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THE EFFECT OF SITTING MOTION EXERCISE AND PLANK ON BACK STYLE SWIMMING SKILLS OF STUDENTS FACULTY OF SPORTS SCIENCE UNIVERSITAS JAMBI

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Abstract

This study examines the effect of sitting and plank exercises on the backstroke swimming skills of students of the Faculty of Sports Science, Jambi University, in the second semester of the Sports Coaching Study Program. The benefits of this research include: (1) For swimming coaches, it can be used as a basis for training athletes to improve backstroke swimming skills. (2) Lecturers who teach swimming courses and teachers are meant to be used as a reference in teaching their students or students in improving their backstroke swimming skills. (3) For academics or scientists, the results of this research can be used as reference material and add scientific insight, especially those who study backstroke swimming. (4) For athletes in the backstroke, it is for them to do motion exercises while sitting and plank to improve the arm muscles, abdominal muscles, and leg muscles themselves to improve their backstroke swimming skills and speed. This research is an experimental study that uses the One Group Pretest-Postest Design, where the independent variable is exercise while sitting and plank. In contrast, the dependent variable is the backstroke swimming skill. The research instrument is the backstroke swimming skill test, using an observation sheet to observe the backstroke swimming skills carried out by the sample by matching the observation sheet tested for validity and reliability. The data collected were analyzed using the t test, which was previously carried out by the normality test. Based on the results of hypothesis testing, it was obtained $T_{table} > T_{table}$ (36.360 > 1.66). The results of this hypothesis test indicate an effect of sitting motion exercises and planks on the backstroke swimming skills of students of the Faculty of Sports Science, Jambi University, in the second semester of the Sports Coaching Study Program.

Keywords: Sitting, Planks, Skills, Backstroke Swimming

Introduction

Indonesia should have reliable swimmers because Indonesia has vast waters that can be used for swimming. Besides that, Indonesia has several universities where students have to learn to swim. Still, swimming is studied based on the curriculum only to pass the course, not become an outstanding athlete.

Backstroke swimming is a swimming style that is easy to learn, but to become skilled in backstroke swimming, swimmers must have strength in the abdominal muscles, leg muscles, and arms because this part has an essential role in doing backstroke swimming. The power of the abdominal muscles has a role in positioning the body parallel to the water in a passive situation on the water surface. Leg muscle strength has a role in kicking by using the back of the foot alternately while the knee is slightly bent. The power of the arm muscles plays a role in pedaling, where the movement starts from both arms straight parallel to the thighs, then one of the arms is lifted out of the water straight up and forwarded backward through the ears until the hands touch the water. The position of the hand when the water is lifted out of the palm facing out, the fingers are straight, the thumb is below, and the little finger is above until it touches the water, the little finger first enters the water. The elbow is slightly bent with the position of the little finger at the bottom while holding it close. The upper arms to the body and the fingers stay together while doing the stroke through the body, palms facing the body, thumbs above while straightening the arms until the thighs of the palms are facing down and getting ready to perform the movement before. And so on and done alternately in a coordinated manner between the left arm and right arm. If the left arm is behind the head, then the right arm begins to be lifted from the side of the thigh to get out of the water.

The strength of the abdominal muscles, arms, and legs can not happen but must be trained. The exercises that can be done to build strength in this section are motion exercises while sitting and plank. Sitting motion exercises are exercises to move the legs up and down (kicking alternately) and straighten and bend the knees. Plank exercises are exercises that are carried out in a body position, such as going to push-ups with the elbows turned and in line with the shoulders. Feet should be in line with hips, and elbows should be in line with shoulders. Clench both hands. Contract the abdominal muscles. The body should be parallel from head to toe. Based on the description above, the formulation of the problem in this study is whether there is an effect of sitting motion exercises and planks on the backstroke swimming skills of students of the Faculty of Sports Science, Jambi University in the second semester of the Sports Coaching Study Program.

Literature review

Skills

The term skill has several meanings and has been used in several versions in the literature on motor behavior. A skill that we view as behavior or task is an indicator of proficiency level. Some of the terminologies in learning movement

relate to the terms movement and action skills. If a skill is viewed as a motor action or the execution of a task, then the skill will consist of motor responses and perceptions acquired through learning. For example, swimming, kicking the ball in the net, hitting the ball in badminton are skills in the motor domain and are often referred to in terms of motor skills.

