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Preface

Praise be to Allah the merciful and grateful, we have finished the Proceeding book of International Conference of Sport Science. This book was a draft of an international seminar which is the final project of seminar subjects.

This activity is expected to be a learning tool in particular, as well as a platform to introduce the state university of Surabaya to the academic community. Thus, the future State University of Surabaya can be more open, and more advanced in the application of information and technology as well as the latest sport science.

We are thanks to all of keynote speaker Dr. Greg Eilson (Australian Strength and Conditioning Association), Gunter Lange (Germany), Dr. Nining Widya K., M.Appl.Sc. (Universitas Negeri Surabaya, Indonesia), Serkan Berber (Anadoulu University, Turkey), Dr. Soumendra Saha (University of Sains Malaysia) and Dr. Yusuf Fuad, M.Sc. (Universitas Negeri Surabaya, Indonesia).

We are thanks to the lecturer as well chief of department of Postgraduate Sports Education of Pascasarjana Unesa, Dr. Edy Mintarto, M.Kes. for support and guidance during we started the process of this conference.

Thanks also to all friends who have worked hard to succeed whole process of international conference. Hopefully in the future, everything we do today can be useful and be equipped very useful in sport studies and other activities of postgraduate of Sport Education of Unesa.

Surabaya, June 1st, 2016

Greetings
Editor,

Fattahilah



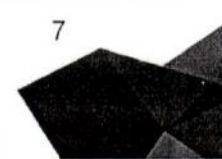
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THE DEVELOPMENT OF STRENGTH TRAINING MODEL TO IMPROVE TENNIS SERVE TECHNIQUES ABILITY FOR 15-19 YEARS MALE ATHLETE WHICH WERE VALID, PRACTICALLY, AND EFFECTIVELY

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Abstract

The purpose of this research is to produce a strength training model to improve tennis serve techniques ability for 15-19 Years Male Athlete which were Valid, Practically, and Effective.

The research method was used research and development. These research subjects used expert, tennis coaches, and athletes. The research instrument used a questionnaire to know the validation and training models practicality, as well as Hewitt test to measure the effectiveness of training model. Data analysis technique in the expert validation and test of practicality used percentages, and the effectiveness test used paired t-test.

The research result showed that strength training model to improve tennis serve techniques ability for 15-19 years male athlete effectively improve tennis serve accuracy on the significance 0,021 and with an average increase of 9,75 points; effectively improve tennis serve performance on the significance 0,002 with an average increase of 11,25 point. While the speed of serve was proven increased by an average of 0,285 km/h, but not significant with a significance 0,152.

Conclusion of the research, strength training model was proven effective improve tennis serve technique capability of 15-19 years athletes in Special Region of Yogyakarta (DIY).

Keyword: Tennis, Strength Training, Research and Development.

Introduction

Serve technique is one of the important, as well as the opening stroke in a game or match, the serve is regarded as the first attack on the opponent's. According Subijana & Navaro (2010) serve a fundamental stroke during the game and can be a key factor. This is reinforced by opinion of Brown (2007, p.53) an effective and efficiently serve the key to success. Based on observations made during the game Armada Cup which was held on 5 to 11 January 2015 Magelang turns in doing serve success rate of only 52.62% of the total participants. The data indicates that the success rate of the serve in tennis athletes of the overall success of the serve.

Fail in serve an important problem to be remedied because the serve can be used as the main player in the match, so we need a treatment to correct the failure to serve. According to Kovac & Ellenbecker (2011, p.22) serve can potentially cause injury if the serve is not done with inappropriate techniques and physical aspects (strength, speed, power, flexibility, endurance, and muscle balance) players are not trained properly. Dominant biomotor component in tennis include strength, power, speed, coordination, agility, flexibility, and endurance (Reid, Quinn, & Crespo, 2003, p. 59). Strength is an important factor in tennis. According to Fernandez, Ellenbecker, Rivas, Ulbricht & Ferrauti (2013, p.232) muscle strength plays a major role in the appearance of tennis.

Strength training is one form of exercise that can improve the ability serve. According Roetert, Paul, Ellenbecker, Todd, Reid, & Machar (2009, p.35) strength training can help optimize the performance of a stroke. Strength training can improve the mechanics of the movement. This is reinforced by the results of research conducted by Fernandez, Ellenbecker, Rivas, Ulbricht, and Ferrauti (2013) which showed that the implementation of a six-week strength training can improve tennis performance and reduce the risk of injury to the junior athletes tennis court. The results of the Paraskevi, Dimitris, Vasiliki, Anastasia, Georgios, Christos, Roka, & Ioannis (2011) also showed that a significant increase in techniques serve only occur in samples that were given strength training, whereas in the sample (tennis athletes) do not get strength training



treatment techniques serve no increase significantly. Results of research Shakya (2014) showed that the application of specific strength training program can improve the performance capabilities volleyball player skills.

