

The Effect of Arm Muscle Explosion and Student's Learning Motivation on Volleyball Service Ability of Students

Dahlia¹, Putri Cicilia Kristina¹, Siti Ayu Risma Putri¹

¹Universitas PGRI Palembang, South Sumatra, Indonesia, Indonesia

Corresponding author e-mail: dahlia.2022152045.students@univpgri-palembang.ac.id

Abstract: The purpose of this study was to find out how much influence the explosive power of the arm muscles and students' learning motivation had on the ability to serve in volleyball. The method used in this research is literature review. The relationship between student learning motivation and student learning outcomes in volleyball games and the explosive power of the arm muscles that support the ability to serve volleyball as well as the instruments commonly used to measure learning motivation and the explosive power of the arm muscles. The results showed increasing students' learning motivation towards volleyball games really needs to be improved because volleyball games can indirectly have many benefits for students, including good for physical fitness, can form good personality or behavior because volleyball games require good mentality, can form character and foster a quick mindset in making decisions. The low learning outcomes of students in physical education subjects, especially in big volleyball games, are suspected to be due to poor upper serve skills, where when doing the top serve there are still many students who serve unable to cross the net, have not been able to land the ball at target, the ball often comes out and concerns the net. Service is a very important technique in volleyball game because service is the beginning of the game. In this study, we will discuss about the top serve in volleyball because high school/vocational high school students in volleyball games should use the top serve. To support the ability to serve over in volleyball, arm muscle explosive power is needed. The explosive power of the arm muscles is a very important physical condition needed in mastering the volleyball serve.

Keywords: Arm Muscle Explosive Power, Learning Motivation, Volleyball

A. Introduction

Sport is an activity that can be a medium to facilitate one's needs to channel energy. Exercising can form humans who are physically and mentally healthy and can also form disciplined characters so that they become quality human beings. According to Agus et al., (2021) Sport can be said to be one of the nation's unifying media. Sport can also form an individual and collective character, and sport also has the potential to influence the development and progress of other sectors. There are lots of sports that

are in great demand among children, adults and the elderly, including badminton, running, basketball, volleyball and many more.

Volleyball is a sport that can be played by all people, both children, adolescents, adults, both women and men. Volleyball is a game played by two teams separated by a net. The aim of the volleyball game is to pass the ball over the net so that it can fall to the opponent's court floor and to prevent the opponent from making the same effort. Each team can play three bounces to return the ball (outside of a block hit), and the team that wins a rally gets one point and is entitled to serve, and the players move one position clockwise.

Service is the start of the game. The ball is hit by the first player over the net towards the opponent's area. Opposing players try to play the ball so it doesn't fall on the field. The game will continue until the ball falls on the field of play, the ball goes out or the team fails to return the ball. When the receiving team scores a point, it adds up a point or points and then becomes the first batsman. A team gets points with a rally point system, in one set or round the team is declared victorious if it gets 25 points earlier than the opposing team.

Volleyball sports achievements are very dependent on the coaching carried out, in coaching volleyball athletes there are certainly a lot of supporting factors, one of which is a good training program. The training program that is made of course must include overall components such as physical, technical, tactical and mental components. All of these components are interrelated and affect one another.

In terms of the physical component, the characteristics of playing volleyball really need bio motor components such as strength, speed, agility, and endurance. Some of these components must be owned by the players because volleyball is the sport of choice which includes aerobic and anaerobic activities (Almaida et al., 2003). As previously explained, besides the physical component, it must also be supported by the mental component. Today's volleyball players must also be supported mentally strong because mentally has a strategic role, each player is not only challenged physically but psychologically or mentally, meaning that they are not easily discouraged, have high spirits, are compact, and the player's personality is very decisive to achieve an achievement (Ahmadi, 2007).

The tactic component is also one of the winning factors for a volleyball team, players must also be trained to have a strategy in immobilizing opponents such as being able to drop the opponent's mentality and see the opponent's weaknesses. One way that can be done is to direct the ball both service and attack towards the right direction on the opponent's weakness. That means that accuracy is needed in serving and attacking the opponent. The next component is technique, in outline the basic volleyball game

techniques can be divided into four components which include: under and over service techniques, under and over passing, smashes, and blocks (Barth & Heuchert, 2007). Service is the beginning of the game, besides that service in volleyball can also generate points if done properly and correctly. That means players must be able to take advantage of opportunities to serve as well as possible. To get points from serving, of course, players can do it with a strong serve and have power so that the opponent has difficulty passing the ball properly or directing the serve towards the opponent's weakness or areas that are difficult for the opponent to reach.

