

# Fundamental motor skills for 10 and 12 & under tennis players

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ITF Coaching and Sport Science Review 2016; 69 (24): 6 - 9

## ABSTRACT

*In this article an overview of the main characteristics of motor skill development for 10 and 12 & under tennis players are presented. Several key concepts related to this crucial area will be introduced and defined. A summary table including several guidelines on fundamental motor skill acquisition for the different stages of development is presented.*

**Key words:** FMS, LTPD, agility, balance, coordination

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Article received: 14 April 2016

Article accepted: 21 June 2016

## INTRODUCTION

When reflecting on the fundamental motor skills than need to be introduced to 10 and 12 & under tennis players it is crucial to define and clarify several key concepts some of which are presented below.

### Definition of a child

The reference to a child is considered to typically encompass the time from birth to puberty. The onset of puberty varies between individuals, males, and females. While the sporting initiation of children can be classified according to a variety of physiological, cognitive and psychological characteristics, it should be acknowledged that such profiling will be specific to the individual (González & Ochoa, 2003).

### Physical literacy and fundamental skills

A crucial area of development with 10 and 12 & under tennis players is the development of physical literacy. This is critical for the overall enjoyment of tennis and sport in general but also for development of top players. The development of overall athleticism and fundamental movement, motor and sport skills is a priority during these stages (Tennis Canada, 2003).

### Physical literacy is composed of three fundamental skills:

- Movement: running, jumping, throwing, catching, striking an object, wheeling).
- Motor: agility, balance, coordination.
- Sport: balance, lateral movement, hitting, throwing.

If the fundamental motor skills are not developed between the ages of nine to twelve for boys and eight to eleven for girls respectively, skills cannot be fully recaptured at a later time (although carefully planned and early remedial programmes can contribute to limited success (Balyi, 2001; Rushall, 1998).



## Development stages

It is obvious then that to become physically literate, children need to master fundamental movement skills. For almost every skill, the developing child needs to go through a series of developmental stages. For the purpose of this article, we are dealing with children 10 and 12 & Under.

Prepuberty, puberty, and postpuberty are a simple way to describe different development stages. Since each stage is very general and not very specific to athletic populations, different models of the Long-Term Player Development (LTPD) have been utilized to offer a more strategic approach to the athletic development of youth (Ochi & Kovacs, 2016).

Some of the most used models are the following:

Authors	Models (*)
Bloom (1985)	<ol style="list-style-type: none"> <li>1. Early years: stage of initiation</li> <li>2. Middle years: stage of development</li> <li>3. Late years: stage of perfection</li> </ol>
Balyi (2001)	<ol style="list-style-type: none"> <li>1. Fundamental: Overall development of the athlete's physical capacities</li> <li>2. Training to Train: Learn how to train and the basic skills of a specific sport</li> <li>3. Training to Compete: High intensity individual and sport-specific training</li> <li>4. Training to Win: Optimization of performance to peak for competitions</li> <li>5. Retirement / Retaining: Activities performed after retiring from competition</li> </ol>
Côté, Baker, & Abernethy (2007)	<ol style="list-style-type: none"> <li>1. Sampling years: participating in different sports for fun and enjoyment),</li> <li>2. Specializing years: starting at about age of 13—focusing on one or two sport activities.</li> <li>3. Investment years: starting at about age of 16—achieving proficiency in one or two sport activities.</li> <li>4. Recreational years: participating in several sport activities, not for achieving proficiency but mainly for fun and good health.</li> </ol>

*Table 1. Most used long term athlete development models. (\*) For a more comprehensive and tennis specific approach see Crespo & Reid (2009).*

It is important to note that, no matter the model used, coaches should be aware of the fact that the most essential component of an effective training programme is the concept of individualization and that any programme should have a holistic approach in order to encompass some of key interdisciplinary perspectives for sport and tennis development (Ford et al., 2011).

## Planning

Some coaches feel that 10 and 12 & Under players do not need training plans. This is not true. Even at the initial stages of player development a specific and well-planned practice, training, competition and recovery regime will ensure optimum development throughout a player's career.



