



# Analysis of the temporary aspects and actions of the game in performance junior players and the differences when playing with adapted material.

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## ABSTRACT

The main objective of this research is to find out the differences in the duration of the points and playing actions when playing on smaller courts, and with lower pressure orange balls vs yellow balls on a full court. In order to do so, 8 competition children were analysed in 16 matches played to 11 points. The results showed significant differences in the length of the points, the total number of strokes per point and the percentage of winners in favour of the adapted material, which confirms the efficacy of the adaptations of the ITF by means of the "Tennis Play & Stay" programme.

**Key words:** Adapted material, Junior players, Duration of the point, Number of strokes.

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## INTRODUCTION

Currently, early specialization is more and more frequent in tennis players, who start practising the sport at the age of 6, competing at 9 and specializing at 10 (Jayanthi, O'Boyle & Durazo, 2009). In order to facilitate learning for these young players, the ITF has recently developed different strategies through the "Play & Stay" programme, changing the pressure and the size of the balls to make them slower, bounce lower and reduce the size of the courts. Different findings from different studies state that these modifications contribute to the greater success in children tennis (Newman, 2010; Milley, 2010).

Besides, the identification of the parameters that make up the temporal structure of the action of the game, such as the duration of the points, the number of strokes per point, or the number of winning strokes and unforced errors are important indicators in the analysis of the performance of the player (Crespo, 1993; Gutiérrez, 2010). Many tennis studies have evaluated the actions of the game (O'Donoghue & Ingram, 2001; Verlinder et al., 2004), and the temporal aspects (Fernández, Sanz, Fernández & Méndez, 2008; Schonborn, 1989), at different ages and in different levels and playing surfaces, but no studies have been made on young players or on the use of adapted material.

Therefore, the aim of this research is to analyse the temporal structure and the actions of the competition game of tennis at young ages and to prove the existing differences when playing with adapted material.

## METHOD

### Sample

Participants in this research were eight male tennis players, average age  $8.24 \pm 74$  years old, training an average of  $7.38 \pm 2.43$  hours per week and with a minimum experience of two years competing regularly. For this purpose, 16 matches were analysed (8 matches on a small court with Orange balls and 8 on a full court with traditional yellow balls) playing to 11 points.

### Procedure

All matches were recorded with a digital video Sony camera placed at the back of the court, 6 mts high. Then, they were analysed by two previously trained observers following the indications of Anguera (2003), presenting an inter observer reliability level of 97%. Finally, statistic data was analysed using an SPSS 20.0 IT pack, presenting the media values and the typical deviations of each variable. The different variables of the

groups were compared with Kruskal-Wallis y Mann-Whitney tests for independent samples.

**Instruments**

In order to evaluate the actions of the game and the temporal aspects, and, like in similar research (Gorospe, Hernández, Anguera & Martínez, 2005), we designed an ad hoc observation tool made up of a notational system that includes the following categories: the time each point lasts, the number of strokes per point, the number of winning strokes and the number of unforced errors.

**RESULTS**

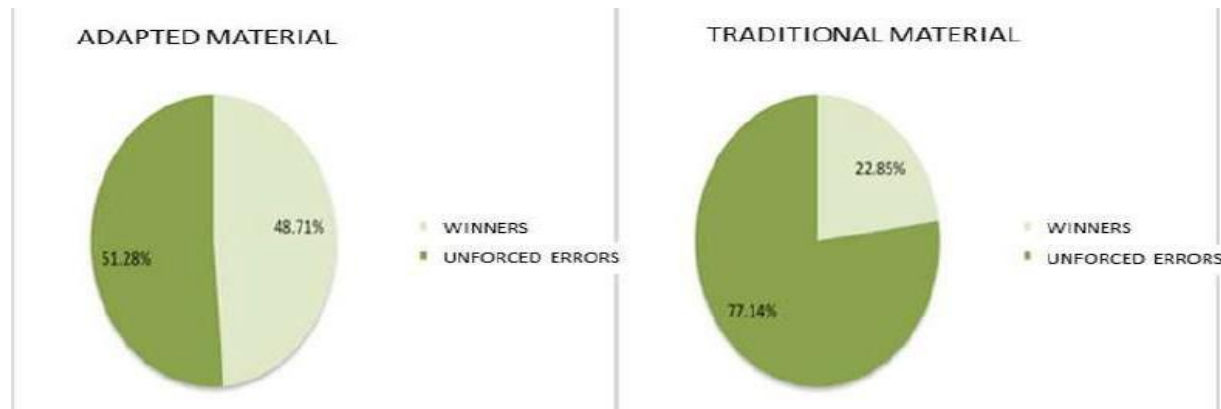
Table 1 shows the findings related to the analysis of the duration of the points and the number of strokes. These findings show longer points and a greater number of strokes when playing on smaller courts with lower pressure balls (adapted material), the differences were significant ( $p < .05$ ).

	Adapted material		Traditional material		Z	SIG.
	M	TD	M	TD		
Duration of the point	6.71	4.22	4.45	2.97	-2.352	.019*
Number of strokes per point	3.92	2.55	2.71	2.29	-2.210	.027*

**Table 1. The difference in the length of points and the number of strokes per point between playing with traditional material and adapted material.**

**NB: \*  $p < .05$ ; M = Media; TD = Typical deviation.**

When we analyzed the actions of the game (Figure 1), we observed 51.28% of unforced errors, versus 48.71% in matches played with adapted material, when playing with traditional material, unforced errors reached 77.14% per 22.86% winning strokes, these differences were significant ( $p = .22$ ).



**Figure 2. Differences in the number of winning strokes and unforced errors when playing with traditional and adapted material.**

**COMMENTS**

To comply with the target of this research, great differences in temporal analysis and actions of the game were observed in matches played with traditional material and adapted material. The average duration of the points ranged between 4.45 and 6.67 seconds, less than the average of most of the authors, although considering different populations (Fernández et al., 2008; Hornery, Farrow, Mújica & Young, 2007; Relley & Palmer, 1995). The number of strokes per point ranged between 2.71 and 3.92, somewhat less than in other studies: 3 to 5 (O'Donoghe & Ingram, 2001; Smekal et al., 2001), although it might be higher depending on the surface (Verlinden et al., 2004).

**CONCLUSIONS**

Today, most coaches accept that the modified balls and courts are important for children under 10 since they help to increase participation and facilitate the game from the beginning, although not many studies have been made so far. The findings of this study confirm that the evolution of tennis material, when adapted to the characteristics of children under 10, is beneficial: points are longer and the total number of strokes and winning strokes is higher because of the longer reaction time and the correct impact point of the ball.

On top of that, young players can use advanced tactics like attacking from the net, or aggressive and winning groundstrokes which are only possible because of the slower and lower bouncing balls (McEnroe, 2010). These adaptations

encourage the use of topspin and the use of angles to move the opponent, the only way of moving him/her out his/ her position on a smaller court. The greater number of shots played during the points will encourage the use of training systems based on the students rallying on their own from an early age, thus, fostering their independence, since they can already practice different game situations without the coach. This contributes to greater participation and greater enjoyment out of tennis practice (Hammond & Smith, 2006).

Finally, it can be stated that the efficacy of the adaptations made by the ITF, by means of the Tennis 10s and Tennis Play & Stay programmes, will contribute to a better tennis player development not only at the technical but also at the physical, tactical and mental levels.

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