The description above explains that sports activities, especially volleyball games, can indirectly have many benefits, including good for physical fitness, can form good personality or behavior because playing volleyball requires good mentality, can form character and foster fast thinking patterns. in making decisions. In other words, a person's volleyball sports activities will get many benefits, including physical, mental, or social growth. Volleyball is currently an achievement sport that already has many prestigious competitions at both the national and international levels. At the national level there is also a very famous and prestigious volleyball competition, namely the Proliga championship. Volleyball is one of the many sports that is growing rapidly among the general public, schools and clubs, this is because volleyball only uses simple equipment and can bring pleasure when playing it (Beutelsthal, 2005).

The popularity of volleyball can be seen from the facilities and infrastructure for volleyball in rural and urban areas. In addition, volleyball is also included in various activities held in championships such as inter-school championships, POPDA (*Pekan Olahraga Daerah*) championships, POPNAS (*Pekan Olahraga Nasional*) championships, and O2SN championships and so on. Volleyball players certainly want high achievements in the volleyball championship. Volleyball can be a place for teenagers to channel their hobbies, energy and time for positive activities. In addition to positive activities, by practicing volleyball, children can have the opportunity to make achievements.

Volleyball is also one of the materials that can be taught in big ball learning in Physical Education subjects. This is stated in the Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 37 of 2018, (Djamarah, 2011) one of the basic competencies that students must achieve is understanding and practicing specific motion variations in various big ball games. Volleyball in physical education subjects can also play a role in forming healthy living habits for students because volleyball is a sport that can be easily carried out, can be done in an open field, or even on land that is not too large, volleyball is also very easy to obtain, and net which is very likely to be modified. If students are able to master various basic volleyball game techniques, then the tendency of students will enjoy playing volleyball. The game does not require a lot of energy.

This shows that volleyball in physical education has a very broad chain of benefits and all of this can be achieved if learning is carried out effectively, efficiently and interestingly. Learning is able to achieve planned goals, carried out appropriately, and fun. In an effort to achieve good learning outcomes in volleyball games, and especially in learning basic volleyball techniques, educators must find effective ways to teach basic volleyball techniques so that learning outcomes in volleyball games can be successful, namely by presenting the form of learning skills. good and correct motion so that they can encourage students to understand and be able to do it (Maksum, 2008). In addition, the efforts of educators or teachers to carry out effective, efficient and interesting learning so that students' learning interest increases in volleyball games.

Interest in learning, a tendency, passion, or a very strong desire for something, interest greatly influences a person in concentrating his attention so that he is compelled to do or pay attention to something seriously (Muttaqin et al., 2016). If students' interest in learning about the subject matter is high, it means that students are more focused on their attention and are willing to take part in learning seriously. Especially in this volleyball learning material, student interest is highly expected in the learning process because learning volleyball is learning that involves movement activities. For this reason, it is very necessary for teachers to know student learning interests. In volleyball games there are several basic techniques that students need to master in order to support a fun game, one of which is the serve. Serve is the beginning of the game.

Serves in volleyball are divided into two, namely the bottom serves and the top serve. Under serve is usually used by novice players or used by children at the elementary and junior high levels. Whereas for students who take part in volleyball extracurricular activities or high school or vocational level students usually already use the top serve. Volleyball players can direct the top serve well if they have mastered the top serve technique well and have good arm muscle explosive power. For this reason, special training is needed to improve this ability. If we look at the volleyball learning process, the ability of students to do the top serve is still not evenly distributed. This can be seen that there are some students who can serve volleyball and there are some students who cannot serve volleyball, and there are even students who were able to serve volleyball before but after repeating the result the students cannot do it and vice versa.

B. Methods

The research method used in this study is the literature review method. The research contains a review of the author's thoughts regarding the results of research in articles or scientific papers that are relevant to the research being conducted. Literature review must be relevant, up-to-date and adequate. Theory foundation, theory review and

literature review are several ways to conduct a literature review. Of the stages that must be followed in making a literature review. The steps that need attention are making a synthesis of conceptual or empirical articles that are relevant to the study to be carried out. Literature study relates to methods of collecting library data, reading and taking notes, and managing research materials (Makadada et al., 2019).

C. Results and Discussion

Volleyball Service Ability

“The serve is important because it brings the wall into play and opens up the move” (Maksum, 2008). Serve is one of the basic techniques by throwing the ball up first followed by swinging the arm from behind to front. “This game begins with the server and the opponent side is then allowed to use only hands to make contact with the ball and throw the ball over the net” (Novriadi, 2019). Nas (2016) states that service can aim to immediately gain a winning number and hinder the opponent’s attack formation. In volleyball games, you have to master the basic techniques of serving well so that when serving, you have a high success rate. In a match, it is very important for players to serve consistently, that is, at least 90% of the player’s services can pass through the net to the opponent’s area (Putra, 2020). Another opinion states that service is a ball hit from behind the end line of the playing field over the net to the opponent’s playing area (Pujo, 2015).

