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## Development of Application-Based Field Tennis Training Model



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**ABSTRACT:** This study aims to produce a model product for tennis tactics training in the form of an application and to determine the feasibility of a model guide for tennis tactics training models. This research is development research using a development research model. Validation is carried out by experts in their fields with material experts and media experts. The trial consists of small-scale trials and large-scale trials. Subjects who participated in this study amounted to 20 samples. The result of this research is to create a field tennis tactics training model that is developed and packaged in the form of an application. The tactical training model developed is classified as "very feasible" based on the results of validation carried out by material experts, media experts, and assessments from coaches and players. Based on these results, it can be concluded that the developed tactical training model is feasible to use.

**KEYWORDS:** application, tactics practice, tennis

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### INTRODUCTION

Information technology in the era of globalization in the last two decades has changed the perspective and mindset of the world community which demands acceleration and efficiency of work and the dissemination of information with various kinds of innovations made. Technology and sports are also inseparable, the progress of various fields in sports both in achievement, education, and sports for health is currently heavily influenced by technology (Cojocar et al., 2022); (Neus & Shalamov, 2021). In addition to sports education, technology also affects achievement in sports such as tennis. Tennis is one type of sport that is growing and is in great demand in a society where this sport is included in a world-class competitive sport with millions of players and fans around the world (Malchrowicz-Moško & Poczta, 2018).

Achievement and a career in tennis is not an easy thing, the challenges given will always change as science and technology advance and of course, the career challenges are also different at each stage or level of the player. Being a professional tennis player is not easy; it takes a lot of supporting aspects to be successful and competitive at the international or top level; the fact that on the field, there are many players who find it difficult in several phases, the most obvious thing is when the players enter the transition or transition phase. From junior players to senior players, many have experienced difficulties and frustration, and finally failed to move to the next stage.

The results of research conducted by (Jiri, 2017) show that players who occupy the highest positions in the junior rankings are caused by the extraordinary training load and the many tournaments they participate in, but in the next stage, they do not develop into the world's best athletes, it seems that the burden he is facing too big for that age and that is one of the reasons for the lack of progress at the older/senior age. Research by (Reid et al., 2007, 2009) provides results related to data on players in the transition from junior to senior level; this study links the top 20 rankings in international junior tennis and the subsequent achievement of the top 100 professional rankings. The data obtained are 51% and 63% of the top 20 junior boys and girls who then reach the top 100 professional tennis rankings.

Competitive tennis players at the junior age experience many problems during the transition to seniors; this is due to several things; research conducted by (Casagrande et al., 2018) states that there is a decrease in 3 aspects that cause elite junior players to take time who take longer to move on to seniors or even choose to withdraw from a career in playing tennis, the three dimensions considered are a sense of underachievement, physical/emotional exhaustion, and devaluation. These things happened because during the transition period from junior to senior, in order to pursue initial rankings in the senior group, players had to meet demands such as participating in more matches which automatically became a longer journey, strengthening commitment, increasing motivation, and taking action. The decision to continue a career or not, many things

## Development of Application-Based Field Tennis Training Model

become complicated during this transition period must be accommodated so that they can continue their career. Otherwise, the opposite will likely happen. Vanden et al (Pummell & Lavallee, 2019) stated that research conducted in Belgium has shown that 24% of elite junior athletes fail to continue to the senior level, and only 17% enter the senior national team.

In tennis at the top or world level, players who want to be competitive require to have superior skills and training abilities in four main areas: tactical; technical; physique; and psychological (Kovacs, 2007); it cannot be denied that these four elements are the focus of improving a player's ability. Modern players often hit the ball with high aggressive speed to get points and beat their opponent's (Roetert et al., 2009).

The results of the previous studies that have been described above state that there is a gap between expectations and reality on the field, where talented and high-ranked players in the juniors should also be able to compete at the next level, but the data in the field states the opposite, not all players who are successful in junior can succeed also in the next age or level. There are so many factors that become the reasons and problems at this stage because to be successful in tennis requires many things such as talented players, good training, appropriate equipment, and an understanding of aspects of sports science related to the game in addition to that. the integration of anthropometric, physiological, technical, tactical, and psychological characteristics will also affect (future) performance.

