

# The Effect of Weight Training Methods to Physical Ability of Elite Athletes Fencing

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**Abstract:** This research aims to determine the effect of weight training methods to the physical abilities of the fencing elite athletes. This research used an experimental method with 13 samples of the population. Data obtained by performing initial tests and final tests and analyzed by t-test analysis. The results showed: (1) there was the effect of weight training methods to the grip power of elite athletes fencing South Sulawesi, (2) there was an effect method of weight training to muscle endurance of elite athletes fencing South Sulawesi, (3) there was the effect of weight training methods to speed elite athletes fencing South Sulawesi, (4) there was an effect method of weight training on muscle explosive power elite athletes fencing South Sulawesi, (5) there was the effect of weight training methods to the general endurance elite athletes fencing South Sulawesi, (6) there was an effect method of weight training to physical ability elite athletes fencing South Sulawesi. Thus the physical ability fencer can be improved through weight training exercises.

**Keywords:** methods, weight training, physical ability, elite fencing, athletes

## Introduction

The coaching achievement in the sport of fencing in each region, is one of the fact to implement the Act No. 3 of 2005 on National Sports System. The implementation of this law, is to organized the sports field accomplishments in a planned and implementation of the programmed. The fencing more and more loved by the people, especially in South Sulawesi, although unlike its development with other sports games. Fencing desperately need the highest physical condition are: strength, power, reaction, flexibility, coordination, balance, agility, accuracy, and endurance. This is because the game uses of physical interaction to win a match. Excellent physical condition is very supportive of the athletes to showcase and develop techniques, tactics and even mental athletes as the game progresses. Therefore, these physical conditions must be developed through a systematic training process.

Strength is the main thing in the proper functioning of its other physical components. Strength can be defined as the ability to use style of lift up or hold the burden. According to Tudor, Bompa, & Gregory (1999) strength as the ability of muscles and nerves to overcome internal and external loads. Fencing require grip strength, leg muscle strength, arm strength. Likewise, the explosive power is a combination of strength and speed, explosive power as the ability to remove the maximum strength in a relatively short time. Fencing requires explosive power arm muscles and leg muscle explosive power. While endurance is the ability of muscle work within a specified period (Alfian, 2012).

Durability of fencing is the durability of the arm muscles, the abdominal muscles, leg muscles, cardiovascular and Vo<sub>2</sub> max in time during the game, so the durability of this can be interpreted as the ability of the organs in the move to a specific period.

Other physical the components required in fencing is coordination, reaction, and flexibility. The coordination is the quality of motion which simultaneously includes the system of muscle contraction, energy and nerves at various difficulty levels precisely and efficiently. While the reaction is abi-ladies organism to respond to a stimulus as quickly as possible to achieve the best possible results. According to Cotter (2011) that, flexibility the muscle and joint of the leg lowback, hips and ankles are required to work at the extreme ranges of motion both in flexion and extention. Further explained that with leg exercises you can become stronger, more flexible, more coordinated plus improved speed and jump farther. Flexibility is the ability of the joints to move in space to perform optimally motion. In addition flexibility or flexibility is a physical component that greatly help the quality of motion that is more flexible and efe-efficiency of motion, as well as prevent injury. The physical condition of the dominant athlete in fencing can be developed with training methods weigth training. Weight training is believed to be very effective to develop the physical condition of athletes in the not too long during his training process with a systematic, continuous, continuous, and from time to time given the excess load (overload) as one of the principles of exercise.

## Research Methods

The method used in this research is an experimental approach with data analysis descriptive and inferential statistics through the paired t-test. The research variables method weight training exercises with the physical abilities of athletes. The population of the whole fencer elite South Sulawesi as many as 13 athletes in the sample population.

## Research Results

Table 1. Description of Physical Ability Statistics on Initial Test and Final Test

Statistical	Physical Ability Variable					
	Pre-test					
	Grip strength	Muscle Durability	Speed	Muscle Durability	General Durability	Physical ability
Samples	13	13	13	13	13	13
Average	205.6	121.6	37.48	20.73	40.31	393.7
Standard deviation	62.60	15.91	5.72	4.17	3.71	66.8
Variance	3919.4	253,3	32.75	17.45	13.78	4474.8
Range	177.2	61	18.0	12.1	13.0	199
Maximum	310.3	164	46.1	26.73	48.0	510
Minimum	133.1	103	28.1	14.8	35.0	311
	Post-test					
Average	240.14	165.8	38.42	23.86	41.27	476.6
Standard deviation	55.70	46.57	4.59	5.26	2.65	84.74
Variance	3103.01	2169	21.13	27.69	7.03	7181.4
Range	174.20	140	17.0	17.2	9.8	246
Maximum	326.7	246	48.1	34.6	46.0	609
Minimum	152.5	106	31.1	17.4	36.2	363

Effect of weight training methods to grip strength of elite athletes fencing, obtained: t-observed values for -3.419 with significant value 0.005 smaller than the value  $\alpha$  0.05. This means that there is a treatment effect of weight training methods to increase grip strength fencing elite athlete South Sulawesi. While this method of weight training on muscle durability elite athletes fencing, t-observed values obtained -2.983 with significant value 0.011 smaller than the value  $\alpha$  0.05. This means that there is a treatment effect of weight training methods to increase muscle durability elite athletes fencing South Sulawesi. Effect of weight training method on the speed of elite athletes fencing t-observed values obtained for -0.976 with significant value 0.048 smaller than the value  $\alpha$  0.05. This means that there is a treatment effect of weight training methods to increase the speed of elite athletes fencing South Sulawesi.

