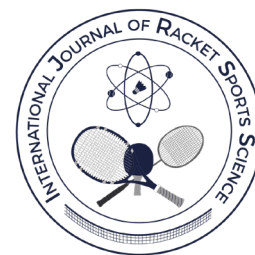# Tennis Doubles development: Two historical snapshots show enormous tactical changes at the professional level over 20 years

El desarrollo de los dobles: dos momentos históricos muestran enormes cambios tácticos a nivel profesional a lo largo de 20 años

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Abstract

We aimed to compare tactical characteristics in professional men´s tennis doubles by notational analysis of two historical samples of matches collected at least 20 years apart. Samples were taken either between 1985 and 1990 (D$<_{1990}$: 57 matches, 9.305 points, 34.428 strokes) or in 2011 (D$>_{2010}$: 8 matches, 1.002 points, 4.297 strokes) during official ATP tournaments. Players were internationally ATP Ranking (D$<_{1990}$: 76 ± 89; D$>_{2010}$: 102 ± 91) and all matches were played on clay courts following ITF rules. Notational analysis was done by tagging video recordings following the same self-programmed notation software model. Absolute and percentage numbers of stroke rates, winners, and errors as well as specific tactics for services (e. g. Serve & Volley), returns (e. g. Chip & Charge), volleys and groundstrokes (e. g. positioning) were analysed. Coding was done by two experienced tennis coaches. Interrater reliability was calculated by Cohen's Kappa and items with r < 0.9 were excluded. Differences between D$<_{1990}$ and D$>_{2010}$ were calculated by independent t-tests. Significance level was set at p<0.05. Rally length (3.7±0.3 vs. 4.2±0.5 strokes per point, p<0.001) increased significantly from D$<_{1990}$ to D$>_{2010}$. The percentage of serves (32.5±3.9 vs. 23.8±3.5 %) and volleys (25.1±4.0 vs. 17.3±5.7 %) decreased while the percentage of groundstrokes increased over time (8.8±3.6 vs. 26.9±7.0 %) (p<0.001). Serve & Volley application was reduced to one third in D$>_{2010}$ (98.7±2.0 % vs 33.9±33.4 %) with a high individual variation. Positioning of Returns (more often behind the baseline) and volleys (shorter distance to the net) changed in D>2010 (p<0.001). Tactical characteristics in men´s tennis doubles completely changed within a time frame of 20 years mainly attributed to a decreased Serve & Volley application from most but not from all double players. The current variability in technical and tactical demands must be considered by individualized coaching guidelines.

Keywords: *History and development, notational analysis, ATP doubles, Serve & Volley tactics.*

Resumen

El objetivo de este estudio fue comparar las características tácticas de dobles de tenis masculinos profesionales a través de un análisis notacional de dos muestras históricas de partidos recolectadas con al menos 20 años de diferencia. Las muestras fueron tomadas entre 1985 y 1990 (D$<_{1990}$: 57 partidos, 9305 puntos, 34 428 golpes) o en 2011 (D$>_{2010}$: 8 partidos, 1002 puntos, 4297 golpes) durante torneos ATP oficiales. Los jugadores fueron ranqueados

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internacionalmente por la ATP (D$<_{1990}$: 76 ± 89; D>2010: 102 ± 91) y todos los partidos fueron jugados en canchas de arcilla según las reglas de la ITF. El análisis notacional fue realizado etiquetando grabaciones de video siguiendo el mismo modelo de software de notación autoprogramado. Se analizaron las cifras absolutas y porcentuales de las tasas de golpes, los ganadores, los errores y las tácticas específicas en los saques (e. g. saque y volea), las devoluciones (e. g. *chip and charge*), las voleas y los golpes de fondo (e. g. posicionamiento). La codificación fue hecha por dos entrenadores de tenis experimentados. La fiabilidad interevaluador se calculó mediante el coeficiente Kappa de Cohen y los elementos con r < 0,9 fueron excluidos. Las diferencias entre D$<_{1990}$ y D$>_{2010}$ fueron calculadas con pruebas t independientes. El nivel de significancia se fijó en p<0,05. La duración del peloteo (3,7±0,3 vs. 4,2±0,5 golpes por punto, p<0,001) aumentó significativamente de D$<_{1990}$ a D$>_{2010}$. El porcentaje de saques (32,5±3,9 vs. 23,8±3,5 %) y de voleas (25,1±4,0 vs. 17,3±5,7 %) disminuyó, mientras que el porcentaje de golpes de fondo aumentó con el tiempo (8,8±3,6 vs. 26,9±7,0 %) (p<0,001). La aplicación del saque y volea se redujo a un tercio en D$>_{2010}$ (98,7±2,0 % vs 33,9±33,4 %) con una alta variación individual. El posicionamiento en las devoluciones (más frecuentemente detrás de la línea de fondo) y las voleas (menor distancia a la red) cambió en D$>_{2010}$ (p<0,001). Las características tácticas en los dobles de tenis masculinos cambiaron completamente en un periodo de 20 años, y se le atribuye principalmente a la disminución en la implementación del saque y volea por parte de la mayoría, pero no todos los jugadores de dobles. La variabilidad actual en las demandas técnicas y tácticas debe ser considerada en guias de entrenamiento individuales.

Palabras clave: *historia y desarrollo, análisis notacional, dobles ATP, tácticas de saque y volea.*

INTRODUCTION

Tennis doubles represent a special attraction for spectators as well as players. Almost all professional tournaments organised by the Association of Tennis Professionals [ATP] and the International Tennis Federation [ITF] include doubles draws (Martinez-Gallego et al., 2021c; Borderias et al., 2024; ATP, 2024; ITF, 2024). Changes in team competition formats (e. g. Davis Cup and ATP Cup) increase the importance of doubles while making doubles play the deciding point (Martinez-Gallego et al., 2021a). Interestingly, due to the specific skill demands in tennis singles and doubles an increasing number of tennis players on ATP tour are specializing on doubles or mixed doubles competition which comes along with a negative correlation between doubles and singles ATP ranking (r=-0.5, February 2025) and only 15 from the top 100 doubles ranked players are ranked beyond the top 1,000 in ATP singles ranking (https://live-tennis.eu).

Due to the rules and regulations, the doubles game has several differences compared to singles. Doubles are played in pairs, which implies a decision-making during the game between the players (Borderias et al., 2024). Players not only have to watch the ball but also their partners and opponents, demanding a higher perceptual skill compared to singles (Carboch et al., 2014; Carboch & Kocib, 2015). The court dimensions include added alleys, but the space per player is smaller, affecting movement, positioning, physiological demands, timing, and training. Communication between players is crucial, as it can determine the outcome of a match and is essential during and between points (Lausic et al., 2009; Kocib et al., 2020; Martinez-Gallego et al., 2021b). Nowadays, the scoring system at the international level differs from singles, featuring the best of two tie-break sets and a match tie-break, along with the no-ad rule. In contrast, Grand Slam doubles matches are played in a best-of-three tiebreak sets format with advantage sets, like singles (Pollard & Pollard, 2010; Borderias et al., 2024).

Although tennis doubles hold considerable importance in professional tennis, studies on this subject are limited. Research on doubles has primary focused on match structure (Martinez-Gallego et al., 2020), communication (Lausic et al., 2009), scoring systems (Pollard & Pollard, 2010), time characteristics (Martinez-Gallego et al., 2021), and technical facts like serve efficiency between male and female athletes (Carboch & Kocib, 2015), and volley positions (Martinez-Gallego et al., 2021a). Only one article by Black & Van de Braam (2012) outlined changes in the modern double's tactics over the years due to increased ball velocities, which impact the net game. However, none of the studies used notational match analysis to quantify this evolution. Therefore, we compared tactical characteristics in professional men´s tennis doubles in two samples of matches collected at least 20 years apart using the same self-programmed notational analysis software. We hypothesized fundamental game structural changes relevant for training prescription.

MATERIALS AND METHODS

Sample and participants

Historical data from notational analysis in men's tennis doubles taken during ATP Tournaments between 1985 and 1990 (D$_{<1990}$: 57 matches, 9.305 points, 34.428 strokes) are compared with more current data from 2011 (D$_{>2010}$: 8 matches, 1.002 points, 4.297 strokes) (Table 1).

The D$_{<1990}$ sample includes observations taken during World Team Cup 1985, 1986, 1989, and 1990, which was the men's team championship of the Association of Tennis Professionals (ATP) annually held in Düsseldorf (Germany), as well as data taken

during the French Open ATP Grand Slam Tournaments 1985 and 1986 in Paris (France). The $D_{>2010}$ sample was taken during the World Team Cup 2011 in Düsseldorf (Germany).

All matches were played on clay courts following the same rules of the International Tennis Federation (www.itftennis.com). Matches were played to the best of 3 sets (full 3rd set, no match tie-break). Since the tennis matches were open to the public, no consent forms were obtained from the players in either study. All players were internationally registered in the ATP Doubles Ranking ($D_{<1990}$: 76 ± 89; $D>_{2010}$: 102 ± 91) (Table 1).

Table 1
Overview about sample sizes and player characteristics

Sample & participants	D<1990	D>2010
Matches (n)	57	8
Players (n)	111	20
Age (yrs)	24.9±3.9	28.7±3.7
ATP Doubles Ranking	76.1±89.2	102.6±90.9
Points	9305	1002
Strokes	34428	4297
Serves (1st & 2nd)	11189	1339
Returns	8194	998
Ground Strokes	3030	1141
Volleys	8641	752
Half Volleys	861	143
Smashs	1308	140
Lobs	1205	131

Procedures

Video recording and tagging

Matches were recorded using a digital video camera with a wide-angle lens, positioned at an elevated camera angle at the front of the court. From these video files, the matches were analysed, allowing for the reproduction of all match-deciding strokes and game actions in a randomly delayed sequence. Observation and tagging were conducted by two experienced tennis coaches and tournament players.

Observation model and definitions

The observation model was developed and programmed in MS-DOS language as a specific observation software for tennis doubles called *"TENDO"* (Ferrauti, 1992). The model was primarily focused on recording individual actions and consists of seven hierarchical observation levels: 1. player, 2. stroke technique, 3. Serve position & stroke hand (e. g. Forehand, Backhand), 4. Serve spin, return position & volley action, 5. Serve direction, stroke spin & volley position, 6. stroke direction and serve follow-up (like serve & volley) and 7. stroke effectiveness (Figure 1).

Definition of the observation levels:

1. **Player:** the two players of one double are player A or B.

2. **Stroke technique:** First and second serve, return of serve, volley, half volley, smash, groundstrokes, lob according to the general accepted definitions (Roetert & Groppel, 2001).

3. **Serve position & stroke hand:** serves from deuce or ad-court side and forehand or backhand strokes, respectively (Roetert & Groppel, 2001).

4. **Serve spin, return position & volley action:** in serves only two variants (flat serve or spin serve) were differentiated. Regarding stroke position the field was divided into several zones in length and width (Figure 2). In volleys we differentiated two stroke actions (moving volley or standing volley).

5. **Serve direction, stroke spin & volley position:** serve direction was differentiated into three variants (left, body, right) from the server's perspective. Regarding stroke spin it was differed between topspin and slice (Roetert & Groppel, 2001).

6. **Stroke direction & serve follow-up:** for the assignment of "cross", "middle" and "longline", the ball flight was evaluated in relation to the position of the opponents (Figure 2). For the server, a distinction was made as to whether a net attack followed.

7. **Stroke effectiveness:** a distinction is made between "point" (the ball hits in the opponent's court in accordance with the rules, and no further stroke action by the opponent can be observed), "error" (the ball hits in the net or outside the court), or "neutral" (at least one further stroke movement by the opponent's double can be observed).

8. **Additional items:** Later, after finishing the software, special tactical features such as "Australian Formation" and "Chip & Charge" were added und needed to be recorded separately using the paper and pencil method.

Data analysis and statistics

Data entry to the observation program *"Tendo"* was performed using the numeric keypad. For each point, three to seven entries were required in a predetermined sequence (Figure 1). The list of entry codes (e. g. 1,1,2,2,1,1,1) was processed by the software but could also be exported to other statistics programs. Interrater reliability was calculated between two tennis coaches (processing two sets from two randomly chosen matches) according to Cohen's Kappa and reached values between 0.94 and 1.0, which represent a good reliability (Cohen, 1968; Table 2).

Figure 1
Sequence and structure of observation levels and items programmed in the software "*TENDO*" (Ferrauti, 1992). A coding example is highlighted in colour. Code 1-1-2-2-1-1-1 means a flat and wide 1st serve of player A from the deuce court side, followed by a net approach.
Note: in addition to this online evaluation, special tactical features such as "Australian Formation" and "Chip & Charge" were recorded separately using the paper and pencil method).

Figure 2
Definition of zones in length and width on the double field as well as stroke direction evaluation guidelines for cross, middle, or long line strokes.

The raw data from each double pair (both players combined) and for each match were first calculated into percentage data per double pair and per match based on the absolute total numbers of observations per match. From the resulting 114 percentage data sets in $D<_{1990}$ and the 16 data sets in $D>_{2010}$, respectively, we the calculated means ± standard deviations (SD).

An independent t-test was used to compare the percentage mean values between $D<_{1990}$ and $D>_{2010}$. The Shapiro-Wilk test was used to test for normal distribution. T-Tests were conducted using an online t-test calculator (GraphPad, 2024). Significance level was set at p<0.05.

Table 2
Interrater Kappa values of selected items.

Items	Interrater Reliability (Kappa)
Player	1.00
Stroke technique	0.99
Serve position	0.98
Serve direction	0.98
Serve & Volley	0.99
Forehand or backhand	1.00
Stroke position	0.96
Stroke direction	0.94
Moving or Standing Volley	0.96
Volley position	0.98

RESULTS

Stroke Pattern: Rally length (3.7 ± 0.3 vs. 4.2 ± 0.5 strokes per point, p<.001) increased significantly between $D<_{1990}$ and $D>_{2010}$. The mean percentage of serves (32.5 ± 3.9 vs. 23.8 ± 3.5 %, p<.001) and volleys (25.1 ± 4.0 vs. 17.3 ± 5.7 %, p<.001) decreased, while the mean percentage of groundstrokes substantially increased (8.8 ± 3.6 vs. 26.9 ± 7.0 %, p<.001) between $D<_{1990}$ and $D>_{2010}$. Additionally, more half volleys were played in $D>_{2010}$ compared to D<1990 (3.3 ± 1.3 vs. 2.5 ± 1.2 %, p = 0.015) (Figure 3).

Service: In $D<_{1990}$, almost every point beginning after 1st and 2nd serve was started by Serve & Volley (98.7 ± 2.0 %), while this was reduced to one third (33.9 ± 33.4 %, p<.001) with a high variation between players (Table 3). Meanwhile, I-formation and Australian formation percentage increased significantly from $D<_{1990}$ (3.5 ± 3.2 %) to $D>_{2010}$ (8.9 ± 9.0 %, p<.001). Serve direction remained constant with around two thirds of the serves played at the opponent's backhand (64.9 ± 9.6 vs. 67.3 ± 8.6 %, p = 0.345). Additionally, the positioning of the serve partner remained relatively consistent over the years (Table 3 and Figure 4).

Return: In earlier times, significantly more returns were played from Zone 3 before the baseline inside of court (58.9 ± 13.2 vs. 27.7 ± 7.4, p<.001*) and more often the return was combined with a net attack called "Chip & Charge" (30.4 ± 17.7 % vs. 6.8 ± 6.0, p<.001) (Table 3). Also, the return partner´s position was more offensive in $D<_{1990}$. Return partners were positioned in 80 % of first serve points in offensive Zones 1 or 2 compared to 16,5 % in $D>_{2010}$. The starting position was more offensive before second serves in both groups, but the difference remained (Figure 4).

Volley: More recently, a strikingly higher number of volleys were played from a close distance to the net in Zone 1 (42.9 ± 10.9 %, p<.001) ensuring a high hitting point (84.0 ± 4.7), while in earlier times volleys were mainly played from Zone 2 (76.0 ± 13.1, p<.001) with a lower hitting point (Table 3 and Figure 4). Volleys are played almost equally while moving forward or from a standing position (p = 0.548) (Table 3).

Table 3
Percentage of selected technical-tactical features (means ± standard deviations) of the stroke techniques serve, return and volley observed in professional men's doubles in $D<_{1990}$ and $D>_{2010}$.

Technical-tactical features		$D_{<1990}$	$D_{>2010}$	p-Value
Serve (%)	Serve & Volley	98.7 ± 2.0	33.9 ± 33.4	<.001*
	I-Formation / Australian formation	3.5 ± 3.2	8.9 ± 9.0	<.001*
	FH	35.1 ± 9.6	32.7 ± 8.6	0.345
	BH	64.9 ± 9.6	67.3 ± 8.6	0.345
Return (%)	Chip & Charge	30.4 ± 17.7	6.8 ± 6.0	<.001*
	cross	54.5 ± 12.2	58.0 ± 15.0	0.297
	middle	31.6 ± 11.7	19.6 ± 12.9	<.001*
	longline	10.3 ± 5.0	15.0 ± 3.6	<.001*
	Lob	3.7 ± 3.7	7.7 ± 7.8	<.001*
	Zone 3	58.9 ± 13.2	27.7 ± 7.4	<.001*
Volley (%)	High	57.3 ± 5.0	84.0 ± 4.7	<.001*
	Low	42.7 ± 5.0	16.0 ± 4.7	<.001*
	Standing	47.2 ± 10.3	45.6 ± 6.6	0.548
	Moving	52.8 ± 10.3	54.4 ± 6.6	0.548
	Zone 1	76.0 ± 13.1	42.9 ± 10.9	<.001*
	Zone 2	58.9 ± 13.2	49.9 ± 10.9	<.001*
	Zone 3	11.5 ± 9.6	7.3 ± 5.5	0.090

DISCUSSION

This is the first study on professional level men's doubles in tennis quantifying tactical characteristics and their historical development over a period of more than 20 years. The data presented indicate a significant shift in the fundamental playing structure of tennis doubles and in multiple technical and tactical details. The main differences between earlier and more recent doubles characteristics consists in a lower but individually inhomogeneous frequency of the serve & volley strategy from the server, a move of the service partner closer to the net (because he is no longer responsible for securing the back field) and, a more defensive position of the return players,
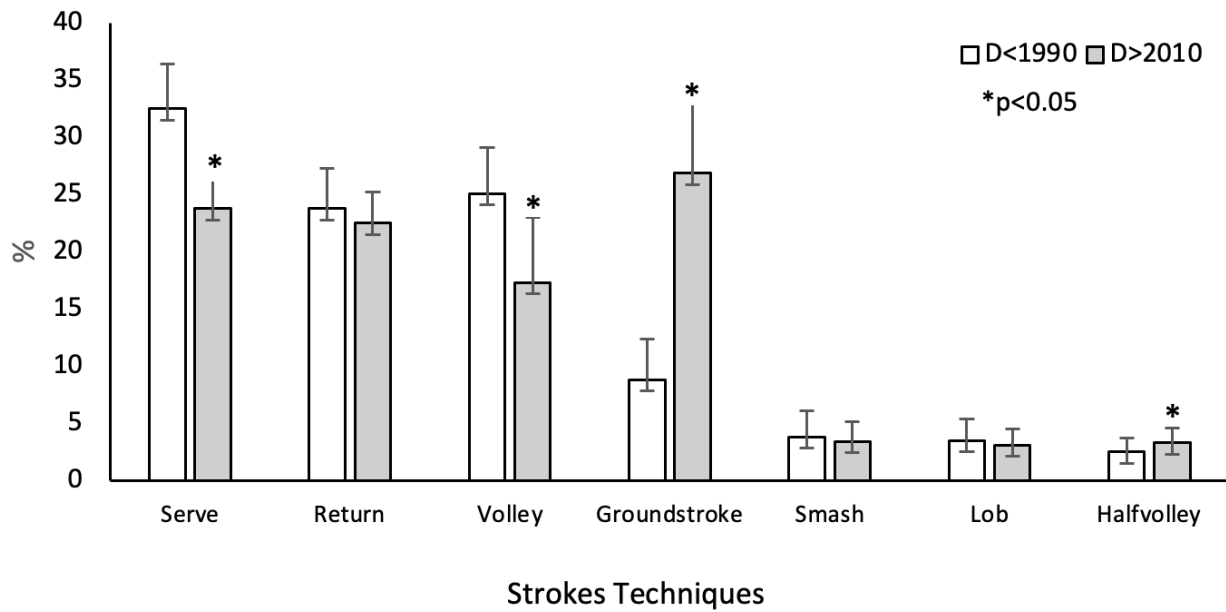
Figure 3
Percentage of the different stroke techniques (means and standard deviations) in professional men´s doubles in D<$_{1990}$ and D>$_{2010}$.
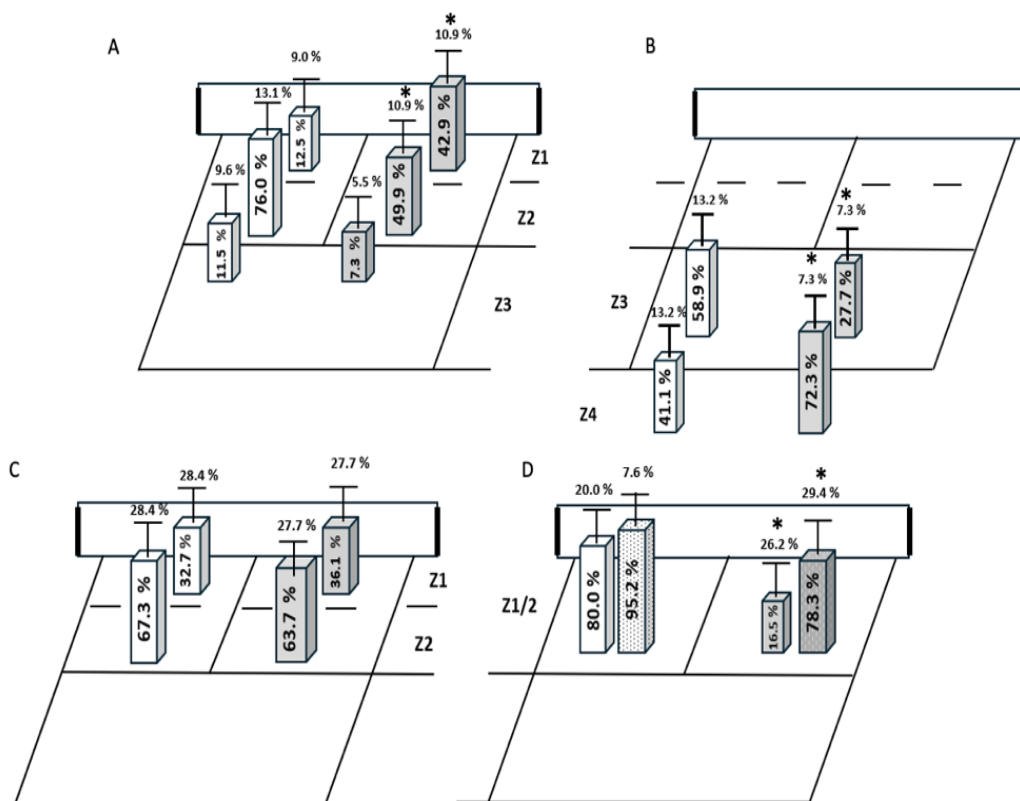

Figure 4
Percentage rate of different on court positions for volleys (A), returns (B), serve partner (C), and return partner (D) in D<$_{1990}$ (white bars) and D>$_{2010}$ (grey bars). In Figure D, the dotted bars indicate the return partner position awaiting a 2nd serve.

both, regarding return player position as well as return partner. These changes are coming along with an increase in stroke rate and importance of the baseline ground strokes while reducing net play, and consequently an extension of the rally duration (Figure 3 and Table 3). This striking development is even more remarkable since no major rule changes during the last decades and no significant change in the players anthropometrics have taken place. Since the social relevance and the prize money structure in doubles remain lower than in singles, these aspects also seem to have no impact.

The reasons for the observed changes can only be speculated and they are very likely diverse. Previous studies showed that the velocity of both, serves and groundstrokes significantly increased over the past decades (Fernandez-Fernandez et al., 2010), whereas the proportion of specialized Serve & Volley players in singles declined. There is a lot of evidence that the quality (power and precision) of the baseline groundstrokes has improved to such an extent that attacking the net in both, singles, and doubles is rarely successful (Black & Van de Braam, 2012; Martinez-Gallego et al., 2021c). It can be hypothesized that an improved physical performance and athletic of the players, as well an innovative racket technology are the main underlying explanatory factors. Apart from that, a change in teaching and learning philosophy of coaches and some well accepted ITF programmes promoting an earlier starting age in children's tennis (e. g. "Play and Stay" as well as "Tennis 10s") may also play a role (https://www.itftennis.com). Due to the shorter stature and arm span of very young players, the net play is neglected in training and competition. Therefore, older players did not experience sufficient learning opportunities for developing the necessary skills to cover the entire court adequately (Schmidhofer et al., 2014). As a result, servers usually remain at the baseline after second serves, and only occasionally approach the net following first serves.

Generally, the dimensions of the playing field in doubles are in favour of a joint offensive at the net because of the reduced responsibility on half a doubles court (5.49m/player in doubles vs. 8.23m/player in singles). This may lead to a few doubles pairs still favouring a net attack strategy. Assuming that Serve & Volley is a key indicator for the basic strategy in doubles, one can observe extreme heterogeneity in the more recent sample (Table 4). It can be distinguished between doubles pairs that almost never or very rarely play Serve & Volley (n=9), those that use it about half of the points (n=3) and those that almost always play it, even following a 2nd serve (n=3) (Table. 4). Usually, but not always, the rate is higher after a 1st serve. Some individuals tend to attack more often after the 2nd serve, possibly because it allows more time to get to the net (e. g. Chela/Monaco, ARG). The table also shows a high consistency between multiple observations of a double pair (e.g. Petzschner/Kas, GER), like a fingerprint.

Table 4
Serve & Volley rate of different doubles pairs from sample D>2010. Lopez and Granollers (ESP) were the winners of the ATP World Tour Finals 2012. Granollers was ranked Number 1 on ATP Doubles ranking in 2024.

Serve & Volley rate (%)	1st serve	2nd serve
Lindstedt/Aspelin	100.0	100.0
Petzschner/Mayen	98.0	70.4
Isner/Fish	80.0	68.8
Petzschner/Kas	62.5	52.2
Petzschner/Kas	58.1	40.7
Zimonkic/Tipsarevic	54.5	52.0
Gonzales/Monaco	24.4	50.0
Chela/Monaco	2.7	46.7
Isner/Querrey	27.8	17.6
Gonzalez/Monaco	28.6	12.0
Golubejew/Kukuschkin	13.9	0.0
Tursuznov/Andreev	10.8	4.2
Golubjew/Kukuschkin	2.4	0.0
Tipsarevic/Troicki	2.9	0.0
Tursunov/Andreev	0.0	0.0
Lopez/Granollers*	0.0	0.0

The Serve & Volley application does not seem to be a performance-differentiating feature compared to earlier times. For example, it is noticeable that one of the most successful pairs in our analysis and Champion at the ATP World Tour Doubles Finals (López/Granollers, ESP) did not complete a single attack. These tremendous variations bring uncertainty among coaches which strategies should be taught and applied. The decision is probably a balancing act between having a good serve and stable volleys as well as above-average height (speaks for Serve & Volley strategy) or by possessing exceptionally good groundstrokes, high speed and mobility and smaller body size (speaks for baseline strategy). Since both strategies can be successful, perfecting the chosen style seems to be more important by regularly participating in doubles tournaments with an experienced partner. While in $D<_{1990}$ the singles and doubles ranking were correlated quite well (r=0.5), in recent doubles we found even negative correlations and only 15 players of the TOP 100 ATP doubles ranking are positioned beyond the TOP 1000 in ATP singles ranking. This indicates nowadays an increasing specialization in doubles competition.

Staying at the baseline after serve influences the return strategy. In $D<_{1990}$, doubles specialists returned almost exclusively from a position inside of court (Zone 3) to put the advancing server under time pressure (Figure 4). In more recent doubles, returns after the first serve are more often executed from a position behind the baseline. This change in return strategy might also be related to the faster serve

velocity. Due to the greater distance from the net, the Chip & Charge strategy is now used in less than 10% of cases (Table 3). Also, the returner's partner is increasingly positioned further back during the first serve (Figure 4), meaning that the returning pair often defends from the baseline during the rally. In contrast, when the game starts with a second serve, the returning pair often adopts an offensive position. Since in these cases the server more often remains on the baseline, the classic, diagonally offset pattern of one net player and one baseline player leads to crossing to the opposite side, either by agreement or spontaneously, depending on the game situation. In addition, the I-formation or Australian formation are now more frequently used as variants (Black & Van de Braam, 2012; Kocib et al., 2020). In contrast, the basic structure in $D<_{1990}$ consisted of two net-players (serving pair) facing either one to two players at the baseline or two opposing net players (returning pair).

Both, the altered serving and returning strategy led to changes in the characteristics of the volleys. Previous volley demands in $D<_{1990}$ involved a lower contact point and a longer stroke distance to the net (Table 3, Figure 4). In contrast, current hitting positions are located closer to the net with a higher hitting point and mainly from a standing position. This is because players nowadays are less likely to bridge the gap from the baseline to the net during rallies and less often play the Serve & Volley strategy. The technical execution of the volleys has therefore changed completely. In contrast to the earlier, more guided movement under less time pressure, a volley with short movements and an extreme angle from a position very close to the net dominates today.

It must be emphasized that the study suffers from important limitations. The major one refers to the difference in the sample sizes ($D<_{1990}$ n=57 matches; $D>_{2010}$ n=8 matches). Furthermore, current data is missing because $D>_{2010}$ is already partially outdate. Finally, players from $D>_{2010}$ were lower ranked on ATP doubles ranking (Table 1). In total these limitations might potentially influence the results of the study and emphasises the importance of careful interpretation. On the other hand, the quantitative differences shown are so clear and highly significant that we see a relevant gain in knowledge despite the limitations mentioned. Even if a comparison to actual current data is unfortunately missing, the data shows the possible extent of historical changes in racket sports.

CONCLUSIONS

The results of this study indicate a historical shift in doubles tactics. While Serve & Volley was the main hallmark of competitive doubles 30 years ago, the frequency of net attacks by the server has decreased significantly in most double pairs. This change comes along with a backwards shifted return position, a decreased amount of net play, a volley position closer to the net, and a higher percentage of groundstrokes from the baseline. These changes are frequently leading to a diagonally shifted one up, one back players position during the rallies and more sideways shifts and side switches between partners. In contrast to the rather uniform game structure of the past, today's doubles pairs have very different basic strategies. It is a particular challenge for coaches to develop and train a strategy that is tailored to the individual player or doubles pair. This is even more important as an increasing number of players are concentrating only on the doubles competition and are not taking part in singles tournaments as well.

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