

Control of On-Court Training in Tennis

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INTRODUCTION

Sport science emphasises the need to exhibit control over the training process (Virus and Virus, 2001) with a view to optimising both training quality and quantity. Historically, tennis coaches have lagged behind coaches of other sports, such as athletics, swimming, cycling, and team games (football, basketball), in the use of different training controls. In this way, these coaches may be better equipped to help themselves and their athletes recognise fatigue levels, prevent injury, avoid over training/reaching and burn-out and provide for maximal performance (Calder, 2003).

Monitoring training requires that the coach recognise that players adapt to training and stress in different ways and at different rates (**individualisation**). The monitoring of individual responses to work and stress, both within and outside the training and competition environment, is therefore essential to maximise player performance (Wilmore and Costill, 1994).

The purpose of this article is twofold: to reinforce the need for coaches to use training controls during their daily practice with players and to present practical examples of these controls.

CONTROLLING ON-COURT TRAINING

Coaches need to understand the difference between players feeling tired and feeling fatigued after a training session. The former is a normal consequence of adaptation to training load, whereas the latter can be an indicator of maladaptation to training.

Most coaches and players will be inconsistent with their recording and monitoring of training sessions. Maintaining a daily record of the different training controls however, is necessary for the accurate evaluation of training loads and the player's "adaptability". A variety of means through which training can be controlled are provided in the table on page 14.

CONCLUSION

Central to training effectively is the need to train with sufficient volume (quantity) and quality. It is when this balance is not found that poor performance or injury becomes more likely. Controlling training with a view to providing for optimal performance and reducing injury potential is therefore key. The training controls detailed herein are some examples of how coaches can monitor training sessions and athlete progress with these goals in mind.

Readers are referred onto texts like *ITF Strength and Conditioning for Tennis* for related information.

References

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Heart rate monitors and notational analysis systems are two examples of training controls regularly applied to tennis training.

What to control?	How to control it?	Practical application
Pre-training status (Calder, 2003)	Player self-test	How do you feel? Smiley faces questionnaire.
	Player self-tests or questions from the coach	Determine quality of sleep, morning resting heart rate and morning body weight, energy levels, self-confidence and self-esteem, muscle soreness, motivation and enthusiasm for training, attitude to work / study, health, injury, eating habits, diet, external stressors (family, friends, media, studies), etc.
Throughout the training	Coach observation	Direct communication: What the player tells the coach. Body language: Facial expression and colour, posture, signs of frustration, etc. Performance: Compromised skill execution, poor acceleration, heavy feet, poor or slow decision making / response time. Psychological: Low motivation, poor concentration, uncharacteristic aggression, low self-confidence and after aggression.
Work-out intensity	Heart rate monitor	Using a heart rate monitor can help the player and the coach ensure exercise intensity matches the session's goals. It also provides immediate feedback to the player and a source of motivation. > 85% of maximum heart rate (MHR): effort will be anaerobic lactic. ^a 55-65% MHR: effort will be aerobic.
	Analysis of blood lactate	Invasive method of monitoring both exercise intensity and training adaptation. It can be measured during (between games or drills) or after training.
	Players' rating	Player's subjective rating of session difficulty (physical load) and/or attitude to training. Rating of 5=Very difficult/Excellent 4=Difficult/Good 3=Normal/OK 2=Easy/Poor 1=Very easy/Very poor.
	Coach rating	Coach's subjective rating of session difficulty (physical load) and/or attitude to training. Rating of 5=Very difficult/Excellent 4=Difficult/Good 3=Normal/OK 2=Easy/Poor 1=Very easy/Very poor.
Stroke power	Radar gun	Advances in technology allow coaches to quantify increases in racquet velocity during stroke (groundstroke and serve) production (Quinn and Reid, 2003).
	2 nd bounce of the ball	Lines positioned on the ground or the back fence to provide players simple, visual feedback pertaining to stroke power (ITN, 2004)
Stroke precision / consistency	Targets	Targets or zones provide for control of stroke precision / consistency.
	Number of balls over the net	Counting the number of balls hit over and in or the number of balls needed to hit a specific target help to monitor stroke precision / consistency.
	Stroke test	International Tennis Number ITN Test (CSSR 29, 2003; www.internationaltennisnumber.com)
Stroke production	Video analysis with software	Use specialised video analysis programmes: SiliconCOACH (www.siliconcoach.com), NEAT (www.neatsys.com), MoStill SE (www.simi.com), V1 (www.internetsportsacademy.com), Swinger (www.swinger.com.au), and Dartfish (www.dartfish.com) to facilitate the analysis and improvement of stroke technique (Knudson and Elliott, 2003).
Tactical performance	Tactical notation software	Use of hand or computerised notational analysis systems (such as ACE) to study player tactics and to obtain useful statistics from practice or competition matches (Hughes and Tillin, 1995).
	Tactical video analysis	Watch video replays/footage to determine tactical patterns of play.
Psychological	Psychological analysis performance	A player's mental performance during practice or matches can be analysed with software hand or computerised psychological analysis systems (Sluder, 2001).
	Psychological video analysis	Use video analysis to evaluate the "body language", mental "strength", etc a player exhibits during matchplay.