



Cornerstones of teaching tennis for children aged four to six years

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ABSTRACT

The first tennis training stage, which usually takes place between four and six years of age, cannot simply follow an adult training regime with quantitatively reduced loads. Training should account for children's cognitive, emotional, social, physical and motor development. This article highlights the cornerstones of early tennis teaching, including fundamental motor skills, which help to develop more complex motor actions, and motor abilities, especially strength fitness, which determines posture, jumping, running and throws. This is achieved through fun plays and games, which should include various coordination tasks providing motor experiences and develop more complex actions in future. The suggestions featured in this article may be of great interest to coaches working with children, as they relate to some of the core aspects of working with players in the fundamental stage of tennis development.

Key words: motor experiences, fun games.

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INTRODUCTION

The initial stage of tennis training involves the completion of specific goals that differ from those expected from youth or adult players (Pankhurst and Balyi, 2004; Smith 1990). The first few years are devoted to whole-body training, which lays the foundation for the subsequent stages of training and specialisation (Pankhurst and Balyi, 2004). In recent years, both parents and sports club managers have been expressing interest for children to take up tennis training at an increasingly early age (Payne and Issacs, 2016). Sometimes football or martial arts units recruit even 2- or 3-year-olds. This trend is an encouragement to consider starting tennis training even as early as 2 years of age. However, this requires coaches working with the youngest players to be able to combine in the training process the goals related to tennis performance, the parents' interest and, most importantly, the needs of the participating children.

Coaches working with children must be familiar with the manifestations of early childhood development and be able to use this knowledge to build the foundations for the future stages of tennis training and account for a child's cognitive, emotional, social, physical, and motor development (Payne and Issacs, 2016). One of the principles related to coaching 4-6-year-olds to implement is that children are not miniature adults (Smith, 1990). Consequently, child coaching cannot simply follow a training regime designed for adults with quantitatively reduced training loads.

Furthermore, coaches should take the long-term perspective into account, because once children reach biological maturity, i.e. after several years of training, the tennis they will participate in will be much different from the one they are familiar with now (Spengler, 2014; Balyi et al., 2013; Malina,



2010). The aim of this article is to highlight the cornerstones of teaching tennis at the early stage (4-6 years old) based on developmental considerations.

MOTOR DEVELOPMENT OF 4-6-YEAR-OLDS

Motor development "is the process through which a child acquires movement patterns and skills" (Malina et al., 2004). The preschool period involves rapid motor development due to a high sensitivity to stimuli related to the undertaken physical activity. Children are highly sensitive to learning new basic motor skills. The rate of development also differs between individuals, sometimes amounting to even as much as 18 months (Payne and Issacs, 2016). During this period, motor development is strictly connected with physical, emotional, cognitive and social development (Kuzik et al., 2020; Payne and Issacs, 2016).

Four-year-olds are similar in stature to three-year-olds, with a large head, long trunk, short limbs and inefficient feet. Their muscles are still weak. They also fatigue fast and are unable to perform intense physical effort for long periods of time. Large muscles are better suited for physical exercise; and due to the ongoing innervation and myelination of the hand muscles, 4-year-olds display a low level of fine motor abilities (Owczarek, 2001).

They can jump and hop fairly fluently, often spontaneously and intuitively combining these movements with walking and running. Their throwing performance also increases: children begin to combine the preparation phase with the main phase, and they enjoy throwing both at a distance and at a target (Payne and Issacs, 2016). Furthermore, they are able to catch a ball thrown by the coach with good precision, typically using the trunk. Five-year-olds develop at a considerably higher rate. Thanks to the maturation of the central nervous system, children's movements become harmonious and increasingly more precise and efficient (Unierzyski et al., 2019; Gallahue et al., 2012).

The ability to maintain balance also improves significantly (Unierzyski et al., 2019). Five- and six-year-old can throw from the forward lunge position, while six-year-olds show a much better grip. Six-year-olds are also able to balance excitation and inhibition processes, which leads to improved agility and dexterity, as well as focus on the performed task (Unierzyski et al., 2019).

FUNDAMENTAL MOTOR SKILLS

Fundamental motor skills (FMS) can be defined as "an organized series of basic movements which include a combination of movement patterns of body segments" (Gallahue et al., 2012). They are the building blocks for the development of more complex skills. FMS categories include locomotor (e.g. running and hopping), object control (e.g. catching and kicking), and stability (e.g. balance and body roll) skills (Hulteen et al., 2018; Gallahue et al., 2012).

A rich base of motor skills allows children to quickly adapt to changing conditions and is crucial in learning new skills in sport. Conversely, development based on early specialisation, contrary to a well-rounded building of motor skills, may cause injuries, burnout, loss of motivation, and reduced physical activity over lifetime, which is frequently a result of a limited movement skill set (Myer et al., 2016; Goodway and Robinson, 2015).

STRENGTH FITNESS

In addition to activities fostering the development of motor skills, junior tennis training should build strength fitness. Strength fitness is a global term that includes the phenotypes or observable characteristics of muscular strength, muscular power and local muscular endurance (Faigenbaum and Bruno, 2017). Many authors agree that an appropriate level of strength fitness is indispensable for correct jumping, running, throwing, and kicking and for a correct posture (Faigenbaum et al., 2018; Faigenbaum and Bruno, 2017).