The skill can also be understood as an indicator of proficiency or mastery of something that requires body movement. Mastery of a motor skill is a process in which a person develops a set of responses into a coordinated, organized, and integrated movement pattern.

Every motor skill requires the organization of muscle movement, both in terms of place and time. Organizing muscles according to an area means a group of muscles selected to perform an activity. Managing powers according to time means that the muscles contracting or relaxing must occur at the right time and in harmony. As an indicator of proficiency, skill is defined as the competence exhibited by a person in carrying out a task related to the achievement of a goal. The more capable a person achieves the expected goals, the more skilled that person is.

Operationally, the definition of skilled is usually used to express a natural response to a controlled stimulus; the answer is recorded based on error, correct response, frequency, or how fast the reaction is. The term skill can also be stated to describe a person's level of proficiency in carrying out a task (Rusli Luthan, 1988: 95).

Skill is a word that we often use in teaching or training sports, and skill is an ability that can produce maximum results with minimal expenditure of energy and time (Richar A, Schmidt, 1991: 4). The word skill is usually used to indicate a task that has a specific goal to be achieved. For example, the movement of the legs and arms in swimming is fundamental in swimming because it is a movement that is carried out to achieve a goal, in this case, skilled swimming. The example above is a movement skill because this skill requires body movement to achieve the goal naturally or through practice.

Various understandings of the skills above, we can understand that skill is a skill in performing specific movements so that in its implementation, there is an automatic movement that looks beautiful when doing coordinated movements. Skill means fast execution, in the sense of completing the movement task in a minimum time. The faster the implementation of an action, without sacrificing the expected final result (quality), the skill of the person concerned will be recognized.

Backstroke Swimming

Floating in backstroke swimming is done with the body lying flat on the surface of the water, the buttocks dropping down, legs bent down or hanging down, will interfere with a straight cross path and slow down movement (David Haller 1998: 49).

Backstroke is swimming with the back facing the surface of the water. The movement of the legs and arms is similar to the freestyle but with the body in a prone position on the water's surface. Both hands are alternately moved towards the waist like a pedaling motion. The mouth and nose are out of the water, so it is easy to take in or exhale with your mouth or nose, https://id.wikipedia.org/wiki/Gaya_punggung (accessed January 26, 2019).

There are several kinds of swimming techniques, and one of the most frequently used is the backstroke technique. The backstroke swimming technique is known as a technique or the oldest style. Backstroke swimming techniques include:

a. Glide Technique

The body's position when sliding in the backstroke swimming swimmers must take a prone sleeping position where the front of our body is facing up so that the body will float and not sink.

b. Leg movement technique

Perform alternate leg movements up and down by kicking the instep (not to be out of the water), toes straight, knees slightly bent. Begin the training of the foot from the groin and ends with the toe of the wagged foot (David G Thomas 2000: 38).

Leg movement should not be too stiff. Relax a little so that the results can be maximal and perfect. The move made is an upward movement (kicking using the back of the foot).

c. Breathing Technique

Taking a breath when doing the backstroke is considered more accessible because it is more flexible. After all, the face is outside the water's surface.

d. Arm Movement Technique

The backstroke swimming arm movement can be done in 3 phases, namely pulling, pushing, and resting. The description is as follows (David G Thomas 2000: 44-45).

Interesting Phase

The pulling movement begins after the palms enter a few inches from the surface of the water to the maximum point of bending the elbows or the palms are

right beside the outside of the shoulders (Figure 3 numbers 1 and 2)

Push Phase

In this movement, the swimmer can start from the end of the pull. Then the hands also need to push backward and downwards with the movement. ¼ circle (Figure 3 number 3).

Rest Phase

Resting movement starts from the hand out of the water with the thumb out first. After the needle is above the shoulder (arm perpendicular to the shoulder), the writing is turned outward, then enters the water's surface with the little finger first. This resting process must be done in a relaxed rhythm with the arms moving, pulling, and pushing.

e. Backstroke coordination

The backstroke swimming coordination movement technique is carried out by combining all elements of the backstroke movement, meaning that gliding movements, arm and leg movements, and breathing must be carried out in a balanced and thorough manner. When all these techniques can be done correctly, automatically, the backstroke has been successfully mastered and can be categorized as skilled.

f. Start technique in backstroke swimming

To do a back start in backstroke swimming, swimmers are required to always be on the pool wall, with their toes under the water. Backstroke swimming is divided into several categories:

1) Foot Placement

a) Feet should be placed on the pool wall shoulder-width apart

b) The toes should rotate inward in order to propel the body further and also to help the soles of the feet stick to the pool wall.

c) The hips should be kept away from the heels, with the toes just below the surface of the water

The implementation of the Backstroke Swimming Start is as follows:

a) Perform tight body folds before the signal starts

b) Push away from the start board, then throw your head back

c) Throw both arms sideways, not vertical, in order to lift the hips above the water.

d) When doing a dive in a curved body position

e) Dive to enter the water that is the upper body.

f) Lift your legs up and straighten your body when you enter the water

2) Hand Grip Position and Head Position on the command "Willing" The position of the hands when doing the backstroke swimming star is as follows:

a) Swimmers must place their thumbs on the top side of the starting bar

b) Swimmers must keep their head and back in line or lean their head towards the start block

c) The heel is not too attached.

d) When the signal is ready, the swimmer must pull the body high.

e) Distance from hip to heel about 80 – 90 degrees.

3) When Leaving from the Wall.

While leaving the Wall, do:

a) Sudden head throws and use the upper body when throwing the body.

b) Hands, head, and shoulders must be thrown back suddenly at once.

c) Arms directly in front of both feet, and feet must be hard against the Wall

d) Then lift the body axis by throwing the arms back

e) Next, throw the arms around and down to bring the hips above the surface of the water and prepare for the entry of the components into the water.

4) On Entry into Water after Repulsion.

When entering the water, the head and upper body enter in a dip. Then immediately do the following:

a) the legs form a straight torpedo. Then, taking advantage of the speed when entering the water, do a butterfly kick.

b) The butterfly kick is only taken at the peak of the power of movement, or according to the rules, it must not be more than 15 meters to make the butterfly kick underwater.

c) Then immediately change the fan kick to the initial movement of backstroke swimming.

5) Beginning of Backstroke Leg Movement.

At the beginning of the backstroke leg movement after the glide, pull the arms of both positions while still overlapping to bring out a greater power of motion into the rowing of the regular surface of the body. Moves with fan kicks (David Haller 1998:51).

g. Flip Technique

Swimmers usually do the reverse technique in the backstroke with a half somersault. The following steps are a reversal in backstroke swimming (David Haller 1998:84).

a) Touch the pool wall with your left hand.

b) When the left hand touch the pool wall, bend the knee and pull the knee with the help of the hand pull to the arm on the pool wall.

c) Pull your knees and swing your arms to form a half slot so that both components are lowered to the pool wall.
d) When both arms are on the pool wall, both components are straightened above the head.
e) Simultaneously repulse the legs by straightening both arms
f) Push the legs together by straightening both arms. The body slides off the pool wall.

Exercise While Sitting

Motion exercise while sitting is a form of exercise to move the limbs while sitting. Many movements can be done while sitting to shape the various things we want in our bodies, including building the strength of different parts of the body, forming flexibility on multiple parts of the joints and to stretch the muscles in our body parts, and relax certain body parts https://www.google .com/search?q=exercise+movement+while+sitting&rlz=1C1PRFI_ enID814ID815&oq=l&aqs=chrome.0.69i59l2j69i60j69i57j0l2.8395j0j7&sourceid =chrome&ie=UTF-8. (accessed January 31, 2019)

Sitting motion exercises that we will discuss in this section are sitting exercises that can build strength in body parts related to the achievement of backstroke swimming skills. The motion exercises while sitting are: sitting on the floor or a chair while straightening the legs and toes forward while moving the legs up and down alternately like people kicking using the back of the foot. They are then moved. The above movement is very good for building strength in the leg and abdominal muscles, which play a role in backstroke swimming.

Plank Exercise

A plank is a form of exercise that can be done to strengthen the core of the body, namely the abdominal muscles, arm, and leg muscles) The plank movement helps build muscles around the abdomen and waist and improves overall body posture and weight management http://engashawk82.blogspot.com .com/ (accessed February 2, 2019).

A plank is a form of static exercise that requires us to stay in a particular position for a particular duration of time http://yuyunnaimah.blogspot.com/2017/10/cara-do-olahraga-plank-with.html (accessed February 2, 2019). Furthermore, you can vary your plank workout routine with various variations of the most suitable form of exercise to give you the desired result. How to do the proper plank exercise:

a. Use a mattress. It can also be without a bed.

b. Begin the plank exercise by placing your forearms and elbows on the mat to support your body weight. You may or may not clench your fists.
c. Lift your hips using both your arms and the tips of your toes as support.
d. Keep your torso straight like a plank, forming a straight line from head to heels without bending.
e. Try to keep your head in a relaxed position and look at the floor.
f. As your hips lift, contract your abdominal muscles. Hold this position for 30-60 seconds. Rest, then repeat this movement 6-8 reps.
g. Rest, then repeat this movement over and over

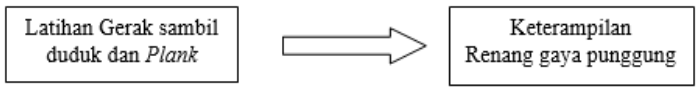
The danger of doing Plank poses excessively can cause inflammation of the cartilage around the ribs, causing prolonged pain in the area around the chest and arms. One solution to cure is to stop doing planks. Because if it is not fixed, it can lead to the risk of even more severe bone injury.

Framework and Hypotheses

Sitting motion exercises and planks that are carried out are intended to form the strength of the abdominal muscles of the legs and arms in the second-semester students of the Faculty of Sports Science, Jambi University, the Sports Coaching Study Program because with the formation of strength in this section, it is expected to improve students' backstroke swimming skills because the power in the backstroke is expected to increase. This part is very instrumental in doing backstroke swimming.

The strength of the abdominal muscles has a role in positioning the body parallel to the water in a passive situation on the surface of the water. Leg muscle strength has a role in kicking by using the back of the foot alternately while the knee is slightly bent. The strength of the arm muscles has a role in doing the pedaling, where the movement starts from both arms straight parallel to the thighs, then one of the arms is lifted out of the water straight up and forwarded backward through the ears until the hands touch the water.

Based on the description above, it can be described as a framework of thinking as follows:



Bagan Kerangka Berpikir.

Based on the description of the frame of mind, the hypothesis of this research is: there is an effect of sitting motion exercises and Plank on the backstroke swimming skills of students of the Faculty of Sports Science, Jambi University in the second semester of the Sports Coaching Study Program.

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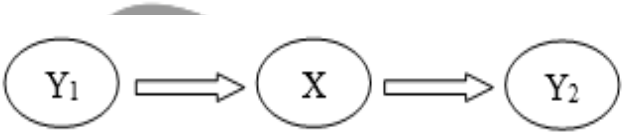
Research Methods and Design

This research includes experimental research, where treatment is an independent variable to influence the dependent variable. The independent variable in this study is exercise while sitting, while the dependent variable is backstroke swimming skills. The research method above is expressed by Sugiyono (2008: 107) that experimental research has treatment. Thus the empirical research method can be interpreted as a research method used to find the effect of specific treatments on others.

This study uses the One Group Pretest-Postest Design, which gives treatment to the independent variables, but before the pretest is carried out, then the treatment is carried out and ends with the Posttest, such as the following design:



Keterangan: Y_1 = *Pretest*
X = Perlakuan (*treatment*)
Y_2 = *Postest*

Place and time of research

Research on the effect of motion training on backstroke swimming skills was carried out at the Tepian Ratu swimming pool, Jambi City. This research was carried out for approximately 6 (six) weeks, with a frequency of exercise 3 (three) times a week. One exercise lasted for 80-120 minutes, the number of 18 meetings, including the implementation of pretest and post-test. Before conducting the research, the instrument was tested first to see the validity and reliability. The agent being tested was an observation sheet to assess backstroke swimming skills to Jambi University FIK students who were not the research sample.

Population and sample

The population of this study was all male students of the Faculty of Sports Science, University of Jambi, Sports Coaching Study Program, semester II, which consisted of classes A, B, and C., and D. While the sample of this study were all male students of the Faculty of Sports Science, Jambi University, Semester of Sports Coaching Study Program. II class A and B.

Research Instruments

The research instrument is a set of tests and equipment used to collect data about observed. The device used to collect backstroke swimming skill data in this study was a backstroke swimming skill test while watching the movements made

by matching the available observation sheets containing the backstroke swimming movement techniques, including arm movements, leg movements, movements, movements coordination, on the backstroke.

Data collection technique

Research data on the backstroke swimming skills of male students of the Faculty of Sport Science, Jambi University, the second semester of Class A and B Sports Coaching, were obtained by conducting a preliminary test and a final test. The method of data collection was as follows:

1) The participants of the test/sample are getting ready at the edge of the pool facing the Wall of the pool while holding on to the star bar.
2) Place your toes on the pool wall shoulder-width apart.
3) Release the grip on the star bar while bending the body backward at the same time as straightening the arms back over the top of the head and doing support with the body in a supine position and slightly arched.
4) Perform the backstroke arm and leg movements in coordination.
5) Observers make observations by matching the movements made by the sample with the observation sheet that has been provided.
6) Put a checkmark (√) in the column provided on the observation sheet that corresponds to the movement made by the sample.
7) Calculate the score of the backstroke swimming skill value obtained by the sample by counting the checkmarks obtained by the sample, provided that each checkmark is given a value of 1 (one). The total value obtained shows the backstroke swimming skill score possessed by each of these samples.

Data analysis technique

The data collected were statistically tested using the t-test formula, using the SPSS program, but previously the homogeneity normality test was carried out.

Result and Discussion

Based on research data on the effect of sitting and plank exercise on backstroke swimming skills, students of the Faculty of Sport Science, Jambi University in the second semester of the Sports Coaching Study Program with a sample (N) of 70 people, from the results of the free test and post-test, students' backstroke swimming skills were obtained. The Faculty of Sport Science, Jambi University, in the second semester of the Sports Coaching Study Program, in the initial test, the average calculation obtained an average estimate of 19,5143, the standard deviation of 3.851, the best skill with a score of 30, the lowest skill with a score of 13, a range of 17 and a variance of 14,833. Meanwhile, in the post-test, the average calculation was 37.657, the standard deviation was 2.3522, the best skill score was 40, the lowest skill score was 25, the range was 15, and the

variance was 5.533. This shows that there is a difference between the results of the pretest and Posttest.

The normality test used is the Kolmogorov Smirnov test. a data is said to be normally distributed if the significance value is > 0.05 (sig. > 0.05). Based on the results of the analysis obtained, the value of Sig. = 0.13 for the initial test data and the final test. So based on this data analysis, it can be concluded that the initial test data and the overall test with a sample of 70 FIK UNJA students were declared normally distributed.

Based on the results of hypothesis testing, it was obtained that Tcount > Ttable (36.360 > 1.66) and a significant value of Sig. (2-tailed): Probability value/p value Paired T test: Result = 0.000. Meaning: There is a difference between before and after treatment. Because: p-value < 0.05 (95% confidence). This shows the effect of motion exercises while sitting and plank on the backstroke swimming skills of students of the Faculty of Sports Science, Jambi University, in the second semester of the Sports Coaching Study Program.

The above occurs because the motion exercises while sitting are carried out, namely moving the legs up and down, kicking alternately, and straightening and bending the knees to form abdominal and leg muscle strength. In contrast, Plank exercises are carried out in a body position like push-ups with elbows turned and parallelled with the shoulders to develop arm muscle strength in second semester FIK students, Jambi University, Sports Coaching Study Program.

When doing the backstroke, the strength of the abdominal muscles has a role in positioning the body parallel to the water in a passive situation on the water surface. Leg muscle strength has a role in kicking by using the back of the foot alternately while the knee is slightly bent. The power of the arm muscles plays a role in pedaling, where the movement starts from both arms straight parallel to the thighs, then one of the arms is lifted out of the water straight up and forwarded backward through the ears until the hands touch the water.

The above expression about the role of abdominal and leg muscle strength and arms in doing backstroke swimming, according to Ilham's opinion on sports performance volume 03, Number 02 July – August 2018:79 that abdominal and leg muscle strength has a role in achieving butterfly swimming skills. The above statement is supported by the opinion of Muchamad Sajoto (1988: 184), which states that each sport requires certain norms of strength needed to carry out its activities in their respective peak conditions.

Conclusion

Based on the data analysis and discussion in the previous chapter, this research can be concluded that sitting and plank movement exercises affect the

backstroke swimming skills of students of the Faculty of Sports Science, Jambi University in the second semester of the Sports Coaching Study Program.

The above can be proven by the results of hypothesis testing obtained, namely: $T_{count} > T_{table}$ (36,360 > 1,66) and significant value of Sig. (2-tailed): Probability value/p value Paired T-test: Result = 0.000. Meaning: There is a difference between before and after treatment. Because: p-value < 0.05 (95% confidence).

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