In its development service becomes a powerful weapon to attack. So, the basic technique of serving should not be ignored. But the goal is as the first attack, so this skill requires very good physical condition and correct movement.

Service implementation is generally divided into 3 parts, namely; 1) throwing the ball up, in this case, in an effort to throw, strong arm muscle strength is needed, especially the deltoid as the base of the arm which is also supported by the pectoralis major and latissimus dorsi. 2) hitting the ball, this phase is the most important phase in performing service techniques. Strength will also rely on the muscles of the shoulders, chest, triceps and wrist. 3) follow through, is a follow-up phase. This shows that the upper limb group is functioning optimally. From the description above, it can be concluded that the top serve in volleyball is the first hit before the game starts. Service is very decisive for the game.

Arm Muscle Explosion

Explosive power is a combination or combination of strength and speed to overcome load or resistance with a high rate of contraction. Muscle contraction plays a very important role sports skills, how muscles work to produce motion. For example:

running, jumping, throwing, pushing and hitting. Perumalsamy et al., (2014) the explosive power of the arm muscles is the result of a combination of strength and speed produced by the arm muscles. Minister of Education and Culture Regulation Number 37 of 2018 states arm muscle explosive power is the ability of a person's arm muscles to contract or move with muscle strength in a fast tempo marked by time short one. Rahayu (2015) everyone has different arm power high arm power and some have low arm power.

This means that the explosive power of the arm muscles can be seen from the results of a good performance performed arm muscles using strength and speed. This statement is supported by main opinion a volleyball athlete who has good muscle explosive power of course they can smash and serve well and the opponent will find it difficult to accept it. Sundari & Sukadiyanto (2019) explosive power is the ability of the muscles to exert force maximum in a very short time. Sarifudin (2022) explosive power is a component required in sports that require explosive movements, namely movements that contains elements of speed and power. So, explosive power is the movement that can result from strength and speed, strength is a component of a person's physical condition the ability to use the muscles to accept the load in an unspecified time.

Students' Learning Motivation

Suggests motivation to learn is internal and external encouragement to students who are learning to organize behavior change. In general, with several indicators or elements support. Indicators of learning motivation can be classified as follows: (1) the desire and desire to succeed. (2) internal drives and needs Study. (3) there are hopes and aspirations future. (4) there is an award in study. (5) there are activities that interesting in learning. (6) exists conducive learning environment so that allows a student can study well.

Syah (2013) argued in the process learning, motivation is very necessary, because someone who is not motivated in studying, it will not be possible do learning activities. This matter is a sign that something is going to do it don't touch his needs. There are two kinds of motivation: 1) intrinsic motivation, namely motives being active or not functioning need to be stimulated from outside, because inside every individual has motivation to do something. Motivation intrinsic if the goal is inherent with learning situations and meet with students' needs and goals master the values contained in that lesson. Protégé motivated to learn solely to master those values contained in the study material, is not it because of other desires like want get praise, high marks, or gifts, and so on. When someone already have intrinsic motivation within himself, then he consciously will be doing an activity that is not requires external motivation. In learning activities, intrinsic motivation very necessary

especially self-study. 2) extrinsic motivation the opposite of intrinsic motivation, extrinsic motivation is active motives function because of the stimulus from outside.

Learning motivation is said to be extrinsic when students set goals learning outside of situational factors Study. Students learn because they want to achieve a goal that lies outside of things what he learned. For example, for achieve high numbers, titles, honors etc. Extrinsic motivation is needed in order students want to learn. Various kinds of ways can be done so that students motivated to learn. teacher who succeeds in teaching is a good teacher arouse students' interest in learning, by utilizing motivation extrinsic in form. Motivation extrinsic is often used because of the material Lesson attracts children's attention students or because of a certain attitude towards the teacher or parents. Thahir (2014) motivation is an internal state organism, both humans and animals, that encourage them to act something. In this sense motivation means the power supply to act directed. Viera (2000) defines motivation desire/willingness to do the level high effort towards the goal organization. Teacher motivation referred to as something that creates enthusiasm or encouragement of student learning. Wahyu et al., (2021) motivation is said to be a series of efforts to provide conditions certain, so that someone wants and wants do something, and if he doesn't like it, then it will try to negate or shake off that feeling of distaste. So, motivation can be stimulated by factors from the outside but the motivation is to grow inside someone (Yudiana, 2018).

