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Easy Five Training Method Improved the Technical and Tactical Performances of Young Tennis Players

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Abstract--- An athlete's success or optimal performance during competition is the ultimate goal of any coaches. This paper presents the effects of Easy Five training programme on technical and tactical performance of young tennis players. The main objective of this study is to find out a suitable solution in order to improve the performance of young tennis players. A total of thirty young tennis players (n=30) were recruited in current research and were randomly divided into two groups (Experimental and Control groups) with each group consists of fifteen players (n=15). All players were tested on their technical and tactical variables such as groundstroke depth, groundstroke accuracy, volley depth, serve, agility and International Tennis Number (ITN) total score. The Easy Five training intervention was implemented to the experimental group and control group went through tennis match play for 8 weeks. These methods correspond with the objectives of this study which focuses on the technical and tactical performance of all the players and examining the outcome of an Easy Five on the performance of the young tennis players. A mixed between-within subject analysis known as split-plot ANOVA (SPANOVA) was applied to answer the research questions. The pairwise comparison within group test of pre-test and post-test results indicated that there was a statistical significant difference in the performance of experimental group in groundstroke depth ($p = 0.001$), groundstroke accuracy ($p = 0.001$), volley depth ($p = 0.001$), serve ($p = 0.01$), agility ($p = 0.001$) and International Tennis Number (ITN) total score ($p = 0.001$). Current results affirmed that players from experimental group exhibited an enhancement in all of the technical and tactical variables and also validate the positive effect of Easy Five training intervention. On the other hand, the control group revealed a slight advancement in agility performance with ($p = 0.01$). The pairwise comparison test between experimental and control groups exhibited a statistical significant difference between the two groups after 8-week intervention in groundstroke depth ($p = 0.01$), groundstroke accuracy ($p = 0.01$), volley Depth ($p = 0.01$) and ITN total score ($p = 0.02$) but showed no significant difference in agility and serve performance which dictate the optimistic effect of intervention training programme engaged in this study. Current findings revealed that the Easy Five which reflects the game conditions training approach is a practicable method in designing a training programme as it shows positive effect on the performance and provides significant recommendations to coaches and players about designing an effective training programme.

Keywords--- Performance, Tennis, Technical, Tactical, Training, Game Conditions.

I. Introduction

It is an ultimate goal of any coach to have their athletes to reach optimal performance during a competition. For effective practices, coaches need to understand the complex processes in developing athletic performance. Among others, systematic training and well-planned programmes may be significant in youth development programmes (Williams & Reilly, 2000). Athletes also can demonstrate an outstanding level of technical and tactical abilities. The technical aspect in tennis, comprise of basic skills such as forehand, backhand, volley, overhead and serve, footwork and application of both footwork and basic skills in tennis. By mastering the tennis technical skills, it builds a strong and solid tennis foundation. Previous researchers found that stroke ability influences rankings more than physical

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ability (Groppel & Roetert, 1992) and the findings concurred with another 5-year study of 531 young players displayed strong positive correlations between tennis strokes and tournament play (Girard & Millet, 2009).

One of the success factors in winning a tennis match is to execute the groundstrokes skill deep with consistency and optimum power (Kushwah, 2014). The forehand and backhand groundstrokes are the two forms of shots used in the baseline rallies (Kushwah, 2014). Technical skills such as serve and return of serve are considered as the two most important shots in tennis (Filipcic et al., 2015; Gillet, Berjot, & Gobancé, 2009). Another important stroke in tennis is the technical skill of volley, which is an offensive technical skill. The volley skill is usually executed under the time stress due to the decreasing distance between the players (Ma, Liu, Tan, & Ma, 2013).

Tactical aspect plays crucial part in determining a player's success in a match. In tennis, there are four types of game styles that can be used by players such as net rusher, aggressive baseliner, counter puncher and all round players (Morazuki, Ghosh, & Chen, 2010). The tactical skills normally will take some time, exposures and experience to master it out as it is considered one of the most critical aspects of a player's development. In a tactical evaluation, some determining variables that are noteworthy for the strategy-making process are the players' consistency and accuracy in their services and their groundstrokes. Additionally, sport's training for 12 year old players are based on the indicators for consistency and accuracy (Morazuki et al., 2010). These are the two tactical factors that contribute significantly to tennis players' performance in competition.

