of the damage.

Information on injuries and injury prevention training to the players were present in 31% (13 teams) of the teams. Among junior teams had 24% of the teams received information and 41% of the senior teams had been informed.

Of the 42 respondents teams had 74% (31 teams) coaches who have undergone some form of trainer. Among junior teams, 80% of the coaches training and 65% of senior teams coach had been coaching.

RESULT DISCUSSION

Our first research question examined whether injury prevention is used in the various sports. Since we have chosen to compile the results in the number of times a week (because the questionnaire design), it was difficult to compare results. We therefore decided to specify the number of exercise sessions per week to get a little more oversight. A comparison between sports and genders was also difficult to perform when, for example, did not attend any girl teams in ice hockey. We chose nonetheless to include results from ice hockey teams because we felt that the results were interesting to compare.

Something that was not so surprising was that all teams had warm up before training and matches.

Stretching was also a frequent moments, but there were differences in when the stretch was performed which we believe may be due to the trainer's knowledge and / or accidents in the training set-up. Other factors in the injury prevention which we examined were used in very varying degrees, depending on the sport and the age which the teams found themselves in. Over teams were mental training, jumping and landing training, balance training and stability training components that were included to a lesser extent than other injury prevention factors.

We believe that one reason for this may be that the coaches choose not to include these elements because of lack of knowledge. Strength training did not occur as frequently as we thought it would do and perhaps why it is that coaches do not expect small weight lifting elements (such as push-ups that may appear as "punishment" for failure to exercise) included in the training that pure strength training. Endurance long distance also used it less often than we predicted and we believe it can be a problem when cardio should include these elements.

Floor ball teams had low levels across the board, which was surprising given that floor ball is a relatively injury affected sports. Perhaps the low values is partly explained by the fact that many junior participated in the study (161 of 254 participating floor ball players were under 16 years) and injury prevention begins, unfortunately often at higher ages. The low values can also be explained by the floor ball was the sport that the team trained a minimum number of hours per week. The areas that were used most frequently in floor ball teams were stretching and stability training. The football teams also had the low levels in some areas. They mainly focused on stretching and strength training while the mental training, jumping and landing training and stability training is used more often. Given how large and widespread sport football [11], one might think that they should be better trained in areas such as injury prevention.

Ice hockey was the sport that had maximum values in total within injury prevention which was gratifying, as ice hockey is a very harmful affected sport with an injury incidence rate of 29-79 injuries per 1000 match hours [4]. We believe however that an explanation for the high values may be the elite men's team that participated in the study. They had training 20 hours / week and used a lot out of injury prevention efforts and thereby increased the mean value significantly in all areas. Another explanation may also have other hockey team also trained an average of more times a week compared to other sports. Ice hockey was the sport that had a maximum value of balance training.

Perhaps this could be because it requires a good balance of being a good skater and simultaneously receive tackles and therefore put much energy to train the right balance.

Jumping and landing training was not surprisingly a large part of training within handball teams. It is also a very important part because much of the injury which occurs in handball is the anterior cruciate ligament injury [12]. The endurance and strength training you could see relatively high performance in handball which is considered positive.

The question of when stability training used only answered 54% of the teams that was used throughout the year and 27% replied that they have stability training during the preseason. These low numbers can be interpreted as if there is insufficient knowledge about the effect of the stability training does not persist throughout the season. We also reacted to 53% of the junior teams respond that they only use during pre-season which means that a follow-up question should have been the length of a pre-season is for boys and girls of 12-16 years old.

In the results to the question about the existence of injury prevention in junior and senior teams, we decided to again specify how many training they have, on average, to compare them equally. Despite studies that have demonstrated an increase of overload injuries among children and adolescents [9], one can see a clear difference between youth and senior teams. Junior teams have lower results in all areas of injury prevention and the biggest difference can be seen in the balance, stability, jumping and landing training and mental training. These areas were trained only for 18% of training instances in the junior teams. The above-mentioned study also mentions the importance of avoiding stress and heavy loads at an early age and therefore it trouble us that several of the men's and women's teams in different sports have players with such a low age of 12-13 years. The risk is that sports injuries is increasing for these players because they may not be physically ready to play at that level, they apparently do.

Women and men have different body structure and have therefore not the same risk of sports injuries.

Women seem more prone to injury than men, which, among other things to see in a study of football injuries [7]. We would therefore like to see an equal if not greater injury prevention activities around girls teams compared with boys teams, although our study did not show. We chose to split the results in junior and senior team to see if there was any difference. Within the junior teams used the girls themselves by stretching, stability training and jumping and landing training in little more than boy's teams. Strength, balance, fitness and mental training, however, showed a higher value of boys agents compared with girls' teams. Among senior teams could see a significant

difference in balance training as the men used this in twice as much as the ladies. This value we believe can be explained by men's teams of teams trained more times a week and that the elite teams that participated in the study was a men's team. In other areas, the results were basically similar.

The question of whether there were any medical personnel connected to the team we were up to 57% of the teams had relationship with any medical personnel. In only 21% of these teams had this staff responsibility for any part of the injury prevention training, which we thought was a too low number. We could not deduce how medical skills are used. This would be further study may be able to answer option that consultative role in the training planning and / or in emergency injury. We believe that more teams should take advantage of the expertise of the medical staff actually sit inside.

4. CONCLUSION

In this study it was found that injury prevention occurs, but not so much out there in sports. This despite the fact that many sports injuries are still made in contact sports floor ball, ice hockey, handball and football, and although other studies have been conducted to investigate and determine the best possible preventive measures. Comparisons of the results was complicated because of the answer choices in the questionnaire and the absence of girls teams in ice hockey. There you could see was that ice hockey was the sport that used the most injury prevention, and there was a clear distinction between senior and junior on the issue. The difference between boys and girls were mainly seen in junior where men had more strength, balance, endurance, and mental training while girls teams focused more on stretching, stability and jumping and landing training. This conclusion cannot be generalized across the voluntary sector because of the small facts, but conclusions can only be generalized to our study group.

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THE EFFECT OF USING AEROBIC EXERCISE TRAINING IN SOME BLOOD FATS OF THE OVERWEIGHT PEOPLE

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Abstract

problem affect many individuals as it's a source of low self-confidence and a lack of concentration and poor job performance and motor skills for individuals and ... so on

There are many disadvantages of obesity which in turn may effect on some functional variables in the body, both in the course of the effort and comfort, as well as some of them effect on the body permanently making individual affected by what is called chronic diseases and the most important of these diseases, diabetes as well as being overweight significantly would strain the organs of the body and its systems constantly and forming heaviness on the areas that underpin human as spine and joints of the knees as well as a strain of the heart muscle, as well as make an individual more susceptible to heart disease and blood vessels, such as high blood pressure and hardening of the arteries, stroke arterial, the importance of research lies in an attempt of researchers to use modern methods in the treatment of obesity and through the use of some aerobic exercises to reduce excessive rises in certain blood fats, which increase significantly with excessive weight gain so researcher felt to carry out this study because of its scientific and theoretical importance.

KEYWORDS: AEROBIC EXERCISE. BLOOD FATS. OVERWEIGHT. TRAINING.