Players have difficulty in the transition from junior to senior for many reasons, but games at the elite level talk more about tactics and strategies to win a match, therefore coaches must be able to focus on these aspects in order to be competitive at that level. The game continues to grow and the abilities that an athlete must have must also be more than before, on this research opportunity to be developed, the researchers made the development and application for tactical training which is expected to help in the training process in order to improve the skills and understanding of athletes at that aspect. The development of an application-based training model that researchers will carry out is deemed appropriate to the problems that exist in the field. It is expected to help in advancing the ability of an athlete on that side.

### METHOD

The research method used is Research and Development (R&D). Research and Development (R&D) is a research method used to produce certain products and test the effectiveness of these products. The product design for developing a tennis tactics training model with an application will be made based on the steps, namely needs analysis, product design, product development, initial product, product validation, and final product. The trial subjects that will be carried out both on a small and large scale are athletes who have basic technical movement skills, both male and female, the number will be divided by approximately 8-10 in small-scale trials, 12-16 in small-scale trials. big. The data obtained through trial activities are classified into two, namely quantitative data and qualitative data.

### FINDING

The results of the assessment of the material expert on the application-based tennis tactics training model to improve the quality of the athlete's game are 93% and are included in the very valid / very feasible category. the results of the assessment of media experts on the application-based tennis tactics training model to improve the quality of the athlete's game are 93.75% and are included in the very valid / very feasible category.

The results of the men's small-scale trial show that the trainer's assessment of the tactical training model is 93.75% which is included in the very good/very feasible category for development. the assessment of the players on the application-based tennis tactics training model is included in the good/worthy category to be developed.

The results of the large-scale trial of men showed that the trainer's assessment of the product of the tactical training model in the large-scale trial was in the good/decent category. The player's assessment of the tennis tactics training model product on a large-scale trial in the very good category. The final result of the application-based tennis tactics training model development product is shown in the following figure:

## Development of Application-Based Field Tennis Training Model



Product Homepage Image



Image of Menu Contents Page

### DISCUSSION

Based on the results of the analysis, it can be concluded that the product of the tactical training model developed is feasible to be used as a guide for proper tennis tactics training. Based on the feasibility test and assessment shows that this exercise model is very feasible. These results are supported by a study (Kolman et al., 2019) that tactical skills are defined as knowledge of in-game adaptation and decision-making activities in the field. These technical skills are also necessary for the proper execution of tactics. Thus, the quality of tactical skills can also increase along with the development of technical skills. This is evidenced by the more frequent involvement of players in the competition that junior players use different service tactics or the winner usually makes fewer own mistakes when hitting from the offensive zone. On the other hand, tactics are associated with making decisions when playing, based on the available options and the associated risks and opportunities (Mart, 2018; O'Donoghue, 2009).

Higher-level players have better decision-making skills due to knowledge and experience that makes performance improve progressively. Combining technical and tactical skills assumes great importance in winning every point in the match. Technique plays a functional role in achieving tactical goals. For example, if the tactical goal is to make the opponent move off the field, a short cross-ball strategy is needed that requires a certain ball speed, in addition, cognitive knowledge such as understanding what to do in certain situations with the right hitting technique greatly affects the performance of tactical quality. For players, this tactical ability will help players in achieving their tennis career (Maccurdy, n.d.; Masters et al., 2008; Strecker et al., 2011). Game tactics in tennis must be trained as a single unit in every training session. The goal is for playing tactics to become an automatic pattern, which in turn will enrich playing tactics for players. In more detail, playing tactics are grouped into single and

## Development of Application-Based Field Tennis Training Model

double play tactics, playing patterns in the back, middle, and near net areas. Therefore, there are many factors that can be considered in practicing playing tactics.

Since the game of tennis is an open skill, the coach's ability to always associate every technical action with tactics should be a concern. The process of open skills which includes the ability to perceive, the ability to make decisions is a very important input for the implementation of skills. For this reason, tactical training is a very important part given to players from the start, especially in understanding tactics. So from an early age, the whole process of practicing tennis skills itself has been given thoroughly.

The use of an application-based tennis tactics training model is an alternative for understanding tactics for players and coaches. Tennis players need a training program relevant to their developmental stage and age group that includes physical, technical, mental, and tactical components. This tactical training model can add insight into the tactical dimensions of tennis players. Therefore, this tactical training model will be very attractive for coaches who want to optimize the success rate and quality of players and design training activities that are tailored to the conditions when playing.

