WORKSHOP COILING EXERCISES ON TENNIS SPIN SERVE WITH KINOVEA

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Abstract: *The main problem is that service is only considered as the beginning of a match. When in fact service is a very important thing in a match, because service is a fast way to get points. One important part of the tennis serve is the skill of coiling or body rotation. The purpose of this service is to provide coiling exercises that are analyzed kinovea application. This service is carried out for 6 weeks with a frequency of 3 times per week. At the beginning and at the end of the meeting the partners' coiling skills were analyzed using the kinovea app. Partners are 30 South Sulawesi novice tennis athletes aged 14-16 years. The result of this dedication was an average increase in coiling skills of 1,267. So this service is necessary in improving coiling skills in order to be able to score points quickly in a match of tennis.*

INTRODUCTION

Tennis is a sport that is very popular among people, not only in Indonesia but worldwide for all backgrounds and ages. It can be played as a recreational or professional sport, and is used as a tournament based on class, age, gender, and disability. However, becoming a great tennis player requires not only practice and hard work but also a high level of skill in serving and hitting[12].

Service is a sign of the start of the match of tennis, so service is the most important thing in the match of tennis. An effective service is a service that cannot be returned and earns a point[3]. Service is the first key that controls the course of the match, so the opportunity to get points during the first service must be utilized as best as possible. The pattern of serving motion must be correct and precise so that the chances of a successful service are high. Another influence is the type of serve and target point serve[45].

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Servicing techniques are divided into three, namely prefix, stroke, and follow through. The prefix is still subdivided into coiling, ball toss, and backswing. The process of hitting the ball is divided into uncoiling and strike zone. While the ending consists of follow-through and fall-in[6]. In order to realize a perfect serve in tennis, the accuracy of the ball and the position of the player's body is very important, which can be measured in various ways such as the path of movement of the ball and the player, the force of contact between the ball and the racket, and the speed of the ball's stroke and rotation[7].

Coiling or body rotation in serving aims to practice body twisting (rotation) patterns while maintaining body balance[8]. The server must ensure that the upper body rotates early before executing the ball toss. Although this rotation involves slightly bent knees and hips, the most important thing in tennis is the rotation of the shoulders [9]. The process of performing the tennis serve pattern involves several body segments, and must follow the mechanics of the human body (biomechanics), including; body rotation, hip rotation, throwing arm extension, arm, body, and hip rotation, flexion of the forearm to the upper arm; extension and pronation of the forearm. The coiling stage is useful for rotating the body so that it has a spring force to channel energy from the lower limbs[10].

The utilization of technology to support training is necessary so that training can be carried out effectively and efficiently[11]. Likewise, the tennis serves coiling workshop which was held, assisted by using the kinovea application to see if the coiling movement was carried out correctly and effectively, so that later in the first serve match it is expected to score points. In this workshop, kinovea is used to analyze motion to make it more accurate, instead of observing it directly.

The aim of this workshop is to help beginner tennis athletes in South Sulawesi to be able to perform the correct coiling motion, which is assisted by the kinovea application in analyzing motion so that when doing the first service you will immediately get points.

METHOD

This community service activity was carried out for 6 weeks. This activity begins with all partners serving and the coiling movements are analyzed using a kinovea, followed by providing a tennis serve coiling training model which is carried out 3 times a week and carried out for 6 weeks and ends with serving and coiling movements being analyzed again with use kinovea to see the improvements that occur in partners. Partners are South Sulawesi beginner tennis athletes aged 14-16 years, as many as 30 people, male, and female. Partners

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[6] Ians Aprilo, Moch. Asmawi, and James Tangkudung, "Kinovea-Based : Tennis Spin Serve Analysis," *Journal of Physical Education, Sport, Health and Recreations* 11, no. 2 (2022): 7985.

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[8] Ians Aprilo, Moch. Asmawi, and James Tangkudung, Kinovea-Based Field Tennis Spin Service Training Method (Jakarta: Postgraduate Program at Jakarta State University, 2019).

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[10] Aprilo, Asmawi, and Tangkudung, "Kinovea-Based : Tennis Spin Serve Analysis."

