

INTRODUCTION

Match analysis gives reliable and objective information concerning the requirements of the game. Therefore, different kinds of match analysis and feedback systems are widely used by coaches and athletes in ball games. Figure 1 describes a continuous match analysis and video feedback process.

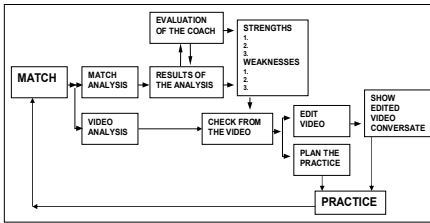


Figure 1. A schematic representation of an analysis and video feedback system.

Match analyses are mostly used for technical or tactical evaluation, time or movement analysis, constructing of player/team profiles or educational purposes. Analyses are usually conducted by using computer software and feedback is provided by videos montages and printouts [1].

The purpose of this project was to develop a match analysis and feedback system for the Finnish Paralympic Table Tennis Team.

METHODS

Match analysis

The matches of Finnish Paralympic Table Tennis Team players and their opponents were videotaped during international tournaments using digital video camera. The matches were analyzed afterwards based on the videos using Data Volley®-software. Data Volley® is originally developed for volleyball, but for this project the analysis methods were modified to analyze table tennis. The core elements of the analysis system; player, position and action were coded and the outcome and time of every action was updated for later technical and tactical evaluation. Serves, serve returns, winning strokes and error strokes were coded with special attention.

Feedback

The results of the match analysis were provided in numerical and graphical form using printouts of Data Volley®. The video montage was constructed using Data Video System®-software.

The printouts included the paths and results of the serves, forehand and backhand strokes separately in numbers and figures (table 1 and figures 2 and 3).

Table 1. An example of a numerical printout of serve analysis from one match.

SERVES		Area	Amount	Points	Point%	Cont.	Cont%	Errors	Error%
Player 1	Forehand	1	0	0	0%	0	0%	0	0%
		5	0	0	0%	0	0%	0	0%
	5	23	0	0%	22	96%	1	4%	
	Sum	23	0	0%	22	96%	1	4%	
Backhand	1	13	0	0%	13	100%	0	0%	
	6	5	0	0%	5	100%	0	0%	
	5	0	0	0%	0	0%	0	0%	
	Sum	18	0	0%	18	100%	0	0%	
Sum	1	13	0	0%	13	100%	0	0%	
	6	5	0	0%	5	100%	0	0%	
	5	23	0	0%	22	96%	1	4%	
	Sum	41	0	0%	40	98%	1	2%	
Player 2	Forehand	1	0	0	0%	0	0%	0	0%
		5	0	0	0%	0	0%	0	0%
	5	38	2	5%	35	92%	1	3%	
	Sum	38	2	5%	35	92%	1	3%	
Backhand	1	0	0	0%	0	0%	0	0%	
	6	4	0	0%	4	100%	0	0%	
	5	1	0	0%	1	100%	0	0%	
	Sum	5	0	0%	5	100%	0	0%	
Sum	1	0	0	0%	0	0%	0	0%	
	6	4	0	0%	4	100%	0	0%	
	5	39	2	5%	36	92%	1	3%	
	Sum	43	2	5%	40	93%	1	2%	

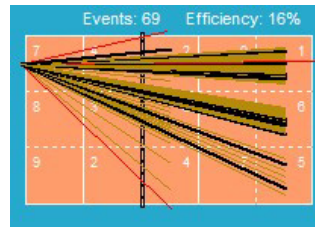


Figure 2. An example of graphical printout of player's forehand serves in two matches (black line = winning serve, red line = error serve and green line = rally continues).

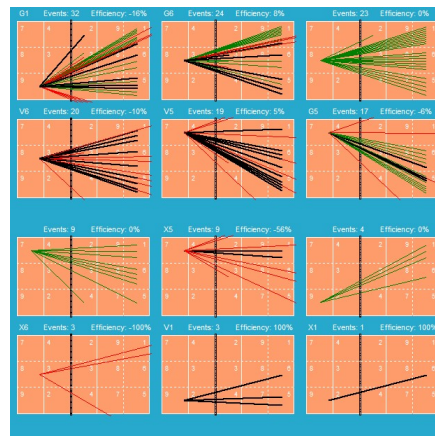


Figure 3. An example of a graphical printout of player's backhand strokes in two matches (black line = winning stroke, red line = error stroke and green line = rally continues).

The video montage was constructed as follows:

- the match video was captured to the computer (figure 4),
- the match analysis results were synchronized to the video,
- selected actions (serves, serve returns, winning strokes, and error strokes) from a specific player were chosen and edited semi automatically.



Figure 4. An example of the match video.

EXPERIENCES

- Finnish Paralympic Table Tennis Team has been using this system since spring 2006.
- 25 matches from different players have been analyzed and 21 montages have been delivered.
- Based on the players' and coach's first experiences, the optimal content and length for montages have been determined.
- Motivates players to examine techniques and tactics and thus improves training.
- Develops match performance and facilitates preparation to forthcoming matches.

Future plans relate to using this type of analysis and feedback system in Peking 2008 Paralympics.

REFERENCES

- [1]. Hughes, M. and Franks, I. (2004). *Notational Analysis of Sport*. London, Taylor & Francis Group.

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