

# THE ROLE OF BENCH UPS AND DOWNS IN INCREASING THE JUMP HEIGHT OF VOLLEYBALL EXTRACURRICULAR STUDENTS

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## ABSTRACT

This research focuses on how much the influence of bench climbing and training on the height of extracurricular soccer jumps. This type of research is quantitative with a quasi-experimental method. In this study, a one-group pre-test and post-test design was used where this design had a pre-test and post-test. This study uses a sample of 30 students who participated in extracurricular football at SMK Nu Bahrul Ulum. From the results of statistical analysis, the value of the descriptive test, normality test, homogeneity test, and T test shows that the normality value of sig is  $0.80 > 0.05$ . The value of the homogeneity of sig is  $0.133 > 0.05$ . And the T test value is sig (2-tailed)  $0.000 < 0.05$ . So it can be concluded that there is a role of bench up and down training to increase the jump height of football extracurricular students at SMK Nu Bahrul Ulum.

**Keywords:** Up and down; high bench; volleyball jump

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## Introduction

The game of volleyball is a team sport that can be played by both boys and girls. This game is played by two different teams or teams on each court separated by a net. The game of volleyball is a game played by 6 people in one squad or team, each squad tries to play as well as possible and can attack, turn off the ball into the opponent's area and defend on its own court. Meanwhile, according to Lubis & Agus (2017). Volleyball is a game played by two different teams separated by a net, players use their hands to bounce the ball. According to Gusniar (2019), the game of volleyball is a game that is carried out using the hand to bounce the ball through the net or net and is played by two teams with six members each.

Volleyball is one of the sports that requires good physical ability, especially in terms of jump height. Good jumping height is very important, especially in *smash*, *block*, and *top serves*. One of the physical components that plays a role in increasing the height of the jump is the strength of the leg muscles. Doing exercises is an important factor in sports. According to (Budiwanto, 2012:16) explained that "training is the process of carrying out sports activities based on a systematic training program, aiming to improve the ability of soccer players in an effort to achieve the maximum possible achievements, first of all to be carried out in preparation for the next match".

Physical condition training needs to be planned in a systematic, programmatic, and directed manner in accordance with the principles of training. Physical condition training aims to improve the functional quality of body organs to the needs and guidance to achieve optimal achievement in a

sport, especially football. With good physical condition, a participant or student will be easy to do the technique of going up and down the bench.

The "Up and Down the Bench" exercise in the sport of football is very necessary, that is, if you have good leg muscle power, it is expected to be able to jumping when attacking *smash*, *block*, or *serve* well. The "Up and Down the Bench" exercise is one of the plyometric exercises, where the plyometric exercise is applied to high-speed movements, plyometric training to apply speed to strength. Meanwhile, according to Utomo (2018:26), bench and bench training is one of the training methods to train leg muscle strength. Plyometrics is the right exercise for people who are conditioned and specialized to become athletes in increasing and developing jumps, strength, and speed of the gym. (Ayara et al, 2018).

The "Up and Down the Bench" exercise is a form of exercise method to develop physical condition with the main goal being leg *power* training. According to Wiguna, Ida Bagus (2017) "*power* is a measure of a force that can be applied with speed". The power training method is actually the same as strength training but the difference is the rhythm of the movement. Plyometric exercises that give you high-speed movements, plyometrics train to apply speed to strength. Meanwhile, according to Utomo (2018:26), bench and bench training is one of the training methods to train leg muscle strength. Therefore, *power* is a very important component in sports performance, *power* can be defined as the ability of a person to do maximum work in a fast time (Wiguna, Ida Bagus, 2017, p. 32).

Jumping is the movement of lifting the body from one point to another point that is farther or higher with the intention of running fast or slowly by converging with the feet and landing with feet or other limbs with good balance, according to Sutanto (2016:23) jumping is a rejection of the body or jumping upwards in an effort to carry the weight point for as long as possible in the air (floating in the air).

Strength is the ability to arouse a tension against a prisoner. Mechanically, force is defined as the force (*force*) that can be generated by a group of muscles in a maximum contraction. According to Rizhardi (2019), it is explained that strength is a combination of strength and agility or maximum mass that is carried out at maximum speed. Meanwhile, according to Palison et al (2016), strength refers to the strength and speed of muscle contraction which is dynamic and explosive and involves the production of maximum muscle strength in the fastest possible time. In sports strength is divided into two, namely: absolute strength is the maximum force that can be defined by its weight, while relative strength is the maximum force that can be moved in division of weight.

