

## The Effect of Drill Exercise Methods and Eye Coordination on Forearm Passing Skills of Volleyball

Atika Prasticia<sup>✉</sup>, Soegiyanto Soegiyanto, Setya Rahayu

Universitas Negeri Semarang, Indonesia

### Article Info

#### History Articles

Received:

7 January 2020

Accepted:

12 March 2020

Published :

15 April 2020

#### Keywords:

Patterned drill practice, hand-eye coordination, forearm passing ability volleyball

### Abstract

Volleyball is a sport game, which is popular with the general public as well as the beginners (students). Badegan State 1 Junior High School (SMP Negeri 1 Badegan) is one of the schools that conduct volleyball extracurricular activities however the passing ability of the female students who take part in volleyball extracurricular activities, were still low. Therefore, training methods were needed to improve students' forearm passing ability. The method of the research is an experimental research which used factorial plan 2x2. The population of this research is all of the female students on SMP Negeri 1 Badegan, Ponorogo Regency, who followed volleyball extracurricular totally 30 people. To get the sample of this research, used saturated sampling in order to the entire population can be the sample of this research. This research showed that the t-test got 10.405 points and t-table on dk (0.05) (19) in the amount of 1.729. Because of the t-test point is greater than the t-table ( $10.405 > 1.729$ ), it can be concluded that there is an effect of the patterned drill practice method and hand-eye coordination on the forearm passing ability of the female volleyball extracurricular participants at the (State Senior High School of 1 Badegan) SMA Negeri 1 Badegan

<sup>✉</sup> Correspondence address:

Kampus Pascasarjana UNNES Jl. Kelud Utara 3

Gajahmungkur Semarang

E-mail: [prasticiaatika@yahoo.com](mailto:prasticiaatika@yahoo.com)

p-ISSN 2252-648X

e-ISSN 2502-4477

## INTRODUCTION

Volleyball is a game sport that is very popular in Ponorogo Regency, both the general public and beginners (students). Nowadays, there are many institutions that hold volleyball championships, both between students and the public. All elements of society are expected to conduct coaching volleyball as well as in schools (Charlton et al., 2017). Because children quickly absorb the material to be taught or delivered. Furthermore children are most preferred given game material in their learning, one of them is volleyball games (Menager & Dauty, 2019). It is because by doing sports games is expected that students do not experience boredom or burnout in receiving material physical education, health, and recreation in schools (Siswanto, 2012).

*Passing* is one of the techniques on volleyball sport (Gazali, 2016). To facilitate and infrastructuce the volleyball sport, yard and the net height should be standard as long as the standard from world organization *Federation International Volley Ball* (FIVB) (Mielgo-Ayuso et al., 2017). As for the net height used in volleyball games according to the latest International regulations, is 2.43 meters (male) and 2.24 meters (female). The technique in the game of volleyball is carried out to support the player so that in doing the game of volleyball can produce a beautiful game. Because of *passing* is one of the key movements in volleyball play (Fuchs et al., 2019).

One of the basic techniques in volleyball is service, *forearm passing*, *overhand passing*. Service is a shot taken from behind the finish line of playing field over the net to the opponent's area (Yulianti, 2017a). A forearm *pass* is playing the ball using two hands, while an overhand *pass* is playing the ball with the fingers of the hand open, and both hands forming a bowl almost face to face. For training volleyball affiliation should be started on 11-12 years old, and the specification stage is on children amount 14 -15 years old, then getting the achievement is on 20 -25 years old (Huda et al., 2016).

Extracurricular is an activity carried out outside school hours in order to broaden,

increase, and application of the values of knowledge in a variety of things such as knowledge of sports, extracurricular activities as well as place to accommodate and develop the potential of the students who have not stated if only relying hours of physical education lessons in schools (Rithaudin et al., 2014). The research conducted at State Junior High School of 1 Badegan (SMP Negeri 1 Badegan). The school is one of the schools which carried out volleyball extracurricular on Saturdays starting from 15.30 WIB. The bad basic technic skills of playing volleyball will influence the low quality of the games.