Another important factor in tennis teaching and coaching, it has been recommended to shift from skill-based approaches to a specific aspects of the sport, which is focused more on game-based approach, this approach is closely related to the sport as a playing situation (Carlos, Ruiz, Sanz, & Navia, 2014). Previous researchers verified that because of tactical or game based approach tennis players indicate better game performance (Crespo & Unierzyski, 2007). The games approach reiterate the use of games and mini games to provide athletes with Conditions that are as close to a real match as possible (Crespo & Unierzyski, 2007). On top of that, results from the previous study supported that the tactical and game based approach tennis players exhibit a better game performance and have higher level of particular knowledge than players coached with traditional approach (Crespo & Unierzyski, 2007).

The tactics employed by a player can be gleaned from five game conditions such as serve, serve-return, both players on baseline, coming near to the net, and passing (Crespo & Unierzyski, 2007). During the actual game of tennis, the coaching methodology is based on speculation that at any given moment the player must be in one of the five game conditions and will perform certain tactics (Crespo & Unierzyski, 2007). Therefore, the main objective of the modern coaching process is to teach the players how to manage in these five game conditions (Crespo & Unierzyski, 2007). At such, this training drills to work on the five game Conditions named as "The Easy Five" (Crespo, Reid, Miley, & Atienza, 2003).

At such, the main objective of this study is to find out a suitable method in order to improve the technical and tactical performances in young tennis players and also to raise the standard of their achievement at international level. Results of current study will provide important information, knowledge and guidelines for the tennis coaches, parents and players on a systematic and effective methods to be a good tennis player and to extend the goal of international success. Tennis players always looking for new methods so that they are able to grasp their full potential deserve to be trained using the most up-to-date or systematic training methods which have been scientifically proven to enhance players' performance. It is anticipated that from this study, players and coaches will be able to utilize the results and be able to improve future performances.

II. Methods

Top young tennis players aged ranged from 12 to 16 years, they were ranked in the National Young Ranking System and were recruited for current with the purposive sampling procedure. All testing and training methods were told to all the players and consent forms were obtained from each of them. Thirty young tennis players (n=30) were recruited which consisted of six players (n=6) from the age category of twelve (12) years old and below, eight players (n=8) of fourteen (14) years old and below category and sixteen players (n=16) were sixteen (16) years old and below category. These players were then divided into 2 groups using randomized stratified sampling method into Experimental group and Control group. Each group comprise of fifteen players (n=15) with three players (n=3) from twelve (12) years old category, four players (n=4) from fourteen (14) years old category and eight (n=8) from 16 years old category.

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Dependent Variables	Intervention	Dependent Variables
Pre-Test International Tennis Number (ITN) 1. Groundstroke Depth 2. Volley Depth 3. Groundstroke Accuracy 4. Serve 5. Agility 6. ITN Total Score	Experimental Group The Easy Five (5 Games Conditions) Control Group Tennis Match Play	Post-Test International Tennis Number (ITN) 1. Groundstroke Depth 2. Volley Depth 3. Groundstroke Accuracy 4. Serve 5. Agility 6. ITN Total Score

Figure 1: Framework of the Methods

Figure 1 depicts the variables used in this study, the eight weeks of tennis training intervention and the assessment method applied. The eight weeks of study was based on previous studies that use eight weeks of intervention to conduct their research (Granacher & Gollhofer, 2010; Sahan & Erman, 2009; Söğüt, Kirazci, & Korkusuz, 2012). Before the 8-week intervention, all players underwent a two-day assessment for pre-test. The experimental test sessions were conducted using the International Tennis Number (ITN) with On-court Assessment for the testing of technical and tactical performance. The experimental group received the Easy Five training method during the 8-week intervention while Control group underwent tennis match play within the same time period. After 8-week, both groups had undergone the International Tennis Number (ITN) with On-court Assessment. At such, real effects of the intervention were assessed by contrasting the change of the technical and tactical performances within and between the experimental group and the control group.