1. INTRODUCTION

Eventually obesity become nowadays a serious diseases that prevailed in the communities of the whole world, since it is a problem experienced by a lot of individuals are a source of low self-confidence and a lack of concentration and poor job performance and motor skills of the individuals

It must be on the Specialists with the scientific and educational specialization to find the necessary solutions and treatment programs to be avoided through the use of modern scientific means.

Although obesity has multiple disadvantages , which in turn may affect some of the functional variables in the body, both in the course of the effort, comfort, and most important of these damages diabetes as well as they strain the organs of the body and its systems constantly , also make up a weight over the areas that underpin human spine and joints of the knees, as well as a strain of the heart muscle , as well as make an individual more susceptible to heart diseases and blood vessels, such as high blood pressure and hardening of the arteries and arterial

thrombosis, also affected blood components such as cholesterol and high-density lipoproteins and low density lipoproteins

As well as obesity has an effect on the structure and the body style of the individual body and thus the effects of this obesity may reach to the limitation of the movement of the joints of the body resulting from the excess calories turn on the body's need

2. RESEARCH PROBLEM

Obesity is one of the problems prevailing at present time in all societies of the world, as it causes many serious diseases and that work on the occurrence of negative changes in all the body's functions, especially at the level of the circulatory system and the digestive system and the consequent additional burden and the other negative repercussions on respiratory and the excessive rise of the proportion of fat in the blood, which constitute a danger to the health of the individual, and all this is caused by the defect incident in the balance of energy, which make the individual affected with obesity due to eating food with high calories with sluggishness of the individual, so the individual in dire need of organization of his nutrition and his balance and so the principle is that each per capita intake of food used in the metabolic processes to provide energy for the body or for the construction of tissues necessary to compensate the catabolism otherwise, the bulk of it is stored as fat, which leads to an increase in the body, causing many diseases (such as high blood pressure, and high total cholesterol, low high-density lipoproteins, high-low density lipoproteins, high triglycerides) as well as to the visible obesity

So the researchers felt to delve into this problem because of low discussion of researchers to this subject and not to expand it and do not use modern methods and the lack of studies about functional variables caused by this disease, through the preparation of training program in accordance with the aerobic exercise in blood lipids of the overweight.

RESEARCH AIMS

- preparing Aerobic exercises for overweight people
- Identify the effect of aerobic exercise in blood fats among overweight people

3. RESEARCH METHODOLOGY

There are a lot of cases and phenomena cannot be studied except by approach fit with the problem," so used the experimental approach by one group with the pre- test to solve this problem

4. RESEARCH SAMPLE

The research sample was chosen by Deliberate way (12) of overweight in Baqhoba and from goers halls aged between 30-35 years

5. MEASUREMENTS AND TESTS USED IN THE RESEARCH

Blood separation test:

The goal of the test: the separation of blood plasma from the serum

Devices and tools: the centrifuge

Performance description: Blood samples were collected and making laboratory dealing through the use of a centrifuge for 15 minutes and quickly ((1000 cycle per minute, and blood serum were obtained, which is saved in the refrigerated cabinets dedicated for this purpose till working.

MEASURING THE RATIO OF HIGH-DENSITY LIPOPROTEINS HDL (159-1)

The goal of the test: determine the proportion of high-density lipoproteins in the blood (HDL)

Devices and tools: a spectrophotometer

Description Performance: the proportion of high-density lipoproteins in the blood is measured by drawing blood samples from laboratory and the individual should not eat for two (12) hours and deal with blood samples in the devices used in the measurement

Degree calculation: calculated by the information given by the device

MEASURING THE PROPORTION OF LOW-DENSITY LIPOPROTEINS IN THE BLOOD [169-1] LDL

The goal of the test: determine the proportion of low-density lipoproteins in the blood (LDL)

Devices and tools: a spectrophotometer

Description Performance: the proportion of low-density lipoproteins in the blood is measured by drawing blood samples from the laboratory and the individual should be eat for two (12) hours and then deal with blood samples in the devices used in the measurement

MEASURING THE PROPORTION OF VERY LOW-DENSITY LIPOPROTEINS VERY BLOOD [161-1] VLDL

The goal of the test: determine the proportion of very low-density lipoproteins in the blood VLDL

Equipment and tools: a spectrophotometer

Description Performance the proportion of very low-density lipoproteins in the blood is measured by pulling blood samples from laboratory and the individual should not eat for two (12) hours and then deal with blood samples in the devices used in the measurement

Degree calculation: is calculated by the information given by the device.

6. EXPLORATORY EXPERIMENT

For identifying the obstacles and difficulties that are likely to arise when implementing the main experiment, the researchers conducted an exploratory experiment because this one (practical training for the researcher to find out the advantages and disadvantages that occur during testing to avoid them) (14.2)

And for implementation of the tests vocabularies that lead to get the correct results, accurate and in accordance with the scientific methods used , in this research and after selecting a research sample , the researcher did the exploratory experiment dated 25/02/2013 on a sample consist of (4) individuals suffering from an increase in weight

7. PRE-TEST

The researcher did tribal tests on research sample of two groups (experimental and control) at (28/02/2013) of those who are suffering from overweight and these included laboratory tests included (low-density lipoproteins, and very low-density lipoprotein, high-density lipoproteins) with the help of the assistant team

8. THE USED CURRICULUM

The sport program include a number of athletic exercises that implemented in the manner of aerobic exercises, which are a jogging , a Swedish air exercises, the program takes into account the following:

- In the course of jogging exercises, aerobic Swedish, heart rate should not exceed (135 beats / min) to ensure that there is working with the aerobic exercise system and was determined by the exploratory experiment ,It included the exercises from(10) physically exercise given in (30) training units
- The sports program lasts (10) weeks by (3) units per week
- Gradient system was used to increase the training intensities (201-3)

220-age= pulse rate

100 / Pulse rate * 75))

As the youngest age in the sample is (30) years and oldest age is 35 years old. The equation is applied on age of 30 years old as following:

The maximum average of heart rate = 220-30 = 190

100 / 190*75 % = 138.75 beat per min

This rate of heart beats (135) assures us keep out in high intensity and keeps us working within the oxygenated system

9. POST-TEST

After the completion of the prepared curriculum in the application of aerobic exercise, the researcher did the post tests in the same place and circumstances.

10. STATISTICAL METHODS

the appropriate statistical methods was used from the statistical bag (spss).

11. RESULTS

Showing and analyze the results of tests of the variables under consideration of the research in the pre and post tests

Table (1), Shows the values of arithmetic means and standard deviations in the pretest and post- test for the re- search group

Variables	the unit of measure- ment	pretest	post test
High density lipoproteins	Mg/dl	47.16 5.154	47.833 2.927
Low density lipoproteins	Mg/dl	179.1 9.152	133.667 15.642
Very low density lipoproteins	Mg/dl	5.958 25.500	12.859 31.83

HIGH DENSITY LIPOPROTEINS : It is found that the arithmetic mean values in the pre-test reached (47.167) and the standard deviation of (5.154), while the value of post-test (47.833) and a standard deviation of (2.927).