The problems that occur when implementing volleyball extracurricular activities or when the learning physical education. The problems were about *passing*, especially forearm *passing*. In forearm *passing* both to friends and directly to opponents the ball in *passing* did not arrive. Students received the ball from the front, back, side practice forearm passing well and correctly. Female students who took extracurricular activities were very enthusiastic, even though forearm passing was still not right (Küçükkubaş & Korkusuz, 2019). Basic *forearm passing* techniques were necessary as a base for playing volleyball, therefore the drill practice method, and hand-eye coordination was necessary to improve *forearm passing* using the net or without the net (Wibowo et al., 2014).

The objectives of this study include: 1) To analyze the effect of conventional drill training methods and patterned drills on improving volleyball under-passing skills of female students of SMP Negeri 1 Badegan, Ponorogo Regency; 2) To analyze the differences of high and low of hand-eyes coordination effect in increasing forearms pass skills of female students of SMP Negeri 1 Badegan, Ponorogo Regency and 3) The interaction between drill training methods with high and low of hand-eyes coordination in increasing forearms pass skills of female students of SMP Negeri 1 Badegan, Ponorogo Regency.

While the benefits achieved in this study include: 1) The results expected to be useful as

scientific information in the development of sports training approaches, especially those relating to the exercise drill pattern and hand-eye coordination to the skills of the results of forearm passing volleyball, and 2) The results obtained expected to be a basic reference or guideline for practical application in the field to patterned drill exercises and proper hand- eyes coordination, as well as movement abilities that are specifically related to the passing skills of volleyball in female students of SMP Negeri 1 Badegan Ponorogo..

## METHODS

The research method is an experimental research which used factorial plan 2x2. The preparation of the author's training program used the microcycle method or short training program because the treatment in this study is a sub of the volleyball game, namely passing (Charlton et al., 2017).

The population is generalization area consisting of the objects or subjects that have certain qualities and characteristics that are determined by the researchers to study and then draw the conclusions. The population in this research was female students who followed volleyball extracurricular on Badegan State 1 Junior High School, Ponorogo Regency, with amounting 30 students. A sample is part of the population used as the object of research. The sample research taken using a saturated sampling system, all members of the population used as samples.

## RESULT AND DISCUSSION

The results of the descriptive analysis of the *pretest* and *posttest* data on the ability of forearms *passing* volleyball from the female volleyball extracurricular members at SMP Negeri 1 Badegan are as followed:

**Table 1.** Pre-test and Post-test Data of the Forearms Passing Ability

Kind of Passing	Pretest	Posttest
Foreams passing	17.60	21.10

Normality test tested on each research data that was, the ability to forearm pass volleyball. Normality test carried out to use the *Kolmogorov-Smirnov* formula and the process done to use the SPSS 22 computer program. In this test will test the hypothesis: samples come from normally distributed populations. To accept or reject a hypothesis by comparing a significant price with a 0.05 price. The criterion was to accept a hypothesis if the significant figure was greater than 0.05 (Sig> 0.05). Because the significant price was greater than 0.05 (Sig> 0.05), the hypothesis that the sample was from a normally distributed population is accepted. Thus it can be concluded that the normal distribution fulfilled.

Homogeneity tests performed to find out the similarity of variance, or to test that the data obtained comes from, a homogeneous population. Homogeneity testing used statistical *Levene*. Criteria for decision making accepted if the significant value greater than 0.05 (Sig> 0.05). The homogeneity test results of the research variables known the *Levene* Statistics value of 1.511; while the significance value was greater than 0.05, was equal to 0.227. Because the price of Sig> 0.05, the hypothesis stating that the data obtained from a homogeneous population was accepted, thus it can be concluded that the data in this study were from a homogeneous population.

T-test results obtained t-count of -10,405 and t-table value at dk (0.05) (19) of 1,729. Because of the t-value is greater than the t-table (-10.405> 1.729), it can be concluded that there is an influence of the training method and hand-eye coordination on the ability to forearm *passing* the female volleyball extracurricular participants at SMA Negeri 1 Badegan.