III. Assessment of Performance

The experimental group was engaged with an intervention based on Five Game Conditions or known as the Easy Five (Crespo et al., 2003) which was employed for 8-week with three sessions every week. At the same time, the control group just engaged in tennis match play as their regular training. They were tested on the four components before the intervention and the performance variables were retested again after the 8-week intervention programme.

The International Tennis Number (ITN) with On-court Assessment which based on tennis specific tasks such as consistency, accuracy and power. In this evaluation system, players were rated from rank of ITN 1 to ITN 10. The ITN 1 represents a high level play and ITN 10 is a player that is starting to play in competitive level (can serve and return) on a full court using a normal ITF approved ball. The ITN has been certified by the International Tennis Federation (ITF) Coaches Commission and the ITF International Tennis Rating Taskforce (Crespo & Unierzyski, 2011). The technical and tactical performance variables tested in the International Tennis Number (ITN) with On-Court Assessment include groundstroke depth, groundstroke accuracy, volley depth, serve and agility. Each of these technical and tactical performance variables provide points based on the performance of the players in the test and total accumulated points from each of these performance variables will determine the players' general playing level in the form of ITN total score.

To evaluate the players' agility performances, the Spider run test was incorporating within ITN test. This assessment measures the time it takes a player to pick five tennis balls and return them individually to a specific zone (Crespo & Unierzyski, 2007). The ITN assessment was performed on court following the guidelines provided by the International Tennis Federation. (www.internationaltennisnumber.com). A ball machine manufactured by Tennis Tower, Sports Tutor Inc. was utilized to feed the players and to make sure ball velocities during the ITN tests. The pre-post tests were conducted on two outdoor hard courts and were played according to the rules of the ITF.

IV. Training Intervention

The training intervention programme was conducted on the Experimental Group for a period of 8-week while the Control Group was engaged in tennis match play. The following programme was adopted for the development of various performance factors during the intervention.

Duration of training intervention:	8 weeks
Frequency per week:	3 days (Monday, Wednesday and Friday)
Duration of intervention:	2 hours (5.00pm to 7.00pm)

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After the general warm-up and basic practice sessions, the experimental group engaged into the Easy Five training intervention as below:

- Serve and return drills. Players play points and work on tactical patterns of play to win points. (20 minutes)
- Forehand and Backhand Groundstrokes Baseline drills. Players play points and work on tactical patterns of play to win points (20 minutes)
- Approach shots, volleys and passing shots drills. Players play points and work on tactical patterns of play to win points at the net or when opponents attack and come to the net (20 minutes)

After the warm-up and basic practice, the Control group engaged into tennis match play by playing normal best of three sets. The matches were set by coaches with each player has to play against a different player in every training session. The players counted the score on their own and reported the results to the coaches.

V. Results

This paper aims to investigate the significant difference in the performance of Groundstroke Depth, Volley Depth, Groundstroke Accuracy, Serve and ITN total score after 8-week of intervention. Mean and standard deviation were calculated for each variable in current study. A split-plot ANOVA (SPANOVA) was employed to analyze the data collected. The statistical techniques provide the comparison of the two groups over time. An alpha of 0.05 was used for all the tests of significance.