Ultimately, sustained success comes from training and performing well over the long-term rather than winning in the short-term. There is no short-cut to success in athletic preparation (Balyi & Hamilton, 2004).

### Sensitive phases or trainability windows

Optimal windows of trainability are critical stages during which training produces the greatest benefit to each player's long-term development. Coaches should ensure that players are exposed to the adequate training contents at the right stage (Ochi & Kovacs, 2016). See table 2.

Authors	Models (*)
Flexibility	<ul style="list-style-type: none"> <li>• For both genders: between 6 and 10 years of age</li> </ul>
Agility, quickness and speed	<ul style="list-style-type: none"> <li>• Boys: between the ages of 7 and 9 years</li> <li>• Girls: between the ages of 6 and 8 years</li> </ul>
Motor skills	<ul style="list-style-type: none"> <li>• Boys: between the ages of 9 and 12 years</li> <li>• Girls: between the ages of 8 and 11 years</li> </ul>
Strength	<ul style="list-style-type: none"> <li>• Boys: between 6-18 months after Peak Height Velocity (PHV)</li> <li>• Girls: immediately after PHV</li> </ul>
Aerobic capacity	<ul style="list-style-type: none"> <li>• Before players reach PHV</li> </ul>

Table 2. Optimal window of trainability according different motor skills.

### Individualisation

It is crucial to note that, in the development process of children, they are responsive to particular stimuli that facilitate the development of a specific physical capacity or quality at different points during the biological maturation process. The stimuli that each child is presented with should be specific to that individual.



### Initiation and specialisation

Tennis can be considered an early initiation sport (i.e. 3-4 years old). However, in tennis, specialisation is not recommended prior to age ten. If specialisation occurs before age ten, it contributes to one sided (only tennis) preparation, early burn out, drop out and retirement from training and competition (Balyi, 1999).

Tennis Canada (2003) suggests that early specialization in tennis can contribute to one-sided and inadequate overall athletic preparation, lack of development of basic movement and sport skills, overuse injuries, muscle imbalances, early burnout and early retirement from training and competition.

### Chronological and biological age

It has been shown that there can be extreme variability in rates and timing of growth and maturation among tennis players. Due to this, it is crucial to be aware of the athlete's status with regard to puberty, so that care and consideration can be given to the progression and intensity of physical workouts. It is important to understand that once puberty begins, the biological age of each individual is more important than chronological age. Most training and competition plans refer to chronological ages, however, these should be used as general (Ochi & Campbell, 2009).

### Relative age

According to Pankhurst (2016) relative age is an important concept to be taken into account. It can be defined as the month of the year (academic or sport) in which the child was born. It impacts the abilities of individual children in different ways because a child born at the beginning of a particular year is developmentally many months older than a child born at the end of that same year. It will logically be of greater importance the younger the children are.



### Competition

Competitive activities should be at the core of all fundamental motor skills programmes. Coaches should ensure that players remain motivated and challenged by games and exercises that emphasise enjoyment, personal improvement and 100% effort.

Giving 100% while learning from wins and losses will build character in a young tennis player.

### Boys and girls together!!

Prepuberty is typically the ages between 8-11 years for girls and 9-12 years for boys. Boys and girls in prepuberty can usually be grouped together for physical activity because they are all at the same stage of development (Ochi & Campbell, 2009). However, research has shown that boys have better performance at motor skills tests than that of girls (Olçucu, 2013). At the end of this stage, there will be some variation between children depending on earlier growth and development.

## WHAT TO DO?

Table 3 summarises the fundamental motor skills needed to be included in the training programmes of 10 and 12 & Under tennis players (Tennis Canada, 2003; Tennis South Africa, 2007).