**Table 2.** T- test

Variable	Average	T <sub>quantification</sub>	T <sub>table</sub>
Pre Test	17.60	-10.405	1.729
Post Test	21.10		

According to the table above, it shown that The average value for the *pre-test* data is 17.60, and the average value for the *post-test* data is 21.10. These results indicate the ability to pass under the students of volleyball extracurricular participants at SMA Negeri 1 Badegan after practicing with the practice method, and hand-eye coordination increased by 3.50 or by 19.89% from the time of the *pre-test*. In this case, it can be said that the influence given by the learning model of play is 19.89%.

The t-test analysis showed that t-arithmetic was greater than t-table. It indicated that there was significant differences between *pre-test* and *post-test* in order to show a significant influence of the training method, and hand-eye coordination on the forearm *passing* ability of the female's volleyball extracurricular participants at SMA Negeri 1 Badegan. At the time of the pre-test, the average size for the pre-test data was 17.60, and the average value for the *post-test* data was 21.10. The results indicate the ability of forearm *passing* the female students of the volleyball extracurricular participants at SMA Negeri 1 Badegan after practicing with the training method and hand-eye coordination increased by 3.50 or 19.89% from the time of the *pre-test*. In this case, it said that the effect given by the training method of hand training and hand-eye coordination is 19.89%.

The training process is a process of interaction or reciprocity between the teachers and students in an educational situation consisting of components of the objectives achieved is a change in overall behavior (Annas, 2014). In this study, researchers used volleyball forearm *passing* training with the practice method and hand-eye coordination. It aimed to improve the forearm *passing* ability volleyball in the students. The forearm *passing* ability of the volleyball game is the most basic ability that must be mastered by the students in order to

play volleyball (Mahfuz, 2016). Training with training methods and hand-eye coordination to create an atmosphere of play in the training process to encourage students who are active in carrying out the tasks given by the playing environment. Thus it is hoped that the forearm *passing* ability of students will increase (Latar, 2015).

The result of the research showed that after training with practice method, and hand-eye coordination, the forearm *passing* ability of the students increased significantly, that is 19.89% of they haven't been given training methods patterned drill exercises and hand-eye coordination. This is a positive thing for the development of the female volleyball extracurricular at the SMA Negeri 1 Badegan. The effect of the training using the pattern drill practice and hand eye coordination is quite large, which is almost 20%. It means that the forearm passing training with the patterned drill practice and hand-eye coordination, was effective, so it expected that the forearm *passing* practice the patterned drill practice and hand-eye coordination used for the wider community (Rithaudin & Hartati, 2016). By increasing forearm *passing* ability of students, the ability to play volleyball will also increase, because the ability to forearm *passing* was the most basic ability in the game of volleyball (Movahed et al., 2019).

Although the ability to *smash* and *block* any volleyball game can be played only by *passing* it (Yulianti, 2017). For this reason, it hoped that in volleyball training basing the *forearm passing* exercises before training other techniques. One effective training model to train forearm *passing* ability was by using patterned drill exercises and hand-eye coordination, as shown in this research (Rithaudin & Hartati, 2016).

## CONCLUSION

According to the data analysing, hypothesis testing, and discussion that has been put forward the conclusions in this study are as follows: 1) There was a difference in the effect of

conventional drill and patterned drill training methods on increasing lower passing skills in the volleyball extracurricular activities of female students of SMP Negeri 1 Badegan Regency Ponorogo by means of 25% and 60%; 2) There was a difference in the influence of high and low hand eye coordination on increasing forearm passing skills in volleyball extracurricular activities for female students of SMP Negeri 1 Badegan, Ponorogo Regency which it has succeeded percentage was 40% and 75%; and then 3) The interaction of drill training methods and hand eye coordination can improve the under-passing ability of female students of SMP Negeri 1 Badegan, Ponorogo Regency by 80%.