Table 1: Pairwise Comparisons within Groups

Variables	Group	Mean Difference (I-J)	Std. Error	Sig.[b]
Groundstroke depth	Control	-0.13	1.16	0.91
	Experimental	-5.67*	1.16	0.001
Volley depth	Control	-1.13	0.95	0.25
	Experimental	-6.20*	0.95	0.001
Groundstroke z accuracy	Control	-1.07	1.03	0.31
	Experimental	-4.60*	1.03	0.001
Serve	Control	-1.60	1.23	0.20
	Experimental	-3.87*	1.23	0.01
ITN total score	Control	-4.73	2.62	0.08
	Experimental	-24.27*	2.62	0.001

Based on estimated marginal means

* The mean difference is significant at the 0.05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Table 1 tabulates the pairwise comparisons for the means of the Groundstroke Depth, Volley Depth, Groundstroke Accuracy, Serve and ITN Total scores comparing the group changes overtime. After the 8-week intervention, Control group shows no significant change in Groundstroke Depth (p = 0.91), Volley Depth (p = 0.25), Groundstroke Accuracy (p = 0.31), Serve (p = 0.20) and ITN Total score (p = 0.08) while the Experimental group shows significant improvements in Groundstroke Depth (p = 0.001), Volley Depth (p = 0.001), Groundstroke Accuracy (p = 0.001), Serve (p = 0.01) and ITN Total scores (p = 0.001).

Table 2: Pairwise Comparisons between Groups on ITN Total Score

Time		Group	Mean Difference (I-J)	Std. Error	Sig.[b]
Pre-test	Control	Experimental	-11.33	12.99	0.39
Post-test	Control	Experimental	-30.87*	12.75	0.02

Based on estimated marginal means

*. The mean difference is significant at the 0.05 level.

b. Adjustment for multiple comparisons: Bonferroni.

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Table 2 tabulates the pairwise comparisons for the means of the ITN total scores comparing the group mean scores matched for the two different time points. The control group showed no significant difference with the experimental group in ITN total scores at the beginning of the intervention ($p = 0.39$) but there is a significant difference between the the experimental group and the control group in ITN scores after 8-week intervention ($p = 0.02$).

VI. Discussion

In the modern sporting event, tennis is a complex sport and it has many open skills but deliver is a motor skill in tennis which implies that a player initiates the action and can control the entire movement (Coelho, Campos, da Silva, Okazaki, & Keller, 2007). Therefore, it can be suggested that players who involved in tennis match can also improve their serve based on constant practice or other factors such as specific strength training. These are the possibilities that no significant distinction on serve was identified between the two groups in this study. The results also revealed that groundstroke depth, volley depth, groundstroke accuracy and ITN total scores improved significantly after the match situation training while tennis match play did not affect these technical and tactical attributes after 8 weeks of intervention.

Effect of the Easy Five and tennis match play on the tennis players' performance was investigated in this study and based on the current results, it can be indicated that the Easy Five or the Five Game Conditions training is more effective and practicable method in order to enhance these parameters of performance than the tennis match play. The study has indicated that the five game Conditions training was statistically significant to the technical and tactical performance level of young players. Technical attributes are vital characteristics that influence the development of successful tennis players especially young juniors. These technical skills are the fundamental that provide tennis players with the tools to execute the physical requirements of the game (Aprilo, Asmawi, & Tangkudung, 2019). The current results also in line with previous study stated that success in tennis is substantially affected by technique of the execution and the biomechanics plays that employed in stroke production (Elliott, 2006). By mastering these stroke production of groundstrokes, volley and serve, it helps to develop a strong foundation of game play. Few studies have addressed the performance needs of competitive young players from the age of 12 to 16 years old (Roetert, Brown, Piorkowskil, & Woods, 1996). Another study recommended that modern technical training should concentrate on creating direct relationship between conditioning and technical elements using real games Conditions (Jiri, 2003). He also suggested that coaches should establish training forms which resemble match Conditions (Jiri, 2003).

Transferring tennis skills from training to match competition can be difficult, however mistakes can be reduced by placing the tennis players in game Conditions during training to work on tactical skill decision. As stated earlier, some determining variables that are noteworthy for the strategy-making process are the players' consistency and accuracy in their services and their groundstrokes. More importantly, the skills of consistency, placement, pattern, spins, power, shot selection and competitive Conditions are the seven sub-components of tactical skills (O'Connor & Larkin, 2015; Parker, Hall, & Kram, 2008). Also, the tactical mastery considered the expertise of a tennis player to make decision and to act in a competition to gain an advantage over the opponent (Martin & Prioux, 2014). At such, previous researchers suggested that sport's training for 12 years old players are based on the indicators for consistency and accuracy (Kovacs, 2007). This is consistent with this study where all technical attributes were assessed including its stroke's placement or depth, power and accuracy using the ITN On Court Assessment. The finding from this study has also demonstrated a positive interaction between tactical abilities and the five game Conditions training.