Factors that affect the ability to jump, such as leg muscle strength, jumping techniques, and other appropriate programs have not been applied optimally in the soccer training program at this school. Many students do not understand the correct jumping technique and have not received an adequate portion of muscle strength training.

This exercise involves moving up and down from a bench using both legs alternately. This movement can increase the strength of the leg muscles so that it is expected to have an effect on increasing the jumping height of men's extracurricular soccer students at SMK NU BAHARUL ULUM, need to have a good jump height to support their performance in the game of volleyball.

## Method

The research design used in this study is quantitative research with *quasi-experimental methods of one-group pre-test and post-test design*, which is carried out by providing *treatment* to the research subject. Before being given treatment, the high ability of the research subject to jump in the test in the initial test (*pretest*), and given treatment (*treatment*), the high ability of the research subject to jump back in the final test (*posttest*). This research was carried out in the field of SMK Nu Bahrul Ulum from October 5, 2024 to November 30, 2024. The pre-test was taken on October 05, 2024 and the Post-test on November 30, 2024. The population used in this study is the extracurricular football team of SMK Nu Bahrul Ulum which amounted to 30 people. The sample is a part or representative of the population being studied, it can be concluded that the sample is a part or representative of the population that provides information or data needed in a research. The sampling technique in this study is *random sampling*. The method of data collection and information required in the researcher. The data collection method is carried out by: 1). Pre-test data collection is carried out at the first meeting after students warm up, students are instructed to do a *vertical jump test*. The test results are taken as pre-test data. 2). *Treatment* is carried out for 9 weeks with 2 meetings in one week. The *treatment technique* is that all subjects are given a bench up and down exercise model. 3). Post-test data collection was carried out at the last meeting in the ninth week. The steps to collect post-test data were taken after the students warmed up, the students were instructed to do the *vertical jump test*. The test results are taken as post-test data. The data analysis technique used in this study analyzed the data obtained in the *pre-test* and *post-test* results using the SPSS 26 application, using *descriptive statistics*, normality test, homogeneity test, and paired sample test.

## Results and Discussion

This study uses the *vertical jump test data collection technique*. The data produced in this study is data from the results of exercise before treatment, namely  $1,065 : 30 = 35.5$  and after treatment, which is  $1,172 : 30 = 39.06$ . The purpose of the *vertical jump test* was to find out the influence of bench up and down training on the Nu Bahrul Ulum vocational football extracurricular team. The following are *descriptive statistics*, normality tests, homogeneity tests and hypothesis tests

### Descriptive

**Table 1. Descriptive Statistics Results**

		Descriptive Statistics				
		M	M			Std.
		inimum	aximum	Mean		Deviation
		S	St			Stat
		tatistic	tatistic	tatistic	Std. Error	istic
pr		2	4		.864	4.7
etest	0	7	5	5.50		32
po		3	4		.811	4.4
sttest	0	0	7	9.07		41

Va						
lid	N	0				
(listwise)						

Normality test

**Table 2. Data Normality Results**

		Tests of Normality					
		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		S	d	S	S	d	S
		tatistic	f	ig.	tatistic	f	ig.
retest	p	.162	.30	.042	.945	.30	.125
osttest	p	.183	.30	.012	.938	.30	.080

a. Lilliefors Significance Correction

From the analysis of the normality test above, a significant value for group A was  $0.125 > 0.05$  and a significant value for group B was  $0.80 > 0.05$ . Therefore, in accordance with the basis of decision-making in the normality test, it can be concluded that the high yield of the jump is normally distributed. Thus the analysis can be continued.

Homogeneity Test

**Table 3. Homogeneity Results**

		Test of Homogeneity of Variances			
		Leve	f1	f2	ig.
		ne Statistic			
retest	Based on Mean	1.895		7	133
	Based on Median	1.394		7	271
	Based on Median and with adjusted df	1.394		0.813	300
	Based on trimmed mean	1.823		7	148

Based on the results of the table above, it is known that the significant value is  $0.133 > 0.05$ , so it can be decided that the data variant is the same or homogeneous.

T Test

**Table 4. T Test Results**

		Paired Samples Test							
		Paired Differences							
		Mean	Standard Deviation	Standard Error Mean	95% Confidence Interval of the Difference		Lower	Upper	Sig. (2-tailed)
					Lower	Upper			
air	retest - 1 posttest	5.783	4.730	.611	4.561	7.005	8.596	.9	.000

This T test has a condition to find the influence of action on the research. If the value of sig (2-tailed) < 0.05, then there is an influence and if the value of sig (2-tailed) > 0.05, then it cannot have an effect. From the data in the table above, it is known that the value of sig (2-tailed) is 0.000 < 0.05. So it can be concluded that the effectiveness of bench ups and downs on the jump height of football extracurricular students.