Stage	1	2	3
Approx. age	Boys 0-4/6 Girls 0-4/5 years	Boys 6-9 Girls 6-8/9	Boys 9-12 Girls 8-11
Main goals	<ul style="list-style-type: none"> <li>Promote the love of physical activity while laying the foundation for future enjoyment of sport.</li> <li>Introduced to relatively unstructured, free play in a safe, but challenging environment.</li> </ul>	<ul style="list-style-type: none"> <li>Fundamental movement skills should be practised and mastered before sport-specific skills are introduced.</li> <li>Develop athletes' "physical literacy".</li> </ul>	<ul style="list-style-type: none"> <li>This is the major motor learning stage.</li> <li>Children are developmentally ready to acquire the fundamental movement skills that are the cornerstones of all athletic development.</li> </ul>
Main contents	<ul style="list-style-type: none"> <li>Introduce and promote fundamental movement skills like walking, running, skipping, hopping, jumping, catching and throwing.</li> <li>Emphasize agility, balance and coordination</li> <li>Create neural connections in the brain using activities integrating rhythm.</li> </ul>	<ul style="list-style-type: none"> <li>Develop the ABCs (Agility, Balance, Coordination and Speed/Strength), plus rhythmic activities.</li> <li>Further develop fundamental movement skills using a positive and fun approach.</li> <li>Explore the window of optimal trainability for hand and foot speed.</li> </ul>	<ul style="list-style-type: none"> <li>Take fundamental movement skills to a higher level.</li> <li>Basic tennis skills should be mastered.</li> <li>Larger amount of time is spent training rather than competing.</li> </ul>
How to do it	<ul style="list-style-type: none"> <li>Activities to include:               <ul style="list-style-type: none"> <li>o Running (stops, starts, changing direction)</li> <li>o Catching with a wide variety of soft objects and balls of different sizes.</li> <li>o Throwing games using right and left hand with objects that can fit into child's hand.</li> <li>o Jumping games with 1 and 2 foot jumps.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Develop ABC through games and fun exercises.</li> <li>Develop speed with anaerobic alactic (less than 5 sec.) on and off court games.</li> <li>Emphasise aerobic on and off court games.</li> <li>Use player body weight, light medicine and Swiss balls to introduce strength.</li> <li>Introduce the basics of flexibility using fun games.</li> </ul>	<ul style="list-style-type: none"> <li>Coordination: Skipping, throwing, balance drills with boards, multiple tasks.</li> <li>Speed &amp; agility: drills with signals and direction changes.</li> <li>Endurance: Be able to run 15-20 min.</li> <li>Strength: Use similar methods as before and introduce core stability.</li> <li>Flexibility: 5-6 times/week.</li> </ul>
Tennis	<ul style="list-style-type: none"> <li>Play and Stay (P&amp;S) tennis with appropriately sized balls, racquets and courts for 4-5 year olds will facilitate eye-hand coordination when striking the ball and promote early success and self-confidence.</li> </ul>	<ul style="list-style-type: none"> <li>Tennis participation is recommended two or three times per week, but participation in other sports three or four times per week is suggested for future excellence.</li> <li>Introduce basic tennis technical and tactical skills.</li> <li>Acquire psychological skills. (Ability to focus, emotional control, positive attitude, commitment and effort.)</li> <li>Introduce decision making.</li> </ul>	<ul style="list-style-type: none"> <li>Develop the basic technical/tactical tennis skills.</li> <li>Introduce ancillary capacities: warm-up and cool down, stretching, hydration and nutrition, recovery and regeneration, mental preparation, taper and peak, integrated pre- competition routines and post-competition recovery.</li> </ul>
Other	<ul style="list-style-type: none"> <li>Encourage participation in fun, enjoyable physical activity daily. (e.g. swimming, tricycle and bicycle and skating.)</li> </ul>	<ul style="list-style-type: none"> <li>Participation in a wide range of sports is encouraged.</li> </ul>	<ul style="list-style-type: none"> <li>Participation in other sports is still encouraged.</li> </ul>

Table 3. Fundamental motor skills to be included in the training programmes of 10 and 12 & Under tennis players.

## CONCLUSIONS

For the young tennis player, an understanding of growth and development needs to be at the forefront of any training and competition programme. It is a long process of development and requires patience, especially as a child is going through the initial stages of their life.

All involved should be aware of the importance of introducing the adequate contents by using the appropriate methods while respecting the individual characteristics of each player.

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