However, throughout the years there have existed numerous fears and misinformed concerns that strength training could be harmful for the developing skeleton and result in bone injuries. They have not been supported by scientific reports



or clinical observations (Lloyd et al., 2013). Today, the consensus statement on building strength allows, or even encourages, developing muscle strength in children, as long as basic safety and strength fitness training guidelines are followed (Faigenbaum et al., 2016; Lloyd et al., 2013). This is particularly important considering the growing physical inactivity among children in recent years, which means that children do not spontaneously build their strength during play at home or outside.

In the case of tennis, training of 4-6-year-olds can revolve around mimicking the movements of animals, e.g., the crocodile, frog or snake. Thus, following the 'talk the child's talk' principle by referring to animal movements with a proper exercise technique can help to creatively paint a picture of the desired movement patterns (Faigenbaum and Bruno, 2017).

FUN GAMES

The most popular activities for building skills and abilities in tennis training with 4-6-year-olds are fun games due to the fact that plays and games (tag games, arrangement games, throwing games ect.) are the basic form of children's physical activity (Payne and Issacs, 2016). Children want to have fun and make friends. Playing lets them learn from their surroundings through activity and exploration. Fun is accompanied by positive emotions. Unfortunately, plays and games are often selected randomly for sports training programmes.

Selecting tasks for junior tennis training must allow children to build both basic and fundamental motor skills based on a well-thought-out programme. Plays and games should not be reduced to time-filler tasks; rather, they should develop motor abilities and teach children about the movement of the body. Plays and games allow children to familiarise themselves with the properties of their bodies and learn to move with varying speed and directions and throw at a target and at a distance, as well as develop their grip.

They primarily build motor coordination, thus improving spatial orientation, differentiation, lateralisation, rhythm, balance and reaction time, which are all extremely important aspects of a tennis player's development (Motor Skill Learning PE Teaching System for 3-7-Year-Olds, 2019). Plays and games require children to choose colours or shapes and assess spatial configurations; they also help to improve observation and prediction skills, often under time pressure. Plays and games

also teach children to deal with victory or defeat and to make independent decisions. They are an indispensable part of child-friendly exercise programmes aimed at developing the skills and abilities of a future tennis player. The initial stage of training often includes building motivation for playing tennis. Plays and games that are fun can produce a lasting willingness to participate in sports classes. Coaches play a major role in the organisation and selection of plays and games. They build upon their knowledge, creativity, passion, perseverance, long-term thinking and sense of humour to fully implement the training goals relevant to a given stage.

MOTOR EXPERIENCES AND VERSATILITY

Small children do not specialise in any particular activity; rather, they are versatile, and are curious about the diversity of their surroundings. This means that coaches should create situations that foster the acquisition of complex motor experiences. This includes exercises carried out on various surfaces, using balls of different weight, texture, size or shape, as well as bouncing tennis balls while turning around, hopping, and standing on one leg or on Bosu balls. The importance of motor experiences for physical, social and brain development of a child is fairly often underappreciated.

Applying movement in the shape of specifically-matched games and exercises is a means to create a 'neural network' (Johnstone and Ramon, 2011). A child's constant exploration of the surrounding world is expressed in the brain as an ability to create new neurosynaptic junctions or prune redundant ones. Their number decreases with the child's age, and the pruning results in 20 billion of junctions disappearing every day starting at the age of 2 years until adolescence due to the brain removing inactive junctions to make room for active ones. Everyday activity, including movement, is key to enhancing brain junctions.

The brain uses nerve cells from different regions to perform complicated motor tasks and achieve the desired effect. For example, playing a tune, riding a bicycle or hitting a ball requires activating cell junctions located in various parts of the brain (Hansen, 2021; Lelonek, 2019; Voss et al., 2010). The period of preschool education gradually reaches the stage of preschool balance called the golden period, which is characterised by excellent harmony between moves and ease of learning activities with a complicated coordinative structure. Fine moves are repeated and preserved. A child acquires the ability to collect and preserve motor experiences, thus creating muscle memory, additionally followed by the ability to derive pleasure from motor achievements, which increases the motivation to learn new moves.

Early-childhood motor experiences enable the formation of development pathways for more complex motor activities in later years. For example, 2-4-year-olds playing with a balloon will in future translate into the ability to catch a ball, and later still, to hit a ball with a racket. This is made possible by the building of perception and learning to assess the trajectory of an object during early childhood. Thus, the transition to the most advanced levels of motor skills relies on an early development of selected fundamental motor skills based on motor experiences (Hulteen et al., 2018). In turn, the development of motor experiences benefits from the use of variable, diverse tools, equipment, starting positions in exercises, methods of conducting sports classes and task variety. This approach is crucial for the long-term athletic development and lifelong physical activity (Lloyd et al., 2013).

CONCLUSIONS

Tennis training of 4-6-year-olds must be versatile. The aim is to build a baseline of motor skills, strength fitness and motor fitness, which will in future be applied in more advanced physical activities and sports training. This can be achieved by the use of a rich variety of fun but well-thought-out plays, games and exercises in order to immerse children in many different task-based situations and allow them to acquire motor experiences. Only with this enjoyable yet deceptively easy method can the well-prepared coach lay a foundation for the development of a future tennis player. Fostering long-term player development using the aforementioned cornerstones is the only possible way to achieve both the needs of a child and the long-term aims of tennis training.

CONFLICT OF INTERESTS AND FUNDING

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