The results of current study also supported by previous researchers that game based approach training method has made significant improvement in tennis players such as shot precision conducted (Harvey, 2006; Suna, Alp, & Çetinkaya, 2016). The results of current study also supported a study on the outcome of technical training on 10 to 12 years old male tennis players and observed a significant improvement in the stroke performance of the players (Suna et al., 2016). Additionally, there was a significant improvement in technical performance using ITN on-court assessment after engaging a combined training on children also stated that applying motoric and technical training contemporaneously has significant effect on tennis skills among children (Suna et al., 2016). Results from both research are also persistent with the previous findings from the present study even though different training methods were implemented on younger age group. On top of that, previous researchers also found in his research that the intensive 8 weeks of strength and technical training increased the ITN scores of tennis players which significantly supported by the present study (Stępień, Bober, & Zawadzki, 2011).

Training is of the significant benefit when it reflects the requirements of the actual performance according to the principle of specificity states (Leone, Comtois, F, & Leger, 2006). On top of that, the optimal competitive performance of the players would be achieved through a practical and feasible training program that is similar to the elements and requirements of performance during competitions. The findings from this study concurs with another study which

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reported that in modern tennis teaching and coaching, a shift from skill-based approaches to a more game-based approach which are closely related to the sport as a playing situation (Murphy, Duffield, Kellett, & Reid, 2014). It also in line with the previous findings which reported that the aim of coaching process in all modern approaches is to guide the players to strengthen skills in these five game conditions (Filipcic et al., 2015).

The results of the current study have some important practical implications as well as reinforce the effectiveness of Easy Five training in enhancing young players' performance over tennis match play that may have better significance in player's movement ability. In a tennis match, the duration of the match often more than one hour even though rallies typically only last around five to seven seconds, and within this time frame a tennis player would on average run three meters per shot and a total of eight to twelve meters per point (Reid, Whiteside, & Elliott, 2010). At such, regular tennis match play may contribute to the improvement in footwork of the players and did not affect significantly on the improvement on the technical and tactical performance of the young players as demonstrated in this study.

In the effort to determine the contribution of five game Conditions training and tennis match play to predict the performance stage of tennis players, the possibility of testing the relationship on these variables and performance stage during competitions or strokes production may justify further study. From the findings from this study, we would like to suggest that further research in this area is likely to assist coaches in developing a more thorough understanding of the tactical methods and effectiveness of other tactical methods to enhance tennis performance. Further study on high performance and competitive tennis players should be able to provide more precise information on the significance of game based approach training on the players' performance.

VII. Conclusion

As for the practicality of this study which may applied when designing effective training programmes for young elite tennis players. Coaches will be able to analyze the results and be able to enhance future performances. At such, feedback was crucial for the improvement in performance of athletes. There are many factors which include the physical, psychological, technical and tactical aspects that will determine the success of the tennis athletes (Loh & Krasilshchikov, 2015). Effective and quality training programmes will definitely help in developing a productive and reliable programme to optimize the performance of tennis players. The assessment process can be conducted every 3 months or 6 months to update the progress of players' performance and to ensure that it is up-to-date with the players training needs or requirements. It is recommended that coaches assess their players' performance on a regular basis in order to ensure better compliance with the training programme. The aim of formulating an effective training programme such as the Easy Five is to optimize the option and the potential of young tennis players in engaging better prospect of enhancing their performance as well as a guideline for tennis coaches at various levels in preparing and designing quality and effective training programmes.

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Conflict of Interest

The authors declare no conflict of interest.

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