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are early-age athletes because they are in a period of rapid growth, which is where it will be changed in the function of the organs of the body, especially related physiology with the onset of puberty[12]. The place of dedication is the tennis court of the Faculty of Sports Science, Universitas Negeri Makassar.

The first stage in this service is the preparatory stage including initial observation and socialization of activities with partners. The second stage is the implementation stage of the workshop as shown in the following table:

Table 1. Community Service Activities

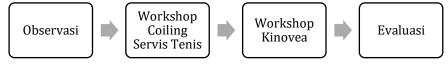| No	Workshop Material	Expected Achievement
1.	Observation	This observation is to find out the partner's initial ability. Partners serve and the coiling movements performed are analyzed using kinovea, so that they can be seen and can provide input to each partner for the coiling movements that should be carried out.
2.	Workshop on the initial concept of the coiling movement in tennis serve	Introduction to the initial concept of the coiling movement in tennis serve
3.	Kinovea initial concept workshop	Introduction of kinovea application in general to partners which will later be useful for analyzing tennis serve coiling movements to partners
4.	Evaluation	This evaluation is carried out to see the development of tennis serve coiling in partners.

The flow of dedication can be described as follows:

Figure 1. Service Flow

RESULT

This dedication activity went well as planned. The results of this service can improve partners' coiling skills, as shown in Table 2.

Table 2. Descriptive Statistics

	N	sum	Means	SD	Variances
Pretest	30	49.00	1633	.49013	.240
Posttest	30	87.00	2,900	.66176	.438

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[12] Arimbi et al., "Workshop Gizi Olahraga : Pengaturan Makan Atlet," *Jurnal Pengabdian Kepada Masyarakat* 2, no. 7 (2020): 5547–5552, https://bajangjournal.com/index.php/J-ABDI/article/view/3994.

Table 2 illustrates that of the 30 partners involved before the provision of coiling material, there were 49.00 and increased to 87.00 after the provision of coiling material, the initial average of 1.633 increased to 2.900, the initial standard deviation of 0.49013 increased to 0.66176, and the variance increased from 0.240 to 0.438.

Figure 2. Briefing and delivery of Coiling

Figure 3. Example of implementation of Coiling

The implementation of this service requires partners to participate in all activities in the community service in accordance with the agreed rules. The exercises carried out must be carried out routinely, so that there will be an increase in results during the evaluation.

DISCUSSION

Serving is a short way to get points quickly, so serving must be done with precision and accuracy. Serves must be made with sharp ball angles and a high degree of accuracy, with full power and in accordance with biomechanical motion[13].

The spin serve is very precise to use because it has a high probability of crossing the net and high ball reflections and getting out of the attack area[14]. Previous research, it showed an average increase in the average spin service movement of 30.17%, from 40.12% to 70.83%. The increase is analyzed and associated with biomechanics, it is found that with emphasis on flexion of the legs, hip rotation, body rotation and arm rotation, and shoulder rotation are very influential[15]. The results of previous studies also explained that when preparing for a

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[13] T. Hoskins-Burney and L. Carrington, The Tennis Drill Book, 2E (Human Kinetics, 2014).

[14] Ians Aprilo, Moch. Asmawi, and James Tangkudung, "Concept Development on Spin Serve Exercise Model of Lawn Tennis Based Kinovea," in Proceedings of the 1st International Conference on Advanced Multidisciplinary Research (ICAMR 2018) (Makassar, Indonesia: Atlantis Press, 2019), 28–33 .

[15] I Aprilo, M Asmawi, and J Tangkudung, "The Effectiveness of Exercise Spin Serve Model," JIPES (2021).

tennis serve, greater knee flexion is needed to get a better serve[16]. The purpose of this exercise is to prepare leg strength and torso flexibility as well as total body balance[17].

Coiling or body rotation is the initial movement before serving. The server must ensure that the coiling must be done before throwing the ball. This rotation involves the knees and hips, but the most important thing is the shoulder rotation[18]. The results of the previous coiling exercise increased by 54.11% and the statistical analysis of the coiling technique became 72.50%[19].

CONCLUSION

The results of this service activity can be summarized as follows: (1) Partners gain experience to try all types of serves, flat serves, slice serves and spin serves, (2) Partners can improve their serving skills according to their abilities, (3) Partners can improve their coiling skills in spin service.

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