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THE IMPACT OF A SELECTED RESISTANCE PROGRAM ON
THE STRENGTH OF THE MUSCLES AROUND THE HIP



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Short Profile

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ABSTRACT:

Muscle strength, balance and postural balance, are a important role in fitness and overall health. The purpose of this study was to evaluate the effect of strength the muscles around the hip in female athletes and non-athletes. The quasi-experimental study was used

and 60 high school students with a mean age of $16/45 \pm 1/44$ years, height $160/07 \pm 5/77$, weight $35/9 \pm 14/16$ kg were selected and randomly divided in to four groups. non athletes ($n = 15$ control and $n = 15$ experiments) and athletes ($n = 15$ control and $n = 15$ experiments). Both groups of patients, the muscles around the pelvic, core body strength and stability tests were done. The subjects in the selected experimental groups, strength training for 8 weeks, 3 sessions per week for 90 minutes were done under coach. At the end of the period, exam re-evaluated as the post-test. Significant level data was 0/05 and data analyzed by T and T-dependent using SPSS software by descriptive and inferential statistics. The results showed that strength training program were selected for strength of the muscles around the hip in both groups separately, was significant impact as well as between athletes and non-athletes.

KEYWORDS

strength training, core body strength, female athletes and non-athletes.

INTRODUCTION :

The maximum power and muscle power are a prerequisite and necessary daily activities. Maximum power is often in the static test. Maximum power means the maximum power generated by one or a group of muscles during a sit voluntary effort and muscle power means double the intensity by moving (11). Exercise can be both nerve and muscle stimulation adjustment, which increases muscle strength (9). The concept of basic willingness and readiness is to develop all aspects of the musculoskeletal system. The musculoskeletal, including muscles, tendons, bones and ligaments that man will able to move and perform physical activities. Musculoskeletal system strong, ready to do any physical activity and makes children and subsequently reduce sports injuries. Most of the bone mass that formed during adolescence and the age of the most favorable time to increase and strengthen the skeletal structure will reinforcement by light resistance exercises. Although effectiveness of the rate of growth in stature beyond its natural strength training is differ, but it can increase strength of muscle mass, bones, tendons and ligaments worked by children (2). Muscle function to perform everyday activities, especially in athletes is important. Optimum performance of muscles can cause higher levels of physical activity associated with loss of energy and spend time is shorter. The femoral quadriceps muscle in the knee joint is critical. The muscles involved in all functions of motion and instability of the knee and play an important role in absorbing the forces exerted on the knee. If the quadriceps muscle weakness, perform many of these functions will be difficult or impossible. We have to improve muscle performance of various types of aerobic, strength and balance (3). Abs, a four-legged spine support against gravity, in the stand that people usually take the role very little on their shoulders. These muscles are used less in our industrial society, because we're mostly sitting or standing or sold in the muscles function to keep the weight of the growing fetus during pregnancy are responsible. Therefore, stronger and more flexible than usual (7). In the lumbar region - Pelvic muscle activity groups constitute two pairs of force on the hip (10). Anatomic position, the pair of power not only to maintain the hips are good, but by applying a combination and it is also opposite rotations sagittal control (10). Extensor muscles in the anterior abdominal muscles and hip and in the posterior part of the body, one of the two power couples form a simultaneous contraction due to posterior pelvic rotation and, consequently, reduce the amount of balance. The second pair of combining hip flexor muscles in the lumbar extensor muscles and in the anterior and posterior part. However, the simultaneous contraction of the anterior pelvic rotation and subsequently caused the increase in lumbar lordosis angle (10). Thus, weakness in any of the pelvic muscles belt with muscular balance in this area may pelvic rotation and to be followed and reduced the balance (12). One of the most famous and the most common type of strength training, weight training or free weights through the manipulation of training intensity, training program design with volume and frequency of exercise progressively rehearsing. Intense strength training, the muscles of some individuals by as much as two to three times increase. Overall, the average improvement in strength training in untrained subjects (40%), training an average of 20%, in practice 15% in advance 10 percent of the experts that the high level of competition have reached 2% (6).

RESEARCH METHODOLOGY

This study was semi-experimental and population included 100 students that voluntary participate in the study (43 athletes and 57 non-athletes). 30 female student-athletes and 30 female

student of non athletes and finally were selected by simple random sampling. Both athletes and non-athletes randomly divided into control and experimental groups. Athletes female students engage in a sport athlete (volleyball, basketball, fitness, sailing) for three-year regularly. All subjects was aged 14 to 19 years. Then all the subjects participated in a pre-test and test muscle strength around the hip muscle and endurance of the body by stopwatch. . The experimental groups consisted of an eight-week training program for three sessions per week for 90 minutes (including 15 minutes of stretching and strength training using the stationary bike as a warm up then 70 minutes of elected activity and at the end of the 5 minute stretching as a cool down). All program was done with direct supervision of experts and researcher. All exercises according to the individual characteristics of each subject and was designed to respect the principle of overload. After eight weeks of training the post test was taken.