## CONCLUSION

Based on the results of the research and the results of data analysis that has been carried out, it can be concluded that (1) The tennis training tactics training model is proven valid according to material experts and media experts. (2) The model of tennis practice tactics training is proven to be suitable as a guide for proper tactical training for coaches and players. The tennis training tactical training model can be used as a guide or guide for doing tactical training and in the future this product can motivate coaches and players to improve the quality of the game.

## REFERENCES

- 1) Casagrande, P. de O., Coimbra, D. R., & Andrade, A. (2018). Burnout in elite tennis players of different junior categories. *Revista Brasileira de Medicina Do Esporte*, 24(2), 121–124. <https://doi.org/10.1590/1517-869220182402181208>
- 2) Cojocar, A. M., Bucea-Manea-Țoniș, R., Jianu, A., Dumangiu, M. A., Alexandrescu, L. U., & Cojocar, M. (2022). The Role of Physical Education and Sports in Modern Society Supported by IoT—A Student Perspective. *Sustainability*, 14(9), 5624.
- 3) Jiri, Z. (2017). *Searching reasons of success and failure of careers of young tennis players – study of two individual cases. September 2015.*
- 4) Kolman, N. S., Kramer, T., Elferink-Gemser, M. T., Huijgen, B. C. H., & Visscher, C. (2019). Technical and tactical skills related to performance levels in tennis: A systematic review. *Journal of Sports Sciences*, 37(1), 108–121.
- 5) Kovacs, M. S. (2007). Training the Competitive Athlete. *Sports Medicine*, 37(3), 189–198.
- 6) Maccurdy, B. D. (n.d.). *Talent Identification Around The World And Recommendations For The Chinese Tennis Association.* 1–10.
- 7) Malchrowicz-Moško, E., & Poczta, J. (2018). A small-scale event and a big impact—Is this relationship possible in the world of sport? The meaning of heritage sporting events for sustainable development of tourism—Experiences from Poland. *Sustainability*, 10(11), 4289.
- 8) Mart, R. (2018). *Tactical analysis in tennis : from its origins to the present. April.*
- 9) Masters, R. S. W., Poolton, J. M., Maxwell, J. P., & Raab, M. (2008). Implicit motor learning and complex decision making in time-constrained environments. *Journal of Motor Behavior*. <https://doi.org/10.3200/JMBR.40.1.71-80>
- 10) Neus, D. V., & Shalamov, D. S. (2021). Theoretical aspects of the correlation of education and professional sports in the development of information technology. *Scientific Bulletin of Mukachevo State University. Series "Pedagogy and Psychology*, 7(3), 134–140.
- 11) O'Donoghue, P. (2009). Research methods for sports performance analysis. In *Research Methods for Sports Performance Analysis*. <https://doi.org/10.4324/9780203878309>
- 12) Pummell, E. K. L., & Lavalley, D. (2019). Preparing UK tennis academy players for the junior-to-senior transition: Development, implementation, and evaluation of an intervention program. *Psychology of Sport and Exercise*, 40(December 2017), 156–164. <https://doi.org/10.1016/j.psychsport.2018.07.007>
- 13) Reid, M., Crespo, M., & Santilli, L. (2009). Importance of the ITF junior girls' circuit in the development of women professional tennis players. *Journal of Sports Sciences*, 27(13), 1443–1448. <https://doi.org/10.1080/02640410903037714>
- 14) Reid, M., Crespo, M., Santilli, L., Miley, D., & Dimmock, J. (2007). The importance of the International Tennis Federation's junior boys' circuit in the development of professional tennis players. *Journal of Sports Sciences*, 25(6),

## Development of Application-Based Field Tennis Training Model

667–672. <https://doi.org/10.1080/02640410600811932>

- 15) Roetert, E. P., Kovacs, M., Knudson, D., & Groppe, J. L. (2009). Biomechanics of the tennis groundstrokes: Implications for strength training. *Strength and Conditioning Journal*, 31(4), 41–49. <https://doi.org/10.1519/SSC.0b013e3181aff0c3>
- 16) Strecker, E., Foster, E. B., & Pascoe, D. D. (2011). Test-retest reliability for hitting accuracy tennis test. *Journal of Strength and Conditioning Research*. <https://doi.org/10.1519/JSC.0b013e318215fde6>



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