With the bench up and down method, the effectiveness of the exercise is better because students are trained in strength with the stool up and down the bench training method, in this bench up and down method students must try to stay focused in making a jump in the state of fatigue experienced and must Being able to go through all kinds of exercises, players must have a higher jump because they aim to be able to *smash* in the direction they are going to, and can *block* the opponent's attack.

Practice going up and down the bench in the sport of soccer is very necessary and necessary and even very important in the game of volleyball, if you have good leg muscle power, students can do jumping when attacking such as *smash*, *block*, or *serve*. According to (Wiguna, Ida Bagus 2017) *power* is a measure of a force that can be applied with speed. There is also a way to practice up and down the bench, namely the two take turns riding the bench that has been provided. For example, if the right foot is on the bench, the left foot is on the ground, and if the left foot is on the bench, the right foot is on the ground, and so on.

Leg muscles are lower movements that consist of a part of the muscle as well as the latitude or skeleton. According to (Hasruddin 2021), contracted leg muscles are a physical condition of the location of leg muscles. In the movement up and down the bench, there are also muscles that work when doing the stool up and down the exercise, namely the muscles of the lower limbs that work, which include.

The muscles of the anterior tabialis, *extendon digitarium logus*, *porenius logus*, *gastrokneumius*, *soleus*, while the muscles of the upper limbs are: *tensor fasolata*, *abductor Sartorius*, *rectus femoris*, *vastus*

*lateralis and vastus medialis*. Leg muscles are muscles that are included in the lower leg muscles, here is an explanation of the lower leg muscles:

The front shin muscle (*anterior tibialis musculos*), its function is to lift the middle leg and bend the leg. *The extensor muscle of the logus talangus*, which functions to straighten the index finger to the middle finger, ring finger and little finger. Arterial veins, (*tendo arkhiles*) which function to straighten the foot of the heel joint and bend the knee leg. Long leg muscles, *the function of which is to bend the legs*. The muscles of the posterior calf bones (*posterior tibial muscles*), the function of which can bend the legs, heel joints and the inner soles of the feet.

With increased muscle performance, the jumps are done very quickly, it is possible for players to increase the height of the jump to be more optimal and effective. Improved muscle performance also reduces the risk of injury and improves the overall quality of the game. With the Bench Up and Down Exercise method, it is possible to produce maximum muscle strength or a group of muscles that can move.

Therefore, a comprehensive approach is needed in designing specific training programs aimed at improving students' jumping skills. Bench and bench exercises are often considered effective because they can help the distribution improve body position when jumping. The high ability of jumping is more influenced by movement, mastery of good technique, in performing jumps and playing experience, rather than just an increase in muscle strength.

Bench ups and downs can be considered more flexible and able to train the natural adaptation of muscles to dynamic game conditions. Therefore, going up and down the bench can provide more relevant benefits to help and support athletes or students while on the field. so that students know whether their jump is already on the net or not yet at the top net, So that students have to practice going up and down the bench so that the jump can be on the net, and the stool up and down the bench practice is also not only used in school or extracurricular, it can be used or applied in clubs, or it can also be used by village children to practice so that the jump is maximized. The reason is because the practice of going up and down the bench can prove or can produce a jump height, so that players are able to compete when there is a football match or tournament and the player does not lose in jump height, so that the opportunity to win more because the jump height is maximum.

## Conclusion

This study shows that bench up and down practice significantly increases the jump height of soccer players at the extracurricular Nu Bahrul Ulum Vocational School. It is stated that the normal value of sig is  $0.80 > 0.05$ . The value of the homogeneity of sig is  $0.133 > 0.05$ . And the T test value is sig (2-tailed)  $0.000 < 0.05$ . Which indicates the significant influence of bench up and down training on the increase in the height of the soccer jump. Based on the results of data analysis, it can be concluded that there is an increase in the high jumping ability of soccer extracurricular students by using the bench up and down training method. Judging from the research, there is a contribution from bench up and down exercise. Therefore, extracurricular teachers, especially volleyball sports who are able to foster sports, need to provide optimal training treatment to improve the height of volleyball jumping. For volleyball educational institutions, they always support and provide good and correct

training methods so that students are happy in undergoing training and as an effort to improve the quality of athletes compared to volleyball. PJOK teachers must be more creative in aspiring to go up and down the bench more innovatively to increase the effectiveness of increasing the ability to increase the high ability of volleyball jumping in students.

### Conflict of Interest

No conflict of interest.

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