Effect of weight training methods on muscle explosive power of elite athletes fencing t-observed values obtained for -2.356 with significant value 0.036 smaller than the value  $\alpha$  0.05. This means that there is a treatment effect of weight training methods on muscle explosive power elite athletes fencing South Sulawesi. Effect of weight training methods to the general durability elite athletes fencing t-observed values obtained for -0.801 with significant value 0.039 smaller than the value  $\alpha$  0.05. This means that there is a treatment effect of weight training methods increase in general durability elite athletes fencing South Sulawesi. Based on the data t-test results of initial tests and final tests, t-observed values obtained for -3.771 with significant value 0.003 smaller than the value  $\alpha$  0.05. It can be concluded that there is influence methods of weight training to physical ability elite athletes fencing South Sulawesi.

## Discussion

Weight training methods have a significant influence on grip strength fencing elite athlete South Sulawesi. Weight training is a training method that uses burden, ie burden external and internal burden that can make fitter muscles or increase muscle capacity. Forming durability, agility, strength, and speed. The facts showed that weight training which is a method of simple exercises using simple tools. This shows that in practice weight training muscle groups are trained muscular forearm or grip of power. The muscle groups were highly correlated with grip strength of the hand muscles, which in the muscles of the forearm was instrumental in conducting a grip on the weapon used in fencing. Stryker (2015) there is no doubt that with weight training exercises using dumbbells or barbell engine certainly can increase leg muscle strength. Methods of weight training is directed to improve grip strength using Grip strenght. The handle weapons in fencing to be strong when there is a blow or attacks from opponents, deflect and then counterattacked very much determined by the ability to grip on the weapon..

There is a significant influence on the training methods of weight training muscle durability elite athletes fencing. Beattie, Kenny, Lyons, & Carson (2014) said that durability in sports is closely related to the implementation of the technical skills, because an athlete is considered good, if using techniques consistently and effectively with minimal use of energy. According Costill, Wilmore, & Kenney (2008), method of weight training or weight training can be designed to improve strength, speed and explosive power, weight training is a systematic workout where the load is only used as a tool and, if done correctly, it can improve Keku-atan, speed, and durability. Weight training to develop their athletes are muscle strength, muscle power and muscle durability. The muscle groups were highly correlated with muscle durability needed during the attack in fencing, where the leg muscles is important in maintaining the fencing position, the offensive and defense. Methods of weight training is a training process that can shape increase in muscle durability needed in fencing.

Method is a method of weight training exercises that are commonly used by all trainers with burdening each exercise. Beattie, Kenny, Lyons, & Carson (2014) further says that one form of resistance training to improve muscle strength is with

weight training. Including increased speed using an internal burden of the body that can be seen through the test side stepping and whole body reaction. In this exercise are associated with increased speed, it can be seen from the exercise muscle groups that indirectly provide a stimulus for increased speed, both on the part of the leg muscle groups as well as the muscles of the arm. The muscle groups were highly correlated with the speed in attack or defense and speed do parry of the opponent's attack, in which the muscles of the leg was instrumental in sustaining speed in fencing. Speed and agility are very important part of many sports, including fencing game demanding speed and agility in attack and parry with a weapon. Speed and agility are essential qualities for success in sport. This exercise would require the exercise of specificity in accordance with the principle of exercise to the occurrence of morphological and functional changes as needed for the train speeds through exercise specificity of the type of muscle contraction and the angle of the joint motion. So with specificity exercise conducted irregularly can increase the speed by the muscle groups that are involved in spurring the speed at elite athletes fencing South Sulawesi.

Weight training is a training method that uses burden increases, which can increase the capacity of muscles thus increasing muscle explosive power. Cotter (2011) explained that the force through the foots Increased contact with the ground, it moves up the leg as a wave and joints with the force generated through the rotation of the hips. The muscle groups were highly correlated with the explosive power leg muscles and arm muscles, which muscle groups is important in attack and defense for explosive muscle power to help the attack quickly and efficiently in fencing. The forms used during weight training exercises are exercises leg press, bench press and leg extension. Effect of weight training exercises on general durability (endurance) in which muscle groups are trained arm muscles, chest muscles, thigh muscles, calves and abdominal muscles. Exercise affects the physiological functions of the body in general and specifically related to the physical components, techniques and tactics in fencing. In weight training physiological changes occur that lead to quality of motion and muscle fitness on muscle groups that have been trained better. Weight training methods are used to improve the durability of general with jogging, bench press, leg press, leg extension, and long distance running so fast physiological change and affect cardiovascular. Thus the method of weight training exercises can improve overall physical abilities are very important for athletes fencing to develop techniques, tactics, and mental athletes in achievement.

### Conclusion

Based on the results it can be concluded that 1) there are significant method of weight training to grip strength elite athletes fencing South Sulawesi. 2) there are significant method of weight training to muscle endurance elite athletes fencing South Sulawesi. 3) there are significant method of weight training to speed elite athletes fencing South Sulawesi. 4) there are significant method of weight training to muscle explosive power elite athletes fencing South Sulawesi. 5) there is the effect of weight training methods to the general endurance elite athletes fencing South Sulawesi. 6) there are significant method of weight training to physical ability elite athletes fencing South Sulawesi. The research is expected to fencer to improve the physical abilities through a form of exercise weight training in scholastic achievement. To the coach in order to implement a form of weight training exercises to athletes in improving the physical components as a very important element in swordplay to develop the physical, technical, tactical, and mental.

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