The analysis of the last shots of the top-level tennis players in open tennis tournaments

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Abstract

The aims of this study is to investigate the technical strokes and the last win and lost strokes, and contribute to prepare suitable technical training programs for the desired goal. In accordance with this purpose it has been monitored the semi and quarter final matches of the elite level tennis players Nadal, Federer, Agossi, Hewitt, Coria, Davydenko, Ljubcic and Ferrero in the U.S.A., Australia, Dubai, Doha and China 2005 Open Tennis Tournaments. Video records of tennis matches in Eurosport Channel are later transferred in computer. Images in the computer are converted into an observation form by a notation method. Obtained data are transferred into Excel Program as shoot types, win or lose last shoots. Percentage distributions of the data are presented in tables. In our study 528 serving 1939 shoot technics are analyzed. The average rally durations are 3.7. 'The forehand technique' has been the most widely used (30.78%) and the best one to get scores (37.8%) of all. And 'the backhand technique' has been the worst one (48.7%).

Keywords: Tennis, match analysis, last strokes in tennis.

Açık tenis turnuvalarındaki üst düzey tenisçilerin son vuruşlarının analizi

Özet

Bu çalışmanın amacı teniste kullanılan teknik vuruşları, kazanılan ve kaybedilen son vuruşları incelemek ve bu bulgulardan yararlanarak amaca uygun teknik antrenman programlarının hazırlanmasına katkıda bulunmaktır. Bu amaçla Dünya sıralamasında üst sıralarda bulunan ve Amerika, Avustralya, Dubai, Doha, Çin 2005 Açık tenis turnuvalarına katılan Nadal, Federer, Agassi, Hewitt, Coria, Davydenko, Ljubcic, Ferrero'nun çeyrek final, yarı final, final maçları izlenmiştir. Eurosport kanalında yayınlanan maçların video görüntüleri bilgisayara aktarılmıştır. Bilgisayardaki görüntüler el notasyon yöntemi ile tarafımızdan geliştirilen gözlem formuna işlenmiştir. Elde edilen ham veriler, vuruş çeşitleri, sayı kazandıran ve sayı kayıp ettiren son vuruşlar olarak Microsoft Excel programına yüklenmiştir. Verilerin yüzdelik dağılımları tablolaştırılmıştır. Çalışmamızda 528 servis ve 1939 vuruş tekniği incelenmiştir. Bu maçlarda oynanan rallilerin ortalaması 3,7 olarak bulunmuştur. Tüm vuruşların içerisinde forehand tekniği: %30,78 ile en çok kullanılan ve %37,8 ile en çok sayı kazandıran son vuruş olmuştur. Backhand tekniği ise: %48,7 ile en çok sayı kaybettiren son vuruş olmuştur.

Anahtar Kelimeler: Tenis, maç analizi, teniste son vuruşlar.

INTRODUCTION

Tennis sport is located in the popular sports in the world. So the number of those who make this sport is increasing gradually. The number of viewers is also increasing gradually as the increasing number of tennis players. Particularly through major tournaments, via live television programs and the Internet it is forwarded to the broad masses. It is wondered by everybody how good players win matches, what their success depends on and which stroke is more effective. Exercise scientists and tennis coaches work on to determine how much

work are made about which tennis stroke techniques, physiological and psychological features play a role in the success. In this study, we tried to identify the technique used and by making analysis of most of the techniques stroke which are the most widely winning and losing ones.

Observation of the competition is important for both the successfully training and rightfully decision making during the match. Therefore, making the match analysis is required (7). Successfully trainers and tennis players take advantage of the scientific research and observations in order to make training

programs (10). A systematic analyze is necessary to determine the reason of failure and plan the better training (6). A good match analysis consists of the carefully selected parameters and intelligently interpreted results. Information, is obtained by match analysis, transform to numerical data (2).

By showing you the effectiveness of the data revealed the percentage of these shots with this stroke, in training, which will help you think of how much work should be done. The successful players in the tournaments from the same centers, show us that their success is up to not only their individual qualities, but also the result of the technical support and education.(3) The most of the players in the tournaments have strong forehands like played the pressed back line and with the semi-western and western. These sportsmen are not only the extraordinarily technical also they are strong.(8) Modern tennis is related to positive science such as Math, Physics and Medical. And also with the developments in racket technology, especially in last 20 years the tendency to it has changed a lot.(1) Recently observation has gained a new dimension which started to be with the use of new product technology. Video recordings and their rapid transfer on computer programs and analysis resulted quickly should be used in elite players. Because of the video tools developed by frame images, showing features due to their duration and distance determined with the help of the counter section of the output of the computer evaluation of the event taken analysis has provided quickly (9).

The aims of this study is to investigate the technical strokes and the last win and lost strokes, and contribute to prepare suitable technical training programs for the desired goal.

MATERIAL & METHOD

In this study, the players like Nadal, Federer, Agassi, Hewitt, Coria, Davydenko, Ljubcic and Ferrero who attended the open tennis tournaments in the USA ,Australia, Dubai, Doha, China 2005 ATP were recorded and the videos and DVDs about these players final, semi-final and quarter final among themselves have been analyzed. These video sights had been taken from the live programs of Eurosport. The difference from the other studies; the players, matches and rallies have not been analyzed but, the last hits which got the score in final, semifinal and a quarter final in the tournaments written above have been analyzed.

To analyze the hits; "the tennis watch form" has been developed according to our aim. By monitoring encounters of all strokes (Forehand and backhand, service, double mistake, to meet service, volley, smack, slice, lob, drop) processed separately one by one on this form and recent successful and unsuccessful shots are identified as errors and simple error. Then all the data was installed in Excel program and percentage (%) values were found.

RESULTS

The analyses of all the strokes like forehand and backhand, service, double mistake, to meet service, volley, smack, slice, lob, drop and the numerical data of the last winning and losing shots are tabled.

Table 1. The numerical distribution of all stroke final matches.

Stroke Techniques	n	%
Service (double mistake included)	528	27.23
Forehand Stroke	597	30.78
Backhand Stroke	574	29.60
Backhand Volley	33	1.70
Forehand Volley	6	0.30
Smack	9	0.46
Forehand Slice	15	0.77
Backhand Slice	168	8.66
Drop	9	0.46
Total	1939	100

According to the table 1, 27.2 % service, 30.7 % forehand and 29.6 % backhand strokes have been performed in all strokes.

Table 2. The numerical dispersion of last strokes winning scores in final matches.

Stroke	n	%
Service (Ace included)	141	25.6
Forehand Stroke	186	37.8
Backhand Stroke	147	28.5
Backhand Volley	21	3.05
Forehand Volley	6	2.64
Smack	9	1.83
Forehand Slice	0	0
Backhand Slice	3	0.61
Drop	0	0
Total	513	100

As seen in table 2, numbers of 513 were obtained from 37.8 % forehand strokes, 28.5 % backhand stroke and 25.6 % service.

Table 3. The last strokes of losing scores in final matches.

Mistakes	Simple Mistakes	%	Mistake	%	Total	%
Backhand	135	48.39	42	50	177	48.76
Forehand	132	47.31	27	32.14	159	43.80
Smack	0	0	0	0	12	-
Double Mistake	0	0	15	17.85	15	4.13
Volley	12	4.30	0	0	12	3.31
Total	279	100.0	84	100.0	363	100.0

As seen in table 3, totally 363 points were lost with last strokes. The losing scores of last strokes were realized as with the 48.76% backhand and 43.80% forehand.

Table 4. The rates of technical stroke points.

Strokes	Total	Winning strokes	%
Service	528	141	26,7
Forehand Stroke	597	186	31,2
Backhand Stroke	574	147	25,6
Backhand Volley	33	21	63,6
Forehand Volley	6	6	100,0
Smack	9	9	100,0
Forehand Slice	15		0
Backhand Slice	168	3	1,79
Drop	9	0	0
Total	1939	513	26,5

As seen in table 4, all smacks and backhand volley have been 100 % successful.

DISCUSSION

In this study, the games and the last strokes of top-level tennis players like Nadal, Federer, Agassi, Hewitt, Coria, Davydenko, Ljubcic and Ferroro who attended America, Australia, Dubai, Doha, China 2005 ATP tennis tournaments were discussed and recommendations are listed. In this study, instead of players' individual game features, all the strokes used in tennis were examined.

In total 1939 strokes, forehand technique has been the most widely used technique with the 597 strokes and with the 30.7%.

Forehand technique again has been the most winning stroke with the 186 strokes and 37.8%. That is forehand technique has been the most widely used and the most winning one of all techniques. The secondly most used technique has been the backhand technique with 574 strokes and 29.6%. With this technique 147 scores were obtained and with 28% it has been the second winning technique.

With Backhand stroke 177 mistake strokes had been done and it has been the most losing stroke

with 48.76% .Likewise this study results, Gül (4), reported that 29% of winning strokes are backhand flats and 35% winning strokes are forehand flats. These results are similar to our study that is backhand 28% and forehand 378%.

In modern tennis, the game is organized with the backhand and forehand strokes and again with these techniques the final is done. Volley, lobes and smacks are very few used strokes. Volley 2%, Smack 0.5% and Lobe 0%.

When examined within the dunks and volley strokes (table 4) despite the low percentage of use of each volley and smack strokes, it is seen that they get points. Therefore these strokes can be said as effective strokes to win points.

The service stroke, which is obligatory stroke and starts the game, is in the third place with the use of 528 strokes and 27.23%. Again from the service, 141 points were obtained and it has been the third winning technique with 26.70 %.

A similar study has been done by Gül et al. They examined all the strokes as service, forehand and backhand. They found out these percentages: Forehand 43.00% backhand 34.00% and service 21.00 % have been used (5). Strokes are parallel to our study in use ranking.

In another study is determined that ace ratio of first service is 19.7% and ace ratio of second service is 6.6% (4). The total ace ratio is determined as 26.3% and this study is similar to our study, which the ace ratio is determined as 25.6%.

Winning 26.70% from the service in all points is not a despised ratio. To win points with a single stroke in a short time is economics and also affect rival psychologically. Also returns to coming effective services provide attack superiority to the player who uses the service. So particularly the1st service is done too fast to win the direct points.

When we examine the number of losing strokes, the ranking is as follows. The first one is backhand with 177 strokes and 48.7%, the second is

forehand with 159 strokes and 43.8 % and the third one is the service with 15 double mistakes and 4.13 %. No error was encountered with the forehand volley and smack strokes. But with backhand volley there had been 12 false strokes and 3.3% was found out.

We think that in the tournaments where the best tennis players invited and the analysis of strokes used in these tournaments can help us to develop training programs for both performance sportsmen and the trainers.

By moving our research findings, majority of the technical and tactical training section should be backhand, forehand and service trainings. Special exercises should be done in the trainings for backhand stroke because of the fact that it is the most losing technique. As tactical, backhand and forehand strokes should be preferred and avoided from the slice strokes.

REFERENCES

1. Brabenec J. Creating Efficient Training Sessions, *Itf Coaches Review*, 1994;5.

2. Eniseler N. Futbolda Gol Vuruşunun Analizi. Dokuz Eylül Üniversitesi, Sağlık Bilimleri Enstitüsü, Beden Eğitimi ve Spor Anabilim Dalı. Yayınlanmamış Doktora Tezi. 1994

3. Fraayenhoven FV. Player Profiling-Self Analysis. *Itf Coaches Review*, 1994; 3

4. Gül M. Tenis Müsabakalarındaki Sayıya Götüren Taktik Oyun Stratejilerinin incelenmesi Kocaeli Üniversitesi Sağlık Bilimleri Enstitüsü Yüksek Lisans Tezi, 2008.

5. Gül M, Sever R, Gül GK. *2006 Avustralya Açık Tenis Turnuvası'nda 6 Bayan Maçındaki Atılan Servislerin Maçın Sonucuna Etkis*i, 3.Raket Sporları Sempozyum Kitapçığı. Kocaeli Büyükşehir Belediyesi Basımevi, 2007.

6. Kandaz N. 2000 Wimbledon Tenis Turnuvası Erkekler Yarı Final ve Final Maçlarında Atılan Servislerin İstatistikî Analizi. Sakarya Üniversitesi Sosyal Bilimler Enstitüsü, Beden Eğitimi ve Spor Ana Bilim Dalı, Yayınlanmamış Yüksek Lisans Tezi, 2001

7. Muratlı S, Kalyoncu O, Şahin G. *Antrenman ve Müsabaka.* 2. İstanbul, Ladin Matbaası. 2007.

8. Skoradumova A. Match Play Analysis. *Itf Coaches Review*, 1994; 4

9. Taşkıran Y. Hentbolde Hücumda Oyun Kurucuyu Gole Götüren Davranışların Video ve Bilgisayar Yoluyla Analizi, Yayınlanmamış Doktora Tezi, D.E.Ü., Sağlık Bilimleri Enstitüsü, 1994.

10. Zorba E. *Herkes İçin Spor ve Fiziksel Uygunluk*. Gsgm Yayınları, 1993; No:149.