LOW DENSITY LIPOPROTEINS : It is found that the mean values reached in the pre-test (179.167) and the standard deviation of (9.152), while (133.667) in the post-test and a standard deviation of (15.642)

Very low density lipoproteins:

It is found that the mean values reached in the pre-test (31.833) and the standard deviation of (12.859), while (25,500) in the post-test and a standard deviation of (5.958).

Showing and analyze the results of the differences and the standard error and the value of calculated (T) and the significance of the differences between pre and post tests for the research group

12. SHOWING AND ANALYSE THE RESULTS OF THE DIFFERENCES AND THE STANDARD EROR AND THE VALUE OF CALCULATED (T) AND THE SIGNIFICANCE OF THE DIFFERENCES BETWEEN THE PRE AND POST TESTS FOR THE RESEARCH GROUP

From Table 2, we find that the values of arithmetic means and standard errors and calculated (t) and significance of differences between pre and post- tests of the physiological variables of the first set as in the following manner:

Table (2), Shows the arithmetic means of the differences and the standard error and the values of calculated (t) and the proportion of error and significance of differences between pre and post tests for the research variables.

Rnk	variables	Unit of measurement	Pre test	Post test	T value	Proportion of error	significancy
1	HDL	Mg/dl	-0.667	4.082	-.400	0.706	Not significant
2	LDL	Mg/dl	45.500	15.057	7.402	0.001	significant
3	VLDL	Mg/dl	6.333	13.231	1.172	0.294	Not significant

HIGH DENSITY LIPOPROTEINS : it is founded that there is not significant differences between the results of pre and post- tests , the arithmetic mean of the differences between pre and post -tests results (-0.667) and stand-ard deviation of differences (4.082) , the value of calculated (t) is (-.400) and the error proportion (0.706)

VERY LOW DENSITY LIPOPROTEINS: it is founded that there are significant differences between the results of the pre and post- tests, the arithmetic mean of the differences between the pre and post- tests results (6.333) and standard deviation of differences (13.231) and calculated (t) value is (1.172) while the error proportion is 0.294

13. DISCUSSION

DISCUSSION THE RESULTS OF THE DIFFERENCES BETWEEN PRE-TEST AND POST-TESTS OF THE VAR- IABLES UNDER CONSIDERATION

HIGH DENSITY LIPOPROTEINS:

The table (1) (2) shows and through the presentation of the results of the differences of pre and post tests for the variable LDL that it was significant differences, the researchers attribute that to the use of aerobic exercise and which has a role in decreasing LDL and this is consistent with what Jordan and Jeffrey said that the aerobic exercise will convert low density lipoprotein which is harmful to high density lipoprotein which is good (5-120).

VERY LOW DENSITY LIPOPROTEINS:

From the table (1) (2) and through the presentation of the results of the variable VLDL it was found that they were non-significant differences, researchers said that the cause related to the sample as it used an aerobic exercise only, which led to reducing the level of low-density lipoprotein LDL and there are differences in the level of VLDL but they were not clear and within natural limits of the protein in the blood and this is consistent with what (Patrick et al, 2010) said, "The aerobic activities, dissolve the stored fat under the skin that lead to reduce levels of total cholesterol and triglyceride in the blood"(119-6)

Researchers Agree also with what (Haber, 1996) said that "the rise of free fatty acids in the blood plasma will lead to the secretion of VLDL by the liver and include an increase in the exit of cholesterol into the blood circulation and decreasing the level of VLDL in the blood with aerobic physical activity." 144-7

14. CONCLUSIONS

The aerobic exercise prepared by the researchers according to the training load regulation contributed to the positive development of the members of the research sample individuals .

Vocabularies of training program prepared by the researchers according to aerobic exercise brought some improvement in blood fats of members of the research sample individuals

15. RECOMMENDATIONS

- The need to adopt the training program in the operations of Weight Loss .
- Adoption of aerobic exercise for disposal of dangerous effect of blood fats on other samples.

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APPENDIGES

Appendix 1: the aerobic exercise of the training program

1. **Jogging on running device** : which is a device its strength (350 horse) used by players for running and decreasing weight in sports halls
2. **Orbit slim**: a device used to run but it likes a stair , its target is the lower muscles and fats all over the body
3. **Running device (bicycle)**: is a bicycle fixed on the land used by the players in the training process and decreasing the weights
4. **Rotation of trunk by the deviant muscle [298-8]**: Sit on the floor and hands crossed over the chest and knees bent, Put your feet under a pillar like base of weights device even under the couch, start moving trunk to the left and coming down background ,after finishing rotation anticlockwise, raise the trunk to the right side then repeat exercise to the right side and by rotational movement to the left side
5. **Milling and legs bent**: Rest and your back flat on the ground, keeping your hands behind your ears, and your elbows abroad bent your knees at an angle of 45 degrees and make your feet far apart by width similar to shoulders width and held constant body bend upper trunk toward the knees with raising both shoulders off the ground and then descend automatically focused on contractility abdominal muscles.

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THE IMPACT OF EDUCATION IN ACCORDANCE WITH THE STRATEGIC KNOWLEDGE BEYOND THE COGNITIVE LEARNING IN THE DEPTH OF THE TWO STRIKES FRONT AND BEHIND BY TENNIS

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Abstract

The game of tennis is one of the competitive gaming, which took pride of place in many countries of the world, evolved from the game to spend leisure time to the Olympics which needs the requirements of high physical and tactical skills and depends on the basic skills as a base task embraced by this game to progress in the level of performance, so the strategic use of knowledge beyond the perceptual and cognitive style associated with them, can have a significant role in learning and mastering these basic skills.

The two Research hypotheses: There were statistically significant differences for the effect of education in accordance with the strategic knowledge beyond the cognitive tests before and after for the two sets of control and experimental research in learning the skills of the depth of the two strikes front and rear of tennis.

The researcher was able to reach the conclusions. The emergence of a clear improvement in learning two sets of research (experimental and control groups) to the two main skills. The superiority of the experimental group that used the style of education in accordance with the strategy of learning beyond the cognition in amount of learning upon the control group that used the traditional method of learning.

KEYWORDS: IMPACT. ACCORDANCE. COGNITIVE LEARNING. STRIKE. TENNIS.

1. INTRODUCTION

Witness our modern scientific revolution and Informatics exceeded what preceded the revolutions over the centuries, and this revolution requires the presence of a strong scientific base of the foundation of any human being that they need to be a creative and innovative human. So requires access to high levels of learning, modern and sophisticated competencies and strategies teaching from which learners will be able to acquire information that benefit them in the face of new situations, and in the change of ideas and passing of sentences and the generation of new ideas, and thus be able to achieve the different goals of learning.

The strategy of knowledge beyond the cognitive process considered one of the strategies of modern teaching and that help learners to take charge of their thinking and raise their awareness to the extent that it leads to a goal, and is achieved through a series of actions carried out by the learner as knowledge and awareness activities and mental processes that are used before, during and after the learning process and enables them to Article educated and therefore will accelerate their learning "(1:21). as the strategy of knowledge beyond the cognitive processes

considered one of special processes for directing attention during learning, planning and implementation of the learning process, and monitor, review and evaluate the learning process "(3:43).

