ITF Coaches Education Programme

Coaching Beginner and Intermediate Players Course

Physical conditioning

Physical characteristics

- Comparing children and adults
- Beginner - advanced players
- Good muscle flexibility and strength
- Anaerobic/aerobic endurance
- Games??
- Injury prevention
- Drinking - hydration

ITF Coaching

Physical attributes

Attribute	6-11 year old
Co-ordination	A player's capacity to effectively engage the central nervous system and the skeletal musculature in movement (DTB, 1996).
	▪ **Potential for adaptation**: Improvements can be made as part of both general (i.e. naturally-occurring) and specific (through training) central nervous system and musculoskeletal development. ▪ **Training recommendation**: A variety of exercises that challenge differentiation, balance, orientation, rhythm and reaction can be used. Co-ordination training should attract significant emphasis.
Speed	A player's capacity to execute motor actions that cause the body or a part of the body to move as quickly as possible in the absence of fatigue (Moreau et al., 2003).
	▪ **Potential for adaptation**: Certain childhood periods have been identified as "sensitive" for the development of speed. ▪ **Training recommendation**: Participation in games that demand quick responses to different stimuli (visual, auditory, kinaesthetic) will benefit children.
Strength	A player's (or muscle's) capacity to generate large amounts of force (strength) at varying speeds. When developed at high speed, this expression of strength is often termed power (i.e. high-speed strength).
	▪ **Potential for adaptation**: Improvements can be made as part of the overall psychomotor and musculoskeletal development processes. ▪ **Training recommendation**: A variety of exercises that make use of one's bodyweight can be promoted, and carefully progressed. However, heavy resistance training should be avoided until full bone growth has virtually been achieved.

Flexibility	The range of movement about a joint.
	▪**Potential for adaptation**: In general, flexibility decreases with age. Selective tightening of muscle groups through involvement in tennis is common and following a growth spurt, flexibility imbalances can become more prominent. ▪**Training recommendation**: Children can regularly perform static and dynamic stretching.
Aerobic Endurance	A player's capacity to compete hard for long periods and then recover quickly between rallies, right up to the very last point of the match.
	▪**Potential for adaptation**: Improvements largely related to enhanced movement economy. ▪**Training recommendation**: The relevant energy system can be challenged through cross training and other sports.
Anaerobic Endurance	The capacity to repeatedly perform high intensity efforts, such as retrieving a drop shot or lob, with limited rest.
	▪**Potential for adaptation**: When compared to post-pubescents, and even more so adults, children have a significantly lower ability to work anaerobically. The reason for this poor trainability is not known but is thought to be associated with the different muscle physiology of children. ▪**Training recommendation**: This capacity is generally trained in the form of games, circuit activities, practising other sports, etc.

Body fat	Represents energy stored in fat cells throughout the body.
	▪**Potential for adaptation**: Prior to puberty and the growth spurt, girls and boys have similar levels of body fat. ▪**Training recommendation**: A certain amount of body fat is required for optimal body function. Too much or too little is likely performance limiting.
Body temperature control	Capacity to regulate body temperature.
	▪**Potential for adaptation**: Children find it harder to dissipate heat in high temperatures than adults due to a poorer sweating response and higher skin temperatures. ▪**Training recommendation**: In the heat, care should be taken to provide frequent short rests and drink (i.e. water) breaks.
Movement economy	The efficiency, in terms of mechanical-physiological cost (or energy expenditure) with which any particular tennis activity is performed.
	▪**Potential for adaptation**: As a general rule, children improve their movement economy with age. ▪**Training recommendation**: Improved movement economy (i.e. through improved running technique), can help to enhance aerobic endurance and assist in the prevention of injuries.

Principles for physical conditioning

- Warm up and cool down
  - Aerobic portion
  - Flexibility portion
  - Sport-specific portion
- Specificity
- Progressive overload
  - Frequency
  - Intensity
  - Volume
- Intensity

Principles for physical conditioning

- Individuality
  - Gender
  - Chronological age and biological age
  - Previous injuries
  - Posture
  - Anthropometry
  - Goals of the player
- Rest and recovery
  - Passive rest
  - Active rest
  - Other forms of recovery
- Variety

Physical conditioning drills/Aerobic Endurance

- Coordination
- Drills
- Aerobic Endurance
- Enjoyable activities
- Child/adult consideration

Activity	Duration	Additional benefits	Other considerations
Distance run	20-30 minutes	Discipline, mental strength.	Educate players to pace themselves.
Frisbee		Good fun, quite tennis specific, develops communication skills and problem solving abilities.	Ensure pitch is appropriately sized for number of players; incorporate intermittent rest breaks.
Soccer		Hones communication skills and problem solving abilities, challenges coordination.	As with frisbee.
Basketball		As with soccer.	Use time-outs or alternate players from the bench.
Interval run		Provides more variety than a distance run, players of all ages/fitness levels can perform together.	Use varied movement patterns.

ITF Coaching

Strength

- Levels of strength - injury prevention
- Using body weight
- Examples of body weight exercises
  - Push ups
  - Dips
  - Burpees
  - Handstands
  - Single leg squats
  - Forward and sideways lunges
- Power

Speed/Flexibility/Wheelchair

- Speed
- 6-11 age
- Flexibility
- Static flexibility
- Dynamic flexibility
- Physical conditioning for wheelchair tennis players
- Same as able body

Conclusion

- