

The Sponges in the Learning Process

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Abstract

The study included a number of axes that concentrated on using the sponges in the learning process as supportive means towards learning this particular skill which is considered rather difficult. A certain type of sponges were used to learn each stage of this skill. These types were different in shape and size, considering the height and potential of the individual sample, in order to help the learners master this skill in the best way possible. The learning group was given a 4-weeks course to learn the front-hand somersault using these supportive techniques, two credits a week. After 4 weeks, the results of each group were collected and compared (The original and the experimental group). The statistical results showed that the experimental surpassed the original one.

Keywords: Sponge Pieces, Kinematics Variables, Performance Learning.

Introduction

The general concept of sports has become a science as well as an art that has its distinctive rules from other sciences, since it depends on physics, chemistry, and medicine. The biomechanics sums up these sciences in order to present the athlete with the best performance⁽¹⁾. The educational tools and their importance have become an important part of the educational process, and it is apparent in the increasing number of coaches who use them all around the globe. Using the educational tools have proved to improve the learning process and make it more appealing⁽²⁾. They are everything the teacher uses during the learning process in order to deliver the information to the students⁽³⁾. Using the educational tools during the educational process helps to grow and improve the kinetic perception of the student, and it helps reaching the maximum possible use of the educational process. The educational tools are everything that helps transporting knowledge, information, and the different and various skills, and elevates the skill-acquisition through the different senses. It ultimately enhances the motional skill learning speed as well as the kinetic and tactic performances⁽²⁾. They are also known as a group of tools and machines used by the coach or teacher in order to enhance the educational and learning processes in order to better manifest the information to the student whether in or out of the classroom. It also helps the students realize the meaning and essence of the topic, as well as mastering it in a shorter time and lesser effort⁽⁴⁾. Learning using the sponges helps the learners master the front-hand somersault in an easy and fast way saving more time and effort in the process

The Practical Part

Field Research Procedures

The researchers used the experimental method using two parallel groups (original and experimental) in order to meet the study requirements⁽⁵⁾. The researchers chose a sample from the study community, which is a methodological term used to refer to the individuals that have the research results⁽⁶⁾. The sample was chosen from the 3rd year students of the Department of Physical Education of my University, 25 students. The research sample is a partial group of the study community that are selected according to a certain criteria⁽⁷⁾. 20 Students were chosen from that community, the group was sub-divided into two smaller groups of 10 each randomly as well, making the sample ratio 80% from the community.

Experiments and Measurements

- 1- The Bridge Test⁽⁸⁾.

- 2- Front-Scale Test ⁽⁹⁾.
- 3- Forward-Rolling, stopping, fast modification test ⁽¹⁰⁾.
- 4- Hip-angle measurement.
- 5- Measuring the distance between the hand and foot (Front-Hand Somersault).
- 6- Gravity Centre Elevation while mid-air (Front-Hand Somersault).

Recording Procedures

Two cameras to record the kinematics variables. The recording area was 4.80m. A camera was put on the student's right, 3.3m far and 1.1m height, so that it can vertically record the motion scope in order to make use of determining the variables (Hip angle, High CenterofGravity, and the distance between the hand and foot). The second camera was put on the student's left, 3m far and 1.16m height so that it can vertically record the motion scope of the student including the beginning and ending motion points of the whole movement including the variables of (Hip angle, High CenterofGravity, and the distance between the hand and foot).

Pre-Tests and Measurements

Pre-tests and measurements were made in 21st of December, 2016, which included the technical performance of the (Front-Hand Somersault), and the studied variables.

Credentials

8 Credits were applied to both of the groups, two credits per week. The students were trained the stages of the skill using the sponges in each stage, geometrically. However, the original group was trained using the conventional means and the same number of credits.

First: Rectangular Sponge Piece

The researchers prepared a rectangular-shaped sponge with the following dimensions: 1m length, 55cm width, 60cm height. The sponge flexibility was of average pressure, and a 5cm-height sponge was added, of the same length and width, but of higher pressure, the regular pressure sponges in order to preserve the safety of the students and absorb the falling pressure while performing the skill. The student, using these pieces of sponges, apply the flying phase and then standing on her hands, and this is the first phase or stage of the skill, then pushing the ground with the hands and performing the second phase of flying.

Second: Two Triangular, different shaped Sponges

After giving the learners several attempts to do the skill on the rectangular sponge. After that, the students shift to learn on two triangular, differently shaped sponges. The first sponge is 1m, 1.4m, 1.7m, and of 80cm height. However, the second piece: 75cm, 1.1m, 1.4, and of 70cm height. The students apply the second phase using these two pieces then landing. An inclination of the body at the head of the triangle sponge so that it can help pushing the student upwards so that she can get up again and return to original posture.

The reason why the two sponges are different in shape is that it may fit the students' different shapes and sizes and the gravity center of the individual samples. A carpet was added around the sponges to increase the safety level while applying the skills. The dimensions of the carpet were: 2m, 2m, 5m.



Figure 1 – Geometric Sponges

Third: Performing the regular Front-Hand Somersault Skill

After training the students to perform the skill in the previous stages, the student is now ready to perform the skill in the regular way, and making the needed corrections in order to get the best possible results.

Posty Tests

The Posty measurements and tests were performed in 29th of January, 2017, including all the variables related to the preliminary tests.

Statistical methods

The SPSS program was used.

The results

After processing the preliminary and posty tests and statistically processing them, and in order to evaluate the technical performance of the Front-Hand Somersault according to certain kinetic variables, the data was analyzed using the statistical program SPSS. The results indicated that there are many abstract differences between the preliminary and the posty tests of the study variables favoring the experimental group.

Table (1): Displaying the average, Standard Deviation, T value, and the statistical results of the study variables.

The Variables	Measurement Units	Experimental GRP		Original GRP		T Value	Sig	Statistical Results
Balance	Degree	8	0.707	6	0.72	4.47	0.002	Morale
Coordination	Degree	3.60	0.54	2.60	0.44	2.88	0.020	Morale
Flexibility	Cm	58.20	7.56	71.40	4.92	3.26	0.011	Morale
Hip Angle	Degree	167	5	155.40	6.98	3.02	0.017	Morale
Hand-Foot distance	Meter	1.17	0.04	1.33	0.03	7.14	0.000	Morale
High Center of Gravity While mid-air	Meter	1.30	0.63	1.20	0.17	3.25	0.012	Morale
Performance.	Degree	6.80	0.83	5.20	0.83	3.02	0.016	Morale

Discussion:

Table (1) shows that the difference between the two groups are abstract favoring the experimental group. The abstract value (sig) is less than the Morale degree (0.05).

The reason why there is such a difference is that the rectangular sponges helped the students measure the proper distance between the hand and the foot in the first flying phase and shifting the body weight towards the hands, creating a push force from the legs towards the hands which provides the student with the needed force for the circulation⁽¹¹⁾. However, the remaining phases of the skill (the second flying phase and the landing) on the triangular sponges that helped adjusting the hip angle as well as determining the height of the body weight center during while mid-air, and improving the push by one or two legs, as well as the arms. This is not a central pushing force that results in flying along circulation⁽¹²⁾. The student applied the phases using the sponges in order to learn the needed corrections while performing the skill to adjust the hip angle, the elevation of body weight center while mid-air, and by repeating the attempt several times in order to memorize the skill and sync all the moving parts⁽¹³⁾, and reaching the best possible performance. Applying the different phases of this skills on the sponges provided the students with a better chance to perform the skills easily and according to all the required angles, keeping all the body parts in sync in order to perform the whole skill with less mistakes⁽¹⁴⁾ that can be avoided and work on correcting them. This process had given a feed-back and saved the coach time and effort in the learning process and in order to avoid injuries in the hips and back. Hence, after performing these applications using the sponges, the applications helped the learners reach the best possible performance for the experimental group and distinguished them from the original one.

Conclusions

Using a geometric shaped sponges on the motion and kinematics variables to perform the front-hand somersault skill. Using the kinetic analysis helps determining the points of weakness and those of strength in the students. Improving the motional characteristics have positively reflected on improving the skill learning process for the students.

Recommendations

Emphasizing the importance of the hip angle and the distance between the rising leg and the hands, as well as the elevation of the body weight center for they have a great positive effect on improving the performance of the front-hand somersault skill. Using the motional analysis to follow up the improvement in the kinetic variables and working on determining the points of strength and those of weakness. It is also possible to use the studied methods with other samples in order to improve the learning process of the front-hand somersault skill.

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