Table protocol:

Repetition	Sets	The name	The number of sessions run	Select weight
15	3	Back-foot machine	9 sessions	Lighter weight in order to gain fitness
15	3	Forward-foot machine		
20	3	Abdomen, legs together sitting		
10	3	Fillet back		
8-10	3	Back-foot machine	15 sessions	Heavy weight given to each person
8-10	3	Forward-foot machine		
Free	3	Belly up together on the couch		
repeated	3			
	3			
Free	3	Abdominal pilot		
repeated	3	Fillet back		
15	3	Foot stretch		
8-10		Stretch legs out		
8-10		Bending to the side with dumbbell		
Free				
repeated				

Deep body muscle strength test was conducted as follows:

Stage 1

The use of mats to protect hands and arms for placement in the Chinese press. When the athletes were in the correct position, the timer start to working. This situation is maintained for 60 seconds.

Stage 2

Right off the ground. This status is maintained for 15 seconds.

Stage 3

Right hand and left hand is placed on the ground up. This state is maintained for 15 seconds.

Stage 4

Left hand and right foot on the ground and gets up. This situation is maintained for 15 seconds.

Step 5

Right foot and left foot up on the ground. This status is maintained for 15 seconds.

Step 6

The left foot and right hand on the ground. This situation is maintained for 15 seconds.

Step 7

The left foot and right hand placed on the right and left hand from the ground. This situation was maintained for 15 seconds.

Step 8

Press on the condition of Chinese athletes. This situation is maintained for 30 seconds.

Step 9

End test

When the athlete was not able to keep body in the correct position, or cannot continue , test was recorded (4).



Figure 1: The stability of core body muscles

Findings

Descriptive characteristics, mean of age, height and weight in participants of two groups:

Weight kg	Height cm	Age years	Groups	
60/31±8/45	159/80±6/10	16/07±1/03	Experimental	Non Athlete
59/25±9/58	159/53±3/68	16/73±1/87	Control	
57/24±8/52	163/13±6/19	15/93±1/10	Experimental	Athlete
51/75±9/27	157/80±5/93	17/07±1/44	Control	
57/14±9/35	160/07±5/77	16/45±1/44	Total Mean	

Results T (Between control and experimental groups)			The results of T-dependent						Groups	athletes	Variable
p	t	Mean	p	t	Post test		Pre test				
					Standar d deviation	Aver a ge	Standard deviation	Average			
0/035	2/211	25/933	0/000	-4/776	40/02702	122/900	49/484	93/066	Control	athletes	The strength of the muscles around the hip girls
			0/000	-4/802	36/84950	133/800	49/6990	91/0000	Experimental		
0/004	3/170	29/8666	0/77	0/287	30/79162	59/466	36/5904	61/0000	Control	non-athletes	
			0/003	-3/652	33/55905	101/933	34/238	73/6000	Experimental		
0/049	-1/99	-16/433	The results of T between athletes and non-athletes								

Considering and reviews within the group, a program of the selected strength upon the strengthening of the muscles around the pelvis, there was a significant difference in the athlete's girls. There was also a selected resistance programs on the strength of the muscles around the pelvis, also there was a significant difference in non athlete's girls.

CONCLUSION

According to the study groups, strength of the muscles around the hip in female athletes as well as a strengthening of the muscles around the hip in non athletes female was a significant difference. Research carried out in this field within the groups and outside the groups are consistent with the research include:

Kelij and Janyng and Mageal (1998) in his study examine the effects of a balance of power and stability waist and hip kinematics during gait in women was found that the exercises improves the lumbar-pelvic muscles (8). Mynasian, Mehrabi and Hakimi (1392) Publish results titled the effect of strength training on muscle strength and body elected by the 8 to 18 year old girls gymnastics investigated and concluded that the significant effect had seen in strength training on muscle strength of the region gymnastics girl's abdomen (1). Gholizadeh (1381) showed that the influence of static and PNF stretching exercises on two indicators of CR fitness stretch of the hamstring muscle strength in male athletes and concluded with increase power in hamstring (5). In the comparison group, there were significant differences between athletes and non-athletes. Organs of power in the central area of the body requires adequate muscle strength and coordination of trunk and hip and also possible coordination between these groups of muscles.

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