## REFERENCES

- Annas, M. (2014). Pengaruh Latihan Smes Kedeng Menggunakan Area Bertahap Terhadap Keterampilan Smes Sepaktakraw. *Journal of Physical Education Health and Sport*, 1(1), 35–40.
- Charlton, P. C., Kenneally-Dabrowski, C., Sheppard, J., & Spratford, W. (2017). A simple method for quantifying jump loads in volleyball athletes. *Journal of Science and Medicine in Sport*, 20(3), 241–245.
- Fuchs, P. X., Fusco, A., Bell, J. W., von Duvillard, S. P., Cortis, C., & Wagner, H. (2019). Movement characteristics of volleyball spike jump performance in females. *Journal of Science and Medicine in Sport*, 2018, 1–5.
- Gazali, N. (2016). Kontribusi Kekuatan Otot Lengan Terhadap Kemampuan Servis Atas Atlet Bolavoli. *Journal of Physical Education, Health and Sport*, 3(1), 1–6.
- Huda, K., Kristiyanto, A., & Doewes, M. (2016). Kerangka dasar dan struktur kurikulum di sekolah menengah atas keberbakatan olahraga. *Jurnal Media Ilmu Keolahragaan Indonesia*, 6(1), 28–34.
- Küçükkuş, N., & Korkusuz, F. (2019). What happens to bone mineral density, strength and body composition of ex-elite female volleyball players: A cross sectional study. *Science and Sports*, 34(4), e259–e269.
- Latar, I. M. (2015). Meningkatkan Keterampilan Bolavoli Mahasiswa Penjas Dengan Metode Latihan. *Journal of Physical Education Health and Sport*, 2(1), 1–10.
- Mahfuz. (2016). Pengaruh Latihan Split Squat Jump dan Standing Jump and Reach terhadap Kekuatan dan Power Otot Tungkai. *Journal of Physical Education Health and Sport*, 3(2), 83–95.
- Menager, E., & Dauty, M. (2019). Profil musculaire isocinétique des athlètes de haut niveau en fonction de la pratique de sports différents : le football, le basketball, le handball, le volleyball, et le cyclisme. *Science & Sports*.
- Mielgo-Ayuso, J., Zourdos, M. C., Clemente-Suárez, V. J., Calleja-González, J., & Shipherd, A. M. (2017). Can psychological well-being scales and hormone levels be used to predict acute performance of anaerobic training tasks in elite female volleyball players? *Physiology and Behavior*, 180, 31–38.
- Movahed, M., Salavati, M., Sheikhhoseini, R., Arab, A. M., & O’Sullivan, K. (2019). Single leg landing kinematics in volleyball athletes: A comparison between athletes with and without active extension low back pain. *Journal of Bodywork and Movement Therapies*.
- Rithaudin, A., & Hartati, B. S. (2016). Upaya Meningkatkan Pembelajaran Passing Bawah Permainan Bola Voli Dengan Permainan Glagahombo I Tempel Sleman Yogyakarta. *Jurnal Pendidikan Jasmani Indonesia*, 12(1), 51–57.
- Rithaudin, A., Prasojo, B., Rithaudin, A., Yogyakarta, U. N., No, J. K., & Yogyakarta, K. (2014). Pengembangan Model Permainan Bolapantul Sebagai Di Sekolah Menengah Pertama. *Jurnal Pendidikan Jasmani Indonesia*, 10(April).
- Siswanto, H. (2012). Peningkatan Ketrampilan Smash Permainan Bola Voli Melalui Metode Resiprokal. *Jurnal Media Ilmu Keolahragaan Indonesia*, 2.
- Wibowo, Y. A., Yogyakarta, U. N., No, J. K., & Yogyakarta, K. (2014). Pemahaman

- Mahasiswa Pjkr Kelas B Angkatan Tahun 2009 Terhadap Permainan Net. *Jurnal Pendidikan Jasmani Indoneisa*, 10(April), 41-45.
- Yulianti, M. (2017a). Contribution of Leg Muscle Explosive Power and Eye-Hand Coordination to The Accuracy Smash of Athletes in Volleyball Club of Universitas Islam Riau. *Journal of Physical Education, Health and Sport*, 4(113), 70-74.
- Yulianti, M. (2017b). Contribution of Leg Muscle Explosive Power and Eye-Hand Coordination to The Accuracy Smash of Athletes in Volleyball Club of Universitas Islam Riau. *Journal of Physical Education Health and Sport*, 4(2), 70-74.