Based on this background, the author sees necessary to have a model of strength training to improve tennis serve technique is valid, practical, and effective for athletes to coaches can easily apply the strength training. Therefore, the authors have a basic idea to develop a model of strength training to improve tennis serve technique is valid, practical, and effective for athletes.

Method

Design

This study was used research and development. Data analysis techniques in the expert validation and test of practicality using percentages, and the effectiveness test using paired t-test.

Participants

These research subjects was used expert, tennis coaches, and athletes. The athletes were all males and range in age from 15-19 years.

Results and Discussion

Results

Strength Training Models Effectively Improve Serve Accuracy

t-test revealed statistically significant difference ($p= 0,021$) in serve speed 14,25 and 24 in pretest and posttest, it means strength training models effectively improve tennis serve accuracy.

Strength Training Models Effectively Improve Serve Performance

t-test revealed statistically significant difference ($p= 0,002$) in serve performance 74,75 and 86 in pretest and posttest, it means strength training models effectively improve tennis serve performance.

Strength Training Models Effectively Improve Serve Speed

No statistically significant difference ($p= 0,152$) in serve speed 14, 25 and 24 in pretest and posttest, it mean strength training models not effectively improve tennis serve speed.

Discussion

Strength Training Models Effectively Improve Serve Accuracy

Serve is complex so that the movement needed a good physical ability to perform a successfully movements serve. Accuracy serve in tennis is right before the ball dropped on the target or targets. Good control will be done if a tennis player has a good strength.

Strength is one of the basic components required in each sport. Strength training goals to increase muscle strength in overcoming the burden during sporting activities take place. Application of strength training that is tailored on the needs of motion techniques serve will give the load on muscles that are active at the time of motion serve. It will provide stimulation on the muscles are trained to adapt and improve its functioning so as to increase strength in the muscles are active while performing movements serve. Increased muscle strength will be able to affect the ability of controlling the ball so that it can improve the accuracy of serve. It is in accordance with the results of the research of Shakya (2014) that indicates that the application of the specific strength training program can improve the performance abilities of volleyball player skills.

T-test results indicate that there is an increase in the effectiveness of serve tennis ability after getting a specific strength training models. The level of significance of 0.021



shows that strength training models to improve tennis serve ability in 15-19 years male tennis athlete effectively increases serve accuracy. The average (means) increase in the capability of tennis serve on the research 9.75 points. The implementation of this model of strength training in accordance with the principles of strength training, so that the strength training model can be really effective at enhancing serve tennis techniques.

Strength Training Models Effectively Improve Serve Performance

Test results revealed that there is an increase in the effectiveness of tennis serve performance after getting a training model of specific strength training. The level of significance of 0.002 model showed that strength training models significantly improve serve performance. Strength training model focused to enhance the tennis serve technique ability as the foundation of strength through exercise in order to improve the technique of movement. strength training models is to train the necessary muscles while doing the movements serve so as to increase muscles and serve movement mechanics. This is in accordance with the results of this study which shows that the model of strength training to improve techniques for tennis athletes serve son aged 15-19 years effectively improve the appearance of the serve.

Roetert (2009, p.35) strength training can help optimize the performance of punch. Strength training can improve the mechanics of the movement. In addition, the results of this study also same with research results from Paraskevi et.al (2011) indicating that a significant improvement on the serve techniques only occur in samples that are strength training, while in the sample (tennis athlete) who didn't get the treatment strength training did not increase the serve technique significantly. Research results Shakya (2014) showed that the application of the specific strength training program can improve the performance abilities of volleyball player skills.

Strength Training Models Effectively Improve Serve Speed

Data of serve speed showed an increase in the mean of serve speed 0.285 km/h. Strength training models at adaptation anatomy phase aim to form the foundation for the preparation of the next training heavier.

The increase was not significant can happen at a speed of serve because at this adaptasi anatomy phase target exercise on improvements or repair techniques serve so have yet to include strength training to increase the speed or power. Power has not been drilled in this phase because it can cause less maximum technic improvements as the purpose of the exercise. This resulted in no significance increased speed serve on this research. The specific form of strength training model to improve speed held on next phase of maximum strength phase and phase specific power konfersion.

Conclusion

Strength training model was proven effective improve tennis serve technique capability of 15-19 years athletes in Special Region of Yogyakarta (DIY)

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