The game of tennis is one of the competitive gaming, which took pride of place in many countries of the world, evolved from the game to spend leisure time to the Olympics which needs the requirements of high physical and tactical skills and depends on the basic skills as a base task embraced by this game to progress in the level of performance, so the strategic use of knowledge beyond the perceptual and cognitive style associated with them, can have a significant role in learning and mastering these basic skills.

From the foregoing, the importance of this research lies in identifying the impact of strategic knowledge beyond the cognitive process in learning the depth of the two skills of the two aircraft strikes front and rear of tennis, for compatibility and effectiveness for applications that deal in the field of individual differences among learners with the help of a thrower balls. This is called the researcher to do experimental research in contribution to the development and enrichment of the educational process in finding ways to irritator the learner's brain, which helps to acquire information, storage them and retrieval, and thus learning skills which are mentioned on the desired form .

2. RESEARCH PROBLEM

the researcher noted (being a former player and teaching a substance tennis in college) that the curriculum used in the teaching of this article is not fraught with strategic knowledge beyond the cognitive process , through which the educated is a vital component and active in the learning process, as is the adoption of the methods of traditional learning based on pumping information in a declamation manner by the teacher, and that lack stimuli that arouse the attention of the learners as well as foot-dragging and lack of follow-up about the teacher's attention of cognitive methods that deal with individual differences of the learners, especially cognitive style.

So the researcher used a strategy of knowledge beyond the cognition to see an active role and importance in the educational process as well as the positive role that can bring this strategy to help learners to modify their style of cognitive manner guidance and learning the optimal performance of the depth of the two skills of the strikes front and rear of tennis for beginners students.

3. RESEARCH HYPOTHESES

The two Research hypotheses:

1. There were statistically significant differences for the effect of education in accordance with the strategic knowledge beyond the cognitive tests before and after for the two sets of control and experimental research in learning the skills of the depth of the two strikes front and rear of tennis.
2. There were statistically significant differences for the effect of education in accordance with the strategic knowledge beyond the cognitive tests in the two sets of dimensional control and experimental research in learning the skills of the depth of the two strikes foreground and background in tennis and in favor of the experimental group.

4. TERMS IDENTIFICATIONS

Strategy: A set of techniques or methods used in the positions of learning, teaching and guiding the actions of the teacher in his quest to organize classroom learning experiences and achieve outcomes observed (1) .

Knowledge beyond the cognition: These are control operations their function is planning, monitoring and evaluation of the performance of the individual to solve the problem, a different thinking skills to solve the problem of public administration and one of the components of the smart performance or information processing (6:26)

Method of knowledge : Is a hypothetical concept designed to interpret the processes of moderation between the stimulus and response, and these operations symbolize the style of the individual relatively hard in cognition and memory, thinking and imagination, as well as in the way of understanding, conservation and use of information and analysis (4: 90)

5. RESEARCH METHODOLOGY

The researcher used the experimental method of two group's style system for suitability to the nature of the research problem.

6. RESEARCH SAMPLE

Researcher selected the research community and the students, who represent the third stage in the Faculty of Physical Education - University of Diyala, totaling 278 student. The research sample totaling (20) student as a control group and (20) as an experimental group. The ratio of the sample to the origin community (39, 14%).

Where the experimental Group has applied the learning method according to the strategy behind cognition by using balls thrower as a educational assistant and the control group applied an approach taken in college, a traditional method (Prince), and has been excluded the collage team of tennis and table

Homogeneity was conducted for the entire sample (40 students) according to the following equation:

$$Q * 100 (5:160) / \text{Coefficient of variation} = p$$

Where the coefficient of variation is a measure of the dispersion relative to see fragmentation within the same group. Where he stated (Wadih Yassin Mohammed) The coefficient of variation as a result of the closer (1%) is high homogeneity and if increased (30%) means that the sample is not homogeneous.

Table1: Shows circles of calculations and standard deviations for length, mass and age of the sample

	homogeneity recipe	research sample	Coefficient of variation
Length(cm)	162	4.88	%3.01
Age (years)	21	2.31	%11
Mass (kg)	61	5.2	%8.66

7. RESEARCH TEST

Test the depth of the plane strikes (Volley Stroke depth)

The aim of the test

The ability to assess the depth of aircraft strikes the front and rear

Procedures

1. Should make sure at the beginning of the test that participants had completed the warm-up and ready for testing
2. the Player should hit (8) balls aircraft from both sides the one aircraft is frontal and other aircraft is rear, and so on until the sequel (8) balls
3. Evaluation points are calculated according to the place that the ball fall in Reversion to the depth of the first aircraft strike
4. The assistant player should throw the ball to the hitter player among high hip area and the shoulder and the assistant player and the striker player can refuse the irregular ball that fall and outside the right region, and return it

CALCULATION POINTS OF ASSESSMENT OF THE DEPTH OF THE AIRCRAFT STRIKES :

1. Single point in any region of the transmission, as shown in Figure 1 .
2. Two Points in the first section after the transmission area, as shown in Figure 1 .
3. Three points in the second section after the transmission area, as shown in Figure 1 .
4. Four points in the third section after the transmission area, as shown in Figure 1 .
5. Recorded to the player all the points that snap.
6. The total points aircraft strikes the front and rear in depth does not exceed (32) points.

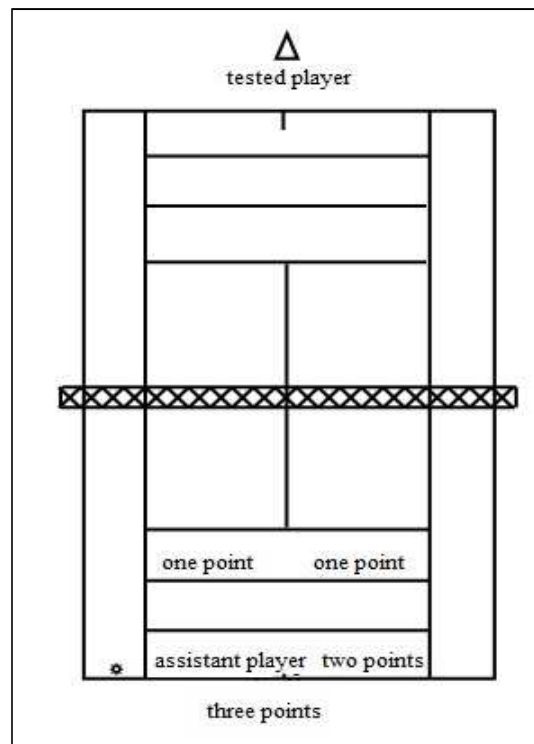


Figure (1). Diagram of a test to measure the ability of the depth of skill aircraft strikes Front and rear in tennis.

PRE-TESTS

The researcher conducted a pre-tests to evaluate the technical performance of the research sample of the skills included in the study on Monday day on 14.10.2013, as follows (at nine in the morning the Third Division A of the experimental group and at the eleventh hour the Third Division b of the control group) and under the supervision

of a researcher, teacher and team assistant and was given two units before the test in order to define the educated beginner skills required under discussion. Has taken into account the researcher as much as possible set of variables in terms of time, place and team assistant for survival itself in the post tests, were conducted process equivalence between control and experimental groups in tests of tribal order to attribute the researcher difference in the level of learning to the independent variable accompanied by learning tool (thrower balls)

LEARNING UNITS

The researcher has to implement (14) and educational unit and over (14) a week before the week testing a posteriori and by educational unit once a week with a time of 90 minutes per unit and both the experimental and control groups. Where the experimental group used the method of education in accordance with the strategic knowledge beyond the cognition by using balls thrower as the assistant while the control group used the traditional method used in college and for the same vocabulary of the experimental group and without the use of a thrower balls

POST TESTS

Poste tests were conducted on a sample search at nine in the morning of the day on Monday 20/01/2014 and the researcher creating conditions similar to the conditions of the pre-test and all aspects of the temporal and spatial and staff assistant in order to identify the extent of development that took place on the skills under study

STATISTICAL METHODS

The researcher used the statistical system of the bag (spss) to extract percentages, circles calculations, and standard deviations, and coefficient of sprains, t-test samples of asymmetric and symmetric

8. RESULTS, ANALYSIS AND DISCUSSION

This section deals with the results of the tests show that the two groups have undergone research (experimental and control), and also addresses the analysis and discussion of the results that have been reached to achieve the goal and the two hypotheses of the research. It could be argued that the two sets of research equal level through what is shown in the table below

SHOWING AND ANALYZE THE RESULTS OF TESTS OF THE TWO EARTH STRIKES FRONT AND REAR:

The table (2) shows the statistical results to evaluate the level of learning for the control and experimental groups in the pre and post- tests of the ability of the skill of the depth of the aircraft strikes the front and rear.

Table (2) *. Shows the equality of the two sets of research in the tribal tests

Tests	The control group		The experimental group		calculated(t) value	tabulated(t) value	result
Frontal aircraft strike	0.13	0.21	0.17	0.37	0.22	2.02	Not significant

background	0.29	0.27	0.37	0.17	1.19	2.02	Not significant
aircraft strike							

***Degree of freedom (38) and confidence limits (95%)**

Table 3 explains the results of pre and post tests for learning the extent of the depth of the skills of the two strikes front and rear and both sets of control and experimental research. It was the results of the arithmetic mean and standard deviation of the control group in the pretest of the skill of the frontal aircraft strike (0.21) and (0.13) and for the posttest (3.22) and (0.14) and the value of the calculated (t) test to see significant differences in calculations circles between pre and post tests (40.44), which is greater than the tabular value (1.73) and the degree of freedom (19) and confidence limit (0.95), which indicates the presence of significant differences for the post test.

Table 3 explains the results of pre and post tests for learning the extent of the depth of the skills of the two strikes front and rear.

skill	the group	pretest	posttest	calculated (t) value	tabulated (t) value	result
frontal aircraft strike	control	0.21 0.13	3.22 0.14	40.44	1.73	Significant
	Experimental	0.37 0.17	4.14 0.21	55.31	1.73	significant
background aircraft strikes	control	0.27 0.29	2.16 0.31	4.22	1.73	significant
	Experimental	0.17 0.32	4.66 0.44	9.41	1.73	significant

The results of the arithmetic mean and standard deviation of the experimental group, which has put the vocabulary of education-style strategy of learning beyond the cognitive using balls thrower in the pretest to the skill of the depth of the strike frontal plane (0.37) and (0.17) and to test the dimensional (4.14) and (0.21) and the value of the test (d.) calculated to see significant differences in circles computational between pre and post tests (55.31), which is greater than the tabular value (1.73) and the degree of freedom (19) and confidence limit (0.95), which indicates the existence of differences of significance for the post test

The results of the arithmetic mean and standard deviation of the experimental group, which has put the vocabulary of education-style strategy of learning beyond the cognition using balls thrower in the pretest of the skill of the depth of the frontal aircraft strike (0.37) and (0.17) and to post test (4.14) and (0.21) and the value of the calculated (t) to see significant differences in calculation circles between pre and post tests (55.31), which is greater

than the tabular value of (1.73) and the degree of freedom (19) and confidence limit (0.95), which indicates the existence of differences of significance for the post test

The results of the arithmetic mean and standard deviation of the control group in the pretest the skill of background aircraft strike (0.27) and (0.29) and to the post test (2.16) and (0.31) and the value of the calculated (t) test to know the significant differences in circles computational between pre and post tests (4.22), which is greater than the tabular value of \$ (1.73) and the degree of freedom (19) and confidence limit (0.95) which indicates the presence of significant differences for the post test

The results of the arithmetic mean and standard deviation of the experimental group, which has put the vocabulary of education-style strategy of learning beyond the cognition using balls thrower in the pretest of the skill of the depth of background aircraft strike (0.17) and (0.32) and of the post test (4.66) and (0.44) and the value of the calculated (t) test to see significant differences in calculation circles between pre and post tests (9.41), which is greater than the tabular value (1.73) and the degree of freedom (19) and confidence limit (0.95), which indicates the existence of differences of significance for the post test

Table (4). Shows the results of post-tests of both control and experimental groups to test the depth of the two aircraft strikes front and rear

Skill	experimental post test	control post test	calculated(t) value	tabulated(t) value	result
Frontal aircraft strike	0.21 3.44	0.35 4.33	13.11	2.02	significant
Background aircraft strike	3.58 0.41	0.55 4.19	6.44	2.02	significant

To learn the best of the two groups control and experimental in learning the depth of the skills of the two strikes front and rear prescribed by the table (4) above, the researcher used the t-test to determine significant differences between them

The results show that the value of the calculated (T) test between the two groups in the post tests for them in the skill of deep aircraft strike front of (13.11) which is greater than the tabular value of adult (2.02) and the degree of freedom (38) and confidence limit (0.95), which indicates the existence of differences significantly between them and in favor of the post- test and the experimental group

The results of the calculated(T) between the control and experimental groups in the post tests between them and in the skill of deep rear aircraft strike has reached (6.44) which is greater than the tabular value (2.02) and the degree of freedom (38) and confidence limit (0.95), which indicates the existence of differences significantly between them and in favor of the post -test and the experimental group

Discussion of the results of tests of the earth strikes front and rear :

When discussing the results that have been presented and analyzed in tables (2) and (3) and (4) of the pre and post- tests of the two groups control and experimental show that there is a significant effect in learning the depth of the skills of the two aircraft strikes front and rear for the two groups, and this shows that the two approaches educational practice and the proposal has led both are to get in the evolution of the level of performance of the two groups, and researcher attribute it to the adequacy and implementation of educational units to invest time learning vocabulary and repetitive attempts and feedback harmonious and positive side to demonstrate appropriate to the nature of the research sample. The results showed that the group that exercised in accordance with the strategic knowledge of education beyond the cognition by using balls thrower have been implemented curriculum vocabulary exercises practical and competitive on a variety of situations. It should be noted here that the depth of learning these skills was in a gradual and easier to learn other skills in tennis such as the transmission, as the evolution of learning every skill depends on the (degree of difficulty of that skill and perimeter performance). Note that "aircraft strikes front and rear are skills open and blow transmitter is a skill closed somewhat. Results were statistically significant in favor of the experimental group in the depth of the skills of the two aircraft strikes front and rear on both and it was due to the effectiveness of the influence of the style of education in accordance with the strategic knowledge beyond the cognition by using balls thrower during the implementation of the vocabulary modules and practical exercises that led learners to the excitement and motivation and provide an atmosphere fun and activating the educational process by involving them in, have been learning these skills mentioned high accuracy in two important ways and are focusing on the performance of the two skills (strictly fall of the balls in affecting areas as much as possible in places variety of angles and in the opponent's court) and focus on correction by feedback