D. Conclusion

Based on the discussion, it can be concluded that the ability to serve up in volleyball games at school learning has a very close relationship with the level of explosive power of the students' arm muscles. The higher the explosive power of the student's arm, the easier it is for the student to serve. In addition to the explosive power of the arm muscles, serving ability is also influenced by students' learning motivation in following the lessons given by the teacher. In addition, learning motivation is internal and external encouragement to students who are learning to make changes in behavior. Someone who does not have the motivation to learn certainly will not encourage himself to be able to serve in volleyball.

References

- Agus R. M., Fahrizqi, E. B., Wicaksono, P. A. (2021). The effectiveness of the vertical jump on men's volleyball smash ability. *J Pendidik Jasmani Indonesia* 17(1): 1-9.
- Almada S. (2003). Nutritional and Antropometric Profile of Adolescent Volleyball Athletes. *Rev Bras Med Esporte*, 9(4).
- Ahmadi N. (2007). *Volleyball Sports Guide*. Surakarta: Era Pustaka Utama
- Barth, K., & Heuchert, R. (2007). *Learning Volleyball*. Meyer & Meyer Verlag.

- Beutelsthal. (2005). *Volleyball Game*. Jakarta: Pionir Jaya.
- Djamarah, S. B. (2011). *Learning Psychology*. Jakarta: Rineka Cipta.
- Makadada, F. A., Motto, C. A., & Piri, N. (2019). The Improvement of Learning Outcomes on Bump Pass of Volleyball (The Application of Difficulty Level Approach on Students of Sport Coaching Education Department in FIK UNIMA). *Britain International of Linguistics Arts and Education (BIO LAE) Journal*, 1(2), 119-134.
- Maksum A. (2008). *Sports Psychology, Theory and Applications*. Surabaya: Unesa University press.
- Minister of Education and Culture Regulation Number 37 of 2018.
- Muttaqin, I., Winarno M. E., & Kurniawan, A. (2016). Development of a Volleyball Smash Training Model in Extracurricular Activities at SMPN 12 Malang. *Pendidikan Jasmani*, 26(02). Available from: <http://journal.um.ac.id/index.php/pendidikan-jasmani/article/view/7505>
- Novriadi, H. (2019). The Relationship between Arm Muscle Explosive Power and Lower Leg Muscle Strength on Bullet Rejection Ability. *J Pendidik dan Olahraga*, II(2).
- Nas. S. (2016). Increasing Learning Motivation in Optimizing Student Competence. *In Prosiding Seminar Palopo*. Palopo: Universitas Cokroaminoto Palopo.
- Putra, P. D. (2020). *Survey of Interest and Motivation of Futsal Players at SMP Negeri 21 Makassar*. Universitas Negeri Makasar.
- Pujo, D. B. (2015). The Effect of Plyometric Training on Leg Muscle Power in Adolescent Volleyball Athletes. *J Motion*, VI(2): 174-185.
- Perumalsamy, S., Ragupathi, P., & Rahul, K. (2014). Design and Development of Volley Ball Practice Machine. *Int J Latest Trends Eng Technol*, 4(1): 149-156.
- Rahayu, T. (2015). Assistant Deputy for the Application of Sports Science and Technology, Deputy for Improving Sports Achievement, Ministry of Youth and Sports of the Republic of Indonesia. *J Iptek Olahraga*, 17(2).
- Sundari, A., & Sukadiyanto, S. (2019). Comparison of training methods and arm muscle power on shot put results. *Jorpres (Jurnal Olahraga Prestasi)*, 15(1): 47-56.
- Sarifudin, D. S. (2022). Literature Study on the Effect of Target Game Practice on Volleyball Underpassing Accuracy. *J Pendidik Jasmani, Kesehat Dan Rekreasi*, 7(1): 41-7.
- Syah, M. (2013). *Learning Psychology*. Jakarta: Rajagrafindo Persada.
- Thahir, A. (2014). *Organizational Behavior*. Yogyakarta: Deepublish.
- Viera, B. J. F. (2000). *Volleyball Step to Succes Second*. Canada: Human Kinetics.
- Wahyu, C., Hakim, A. R., Nugroho, U. (2021). The Effect of Drill Smash Training and Smash Feeds on Volleyball Smash Skills in Male Athletes Aged 13-15 Years at Club Bola Voli Vita Solo in 2020. *J Ilm Penjas (Penelitian, Pendidik dan Pengajaran)*. 7(1): 1-11.
- Yudiana. (2018). *Coaching Basics*. Jakarta: Universitas Terbuka.