How tennis players learn motor skills: Some considerations.

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ABSTRACT

Tennis coaches teach technique and movement skills to players from a young age. Frequently, their emphasis is on 'what' to coach and not 'how' to do so. Current research offers challenges to conventional coaching and suggests that the 'how' of learning motor skills is more important. This article describes a number of coaching behaviours that could increase and improve motor learning with a greater focus on tennis specific practice.

INTRODUCTION

We know that a motor skill is a physical skill that involves movement and therefore includes all the technical and movement skills that tennis players use. We also know that players acquire and develop these skills through motor (skill) learning during practice. We also know that the skills need to become relatively permanent to be effective (Schmidt, 1991).

The issue for coaches therefore is to know how to teach the skills that players will need as they develop and mature. Tennis is an open skill game, so when coaches teach motor skills they must also be sure that how they teach relates closely to what actually happens in the game itself. In effect, the requirements of the game should influence and even dictate best coaching practice and the ways in which the coach develops a player's technique and movement.

It is essential that coaches understand the impact of the open skill nature of tennis on motor learning. Open skill means that the player cannot decide which skill to use until the ball is hit by the opponent (Gentile, 2000). This requires the player first to make a decision and then to use a relevant skill. In addition, in tennis, no skill (other than perhaps the serve) is ever repeated in exactly the same way or circumstances. Furthermore, during a game, skills are used in different sequences, with the result that the player is continually changing the motor skill pattern. In effect, while the biomechanics and shape of each skill will be similar, the skill

must always be adapted in some way because of the different characteristics of the incoming ball, the court positions of the player and the opponent and the score. All of this should impact how coaches teach motor skills.

The key issues for the player are decision making, problem solving and the adaptation of skills and motor patterns to deal with the unpredictable nature of tennis. This means the player

must learn and develop adaptable/open skills, rather than the fixed/repeatable/closed skills needed in a sport like gymnastics or swimming (where it is essential to repeat the same skill in the same way every time).

Since the player needs to continually adapt skills, coaches must know how they should coach the basic technical and movement skills for each stroke first and then know how they help players adapt them in the game.

The clue for the coach lies in what we have already established about motor learning: for a motor skill to be learned it must be practiced. Thus the type of practice used is key. Some examples of different practices link to the development of motor skills used in an open environment.

INITIAL MOTOR LEARNING

Whole-part-whole practice

When teaching the basics of a skill, many coaches first break the whole skill down into what appear to be its component parts (for example, different parts of the serve). They teach each and then try to create the whole action from a series of 'linked' parts. Properly used, this type of practice is known as whole-part-whole and can be useful if an element of the skill needs more development. However, many coaches misunderstood the practice and begin teaching every skill by breaking it into parts (i.e. part-whole). Beginning with the whole is more realistic and helpful to the players who gets a 'rough' action very quickly and who simply needs time to develop it. The player will make mistakes, but these are known to be an effective and necessary motor learning tool!

Game based practice

This is very appropriate to learning tennis skills because the player understands the context of the skill immediately and can develop it to 'problem solve' in the game.

DEVELOPING MOTOR LEARNING

Varied, variable and random practice

Once the basic parameters of the skill (footwork, grip, shape of shot, contact point and follow through) are in place, coaches need to use principles of practice that develop game related skills: decision making, anticipation and adaptability. In reality, this is often not the case: instead coaches use blocked or massed practice (hitting the same ball from the same place over and over). But if tennis is not played like that, why learn the skills like that! Varied, variable and random practice (Schmidt, 1991) would be far more relevant to what the player will need in the game.

'Effective practice (of skills) should mimic the range of variations experienced during competition' (Williams & Hodges, 2005).

Variable practice means that a specific skill (such as a forehand) will be practiced differently each time because the incoming ball is different every time.

Varied practice (practicing similar, but different strokes such as both groundstrokes from the baseline) is particularly relevant to tennis.

Random practice is when a number of different skills are practiced in an unpredictable order: it is thus the form of practice that most closely mirrors the game.

All three types of practice require players had to make decisions, problem solve, and anticipate and thus develop game specific skills. Coaches must however ensure that the time frames between strokes reflect the game itself and that the incoming ball is always played from a realistic court position. Practicing motor skills in the context of the open nature of the game enables players to learn the adaptive skills they need. Further, there is evidence that players taught in this way are more robust in dealing with difficult situations in the competitive situation (Vickers, 2011).

Other considerations that impact motor learning

In terms of motor learning practice, coaches must consider other issue when working with young players. The stage of athletic development of young players has an impact on their ability to learn and develop motor skills, as does the trainability and individual readiness of each young player (Malina, 2013). This is because athletic skill development contributes to the ability to develop motor skills (Beunen & Malina, 2008). Coaches who monitor players' growth and maturation know

that young players of the same age can be very different and so are more able to develop relevant skills.

How coaches behave as they coach also links to the competitive aspect. Young players who continually react negatively to mistakes in a match (frequently blaming technical errors) may simply be responding to a coaching environment that continually tells them what they are doing wrong when they are learning skills. Increasingly researchers are suggesting that a positive environment where the coach re-inforces what the player does well, would be more likely to create positive behaviour on court. Further, Dweck's research (2008) indicates that praise, particularly of effort can result in young players trying to improve their skills whereas praise of ability is linked to e players being afraid to make mistakes.

CONCLUSION

Coaches often assume that unless they control the practice environment, young players in particular will not improve. However, research on different methods of structuring practice for skill leaning and development (from player led to coach led) suggests that different methods of structuring practice have beneficial effects (Côté, Erickson & Abernethy, 2013)).

In another open skill game (soccer) there is much evidence that giving players time, space and opportunity to practice on their own indicates that they become more proficient. Further the evidence is that successful soccer players who practised independently for several hours a week on their own are better players than those who did not (Williams & Hodges, 2005).

Related to this point, research by MacNamara, Button & Collins (2010) into the specific psychological skills necessary to become a performance athlete, suggests that coach behaviour in the practice environment will contribute (or not!) to the long term success of that athlete. This is important information for coaches who could reflect on how in the motor learning environment they could also positively influence the development of skills such as commitment, focus, dealing with pressure and quality practice performance, simply by modifying their own behaviour.

Finally, coaches should of course monitor trends and changes in the game to ensure that players are developing the technical and movement skills needed to play at the highest level in the foreseeable years. Different motor skills will become more important as the game changes and coaches need to be both perceptive and prepared.

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