The skills of knowledge beyond cognition that the researcher included it in his research for the education of the experimental group were comprises three main categories:

(Planning, monitoring and assessment) and includes each category a number of sub-skills (awareness and planning, monitoring and review and alignment), the researcher attribute that to the development of the experimental group which came as a result of the application of these skills with learners by using the successful educational and enjoyable method, but give these skills series is the so-called skills knowledge beyond cognition and which were appropriate for the students of the third stage in tennis, which led to their development in a positive and quick with rush of love and accompanied by members of the experimental group towards the application of this method of education

9. CONCLUSIONS

Through the presentation of the results of the tests and analyzed and discussed, the researcher was able to reach the following conclusions:

1. The emergence of a clear improvement in learning two sets of research (experimental and control groups) to the two main skills (the depth of aircraft skills the front the rear).
2. The superiority of the experimental group that used the style of education in accordance with the strategy of learning beyond the cognition in amount of learning upon the control group that used the traditional method of learning (Prince) in the two core skills (the frontal aircraft strike and the rear aircraft strike).
3. The superiority of the experimental group that used the style of education in accordance with the strategy of learning beyond the cognition using balls thrower in learning upon the control group, which used the method of traditional learning (Prince) and without the use of style mentioned with ejector balls for the two core skills (frontal aircraft strike and rear aircraft strike)

10. RECOMMENDATIONS

Through the conclusions reached by the researcher we can put the following recommendations:

1. Emphasis on the use of education in accordance with the strategy of learning beyond the cognition by using balls thrower in learning the basic skills of tennis, especially the depth of two skills (aircraft strikes front and rear) for positive impact in the learning process, especially with beginners
2. Emphasis on the use of education in accordance with the strategy of learning beyond the cognition by using balls thrower in learning the basic skills of tennis as a teaching aid, especially the depth of my skills (the aircraft strikes , front and background) because the balls thrower is a positive learning tool for beginners
3. Emphasis on the use of education in accordance with the strategy of learning beyond the cognition thrower by using balls thrower in learning the basic skills in tennis centers and clubs, schools and colleges for their importance in the learning and mastery of motor skills to a large degree and serves all ages of beginners
4. To conduct similar researches by using other methods in learning, as well as using a variety of teaching aids and other skills in tennis which serve the educational process

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APPENDIGES

Appendix1: Model of orientation unit of strategic knowledge beyond the cognition

Article: Tennis / Thread: giving the concept of strategic knowledge beyond the cognition for the two main aircraft strikes in tennis

Stage: Third / time: 90 minutes

Behavioral objectives

Students are expected after this module to be able to:

- To learn about the concept of strategic knowledge beyond the cognition
- To learn about the goals and procedures of the curriculum prepared in accordance with the strategic knowledge beyond the cognition
- To know the reasons that call for the adoption of this strategy and the importance of implementation
- to know how to apply the strategy of knowledge by using learning mission through the beyond the cognitive task learning through paper to be designed by the researcher
- To describe educational activities that will achieve the goals

- To be ready to use (student guide to learn the basic skills in tennis), which prepared for them to ask for help during the application of strategic knowledge beyond the cognition

Tools and devices

Tennis court - tennis balls - smooth wall - ropes - chalk - duct tape width (5 cm) - whistle - stopwatch, enlarged illustrating photo for the paper

Preparatory Section

- Introduction (3): d take the absences and prepare tools
- In warm-6 (d): It includes a set of physical exercises to prepare the muscles and joints of the body

A special warm-6 (d): a special warm-up by ball-

The main section (65) min:

Clarify the vocabulary of tennis substance over a period of research to enable the students to know the prepared educational units and duties to be carried out

Educational aspect (15) min:

- Explain the concept of strategic knowledge beyond cognition
- Statement of the reasons that let to teach this strategy (illustrate the use of any strategy knowledge beyond the cognition and its applied interest in educational and practical situations
- Explain and clarify the sub-strategies for knowledge beyond the cognition (awareness, planning, monitoring, review, alignment)

The practical side (50) min:

through This unit thee will be an application of the strategic of knowledge beyond the cognition in a paper of practice by the students through forms of exercises in the guide of the student by using a balls thrower

Final section (10) min:

- Assigning students to prepare and study the skills of the two aircraft strikes front and rear, which will be the subject of the first module
- Return tools to their place and then instruct to go away

Appendix2 : Illustrations showing the balls thrower device



Picture 1



picture 2



Picture 3



picture 4

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A Correlational Comparative Study for Five Methods of Predicting Heights in Female Badminton Players (10-12 years)

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Abstract

Aim: the current research aims to identify correlations among five methods for predicting final heights of female badminton players (10-12 years).

Participants: Participants (n=18) were female badminton players (10-12 years), members of two teams qualified for the final of Jordan's Badminton Championship 2012 with (3) years of experience.

Methods: five methods were used: Bayley & Pinneau, RWT, Tanner, Wuscherk and Tanner's equation. Person's correlation coefficients and F values were used for statistical treatment.

Results: Correlations among current heights with standing and the three methods (Bayley & Pinneau – Tanner – RWT) ranged from 0.96 to 0.99 on $P < 0.001$ while Wurscherk and Tanner's equation were less correlated with correlations ranging from 0.36 to 0.45 on $P > 0.05$. Bayley & Pinneau, Tanner and RWT were statistically similar to each other.

Conclusion: Bayley & Pinneau, Tanner and RWT were correlated and gave more accurate results compared to the other two methods.

Key words: prediction – final heights - Bayley & Pinneau, Tanner and RWT methods – badminton – comparison – correlation.

INTRODUCTION

Elite sports results depend on several morphological, physiological, technical/tactical, psychological and cognitive factors. The morphological factor, like limb length, is a prerequisite for scoring high results.

Some experts interpret poor results with the lack of lengths. Analysis of badminton results and its relation to morphological factors indicated that longer heights and longer heights with arms up (stretch) are two important conditions that can never be ignored (Mimouni 1996). Mean heights of female players of Jordanian badminton national team are (175.32±7.32) cm including height of libero and (177.6±4.83) cm excluding libero height. Although there are significant improvements in these values, compared with

values of 1980s and 1990s, these values are still below values of players in other high rank foreign countries internationally, especially those in the first (8) places in London Olympics 2012. These values are (184.05 ± 3.65) cm including height of libero and (182.7 ± 3.64) cm excluding libero height. It is noteworthy that mean heights of these countries' players are (194.63 ± 5.02) cm while American and Russian players are (200) cm and (202) cm respectively. This factor is hindering our players from performing technical/tactical tasks leading to victory over taller players. Is not there a scientific means by which we can select and prepare taller female players according to the prerequisites of badminton (tall bodies and long limbs)?

To answer this question, it is important to consider that electing taller players should be done in an early age with a long way of preparation to enable players to be prepared physically, technically, tactically and psychologically. This necessitates predicting highest during early childhood and adolescence so as to be able to select individuals with potential of longer heights at the end of their grow period as this enables us to prepare a long-term plan for sports improvement. We are supposed to predict height early with a method of acceptable validity.

There are several methods for predicting heights including Pinneau & Bayley (1952), Wutscherk (1971) Roche, Wainer & Thissen (1975), Tanner (1962) who revised Bayley & Pinneau with a resultant of current percentage not final height and finally Tanner's method used with both genders that considers mean heights of parents. So, what is the best method among these that provides the most accurate prediction of heights among Jordanians who practice badminton?

To answer this question, it is important to perform a longitudinal study that is not affordable right now. But it is also important to identify coordinated methods of predicting heights for selection decision making in badminton (Abdelmalek et al 2006). Accordingly we pose the following question: do methods of Pinneau & Bayley (1952), Wutscherk (1971) Roche, Wainer & Thissen (1975), Tanner (1962) and Tanner's equation provide similar results when predicting final heights for female badminton players (10-12 years)?

METHODS

Participants:

Participants (n=18) were female badminton players (10-12 years), members of two teams qualified for the final of Jordan's Badminton Championship. Table (1) shows general characteristics of participants.

Table (1): general characteristics of participants

Variable	Age (year)	Weight (kg)	Height (standing) (cm)	Stretch (cm)	Training experience (year)
Mean \pm SD	10.82 \pm 0.57	43.86 \pm 5.37	157.6 \pm 6.1	202.39 \pm 10.89	2.72 \pm 1.02
Max value	11.47	50	164	211	4
Min value	9.59	37	142	176	1

* stretch: height from finger tips with high stretched arms

Data collection instruments:

- An anthropometric bag (GPM Siber Hegner) that includes a height measurement (Martin) (2100mm with 5mm accuracy), a compass with two olive-shaped ends for measuring width and a measuring tap for circumferences.
- A balance (SECA) (50g accuracy) for measuring weights
- Negative photos for the left hand and wrist.
- A data recording form.

Anthropometric measurements:

Heights were measured with two methods:

- Standing: from vertex to ground using an anthropometer
- Laying: on table with feet on the wall using a measuring tap to measure height from head to wall

Shoulder width was measured with the compass between the two Ectopic Extrusions. Pelvic width was measured by the compass between the two side extrusions. Thigh circumference was measured by the tap passing the De Face.

X-ray for left hand and wrist:

X-ray images were taken for the left hand and wrist by placing the hand open to the bottom. Negative images were produced by Mita x-ray device.

METHODS FOR PREDICTING HEIGHTS: (FIVE METHODS)

- Wurscherk:** this method depends on biological maturity according to KEI index. Abdelmalek et al (2006) validated this method on a Jordanian sample. LEI index was calculated as follows: weight – height (standing) – shoulder and pelvis widths normalized by Rohrer's index (weight/height³) according to specific tables (Wurscherk, 1988) – current heights – five types of biological growth (very slow – slow – regular – fast – very fast).
- Roche, Wainer & Thissen (RWT):** This method enables us to predict final heights with reference to progressive age every three months, bone age using Greulich & Pyle's Atlas, current height, weight, and parents' mean heights. Multiple regression equation for this method is as follows: $Y = \beta_0 + \beta_1 SA + \beta_2 StrH + \beta_3 W + \beta_4 MPH$. Y represents final predicted heights, SA is the bone age, StrH is current height, W is weight, MPH is parents' mean heights while β (0-4) are constants calculated according to table provided by the developers (Roche et al 1975).
- Bayley & Pinneau:** This method predicts final heights using Greulich & Pyle's Atlas and biological growth (fast – regular – slow) of adult females (6-17 years) progressively every three months (Bayley & Pinneau 1952).
- Tanner (1962):** this method predicts final heights using age and biological growth (fast – regular – slow) of adult females (7-18 years) progressively every year (Tanner 1962).
- Tanner's equation:** this method predicts final heights using parents' mean heights and subtracting 6.5 for females while adding the same value for males. Final height = (father's height + mother's height)/2 ±6.5 (Le Groupe français d'Auxologie)

Statistical treatment:

The researcher used Excel 2010 software to calculate the following: mean – SD – Person's correlation coefficient – variance analysis – simple regression – Student's test.

RESULTS:

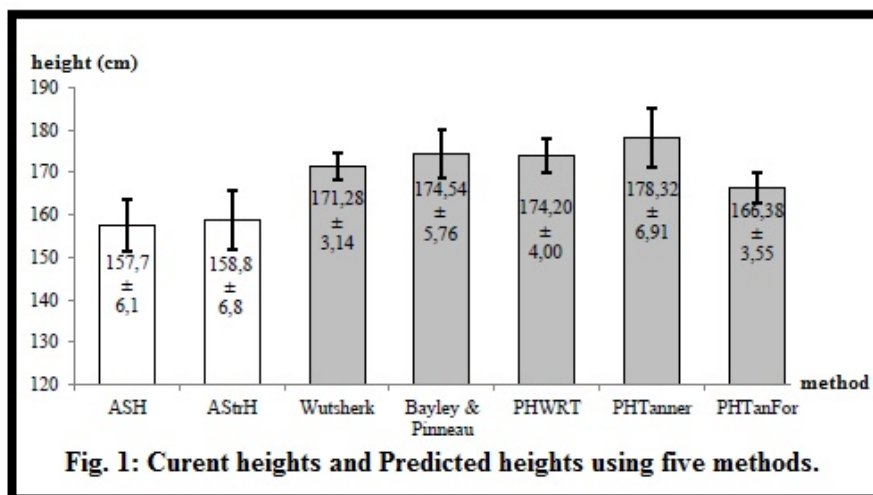


Figure (1) shows current heights and predicted ones using five different methods

Table (2) shows statistically significant correlations on $P < 0.01$ among current heights (standing and laying) and predicted heights using Bayley & Pinneau ($r=0.99$, $r=0.97$ respectively), RWT ($r=0.96$, $r=0.96$ respectively) and Tanner ($r=0.9994$, $r=0.97$ respectively) while there were no correlations with Wuscherk and Tanner's equation.

Table (2): Correlation matrix of height (standing), height (laying) and prediction methods

	SH	StrH	PHWut	PHBP	PHRWT	PHTanner	PHTanFor
SH	1						
StrH	0.97	1					
PHWut	0.37	0.39	1				
PHBP	0.99	0.95	0.45	1			
PHRWT	0.96	0.96	0.38	0.96	1		
PHTanner	0.9994	0.97	0.36	0.99	0.96	1	
PHTanFor	0.17	0.07	-0.13	0.20	0.27	0.17	1

SH = height standing – StrH = height laying – PH = Predicted height – Wut= Wutscerk – BP = Bayley & Pinneau – RWT = Roche, Wainer & Thissen – TanFor = Tanner's equation

Correlation analysis indicated that methods correlated to standing and laying heights are correlated significantly among each other as correlations ranged between 0.96 and 0.99 on $P < 0.01$.

Variance analysis indicated statistically significant differences among the predictions of the five methods in sum ($P = 1.46 \times 10^{-8}$). When we excluded the least predicted height value of Tanner's equation, depending only on mean parents' height, there are also statistically significant differences on $P = 0.0018 < 0.002$.

Table (3): Variance analysis for the five methods of predicting final heights

Analysis	Source of variance	Sum of squares	Freedom degree	Mean of squares	F	P	F critical value	significance
All five methods	Inter-groups	1331.10	4	332.78	13.67	1.46E-08	2.48	****
	Intra-groups	1971.83	81	24.34				
	Sum	3302.94	85					
Excluding least mean	Inter-groups	450.71	3	150.24	5.56	1.83E-03	2.74	***
	Intra-groups	1783.08	66	27.02				
	Sum	2233.80	69					
Excluding two least means	Inter-groups	183.76	2	91.88	2.79	7.14E-02	3.19	ns
	Intra-groups	1615.47	49	32.97				
	Sum	1799.23	51					

*F = Fisher's calculated percentage of variance for inter-/intra-groups. **** = significant for $P < 0.001$ - *** = significant for $P < 0.002$ - ns = not significant*

Excluding the least two means derived by Wutscherk and Tanner's equation, there are no statistically significant differences among the three other methods.

Regression analysis among current heights with standing and the three correlated methods led us to create a correlation cloud (figure 2) in addition to a simple regression model of type ($Y = ax + b$) and its identifiers (R^2)

This enables us to predict the predicted heights through the three methods (Bayley & Pinneau, RWT and Tanner) using current heights with standing. Regression equations came as follows:

- $PHTanner = 1.1318SH - 0.1233$ with $R^2 = 0.9997$
- $PHBP = 0.9338SH + 27.318$ with $R^2 = 0.9784$
- $PHRWT = 0.6006SH + 79.689$ with $R^2 = 0.9288$

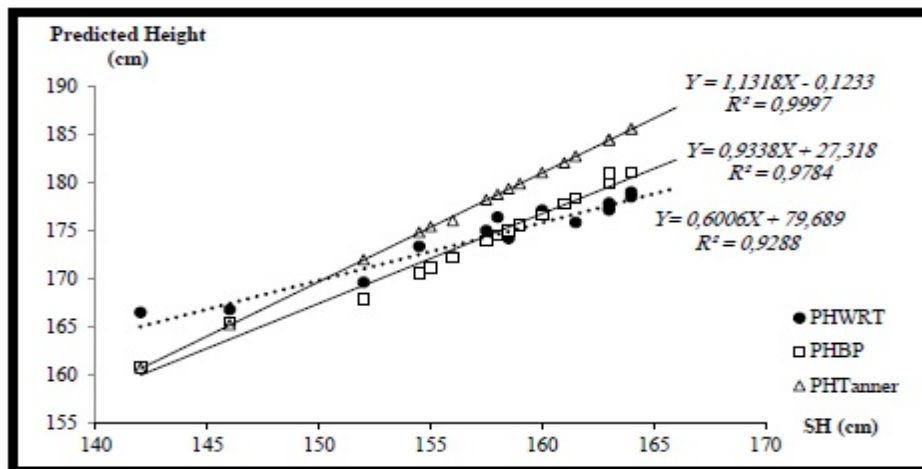


Fig.2: correlation cloud and regression equations among current height with standing and the three correlated methods

$SH = \text{height standing} - PH = \text{Predicted height} - BP = \text{Bayley \& Pinneau} - RWT = \text{Roche, Wainer \& Thissen} - \text{Tanner}$

Regression analysis enabled the researcher to identify a simple regression model of type $(Y=ax+b)$ between RWT method that is more complicated with its hard-to collect variables like parents' heights and less complicated methods (Tanner and Bayley & Pinneau). These regressions were selected according to higher correlations ($r=0.96$ and $r=0.99$), this is shown in figure (3). Regression equations came as follows:

- $PHRWT = 1.7532PHTanner - 127.42$ with $R^2 = 0.9308$
- $PHRWT = 1.4593PHBP - 79.939$ with $R^2 = 0.926$

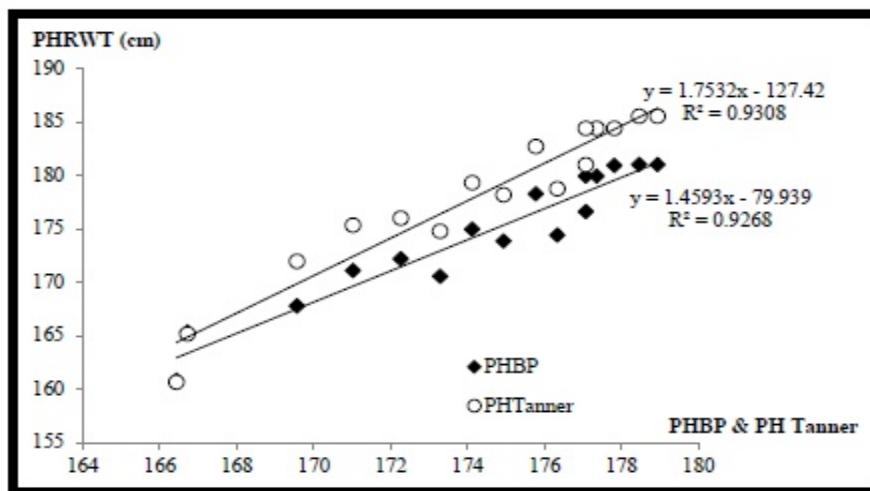


Fig.3: correlation cloud and regression equations among predicted heights with RWT and the two other methods (Tanner – Bayley & Pinneau)

$PH = \text{Predicted height} - BP = \text{Bayley \& Pinneau} - RWT = \text{Roche, Wainer \& Thissen} - \text{Tanner}$

DISCUSSION

Correlations among current heights with standing and the three methods (Bayley & Pinneau – Tanner – RWT) ranged from 0.96 to 0.9994. this considered as excellent values for validity (Barrow & McGee 1979) (Vsevolodov 1969) (Platonov 1984). Therefore, we can consider current height as a good predictor for predicted final heights in addition to elevating the value of R^2 identifiers for producing other regression models like multiple regression of second degree ($y=ax^2+bx+c$) and third degree ($y=ax^3+bx^2+cx+d$). Similarly, high values of correlation among predicted heights with the three methods indicate the potentiality joint prediction among them. Actually, correlations were excellent (Barrow & McGee 1979) (Vsevolodov 1969) (Platonov 1984). Accordingly, RWT method enjoys high validity (Gentile et al 1983) as it depends on age, current height, weight and parents' heights. In addition, its constants (β_i) are constantly hanging with age every three months and can be predicted relatively easily. Furthermore, low values of correlation for Wutscherk and Tanner's equation methods and their difference significance indicated that they are too weak to predict final heights compared with the other three methods.

CONCLUSION

Height with standing is a good predictor for predicted final height of female badminton players (10-12 years). Bayley & Pinneau and Tanner methods depend on age and biological maturity type (fast – regular – slow). They are considered as good predicting methods for final heights predicted by RWT method. Similar studies are needed for the end stage of growth (17-18 years) to compare predicted values with measured ones so as to judge the accuracy of each method as using more than one method is more reliable.

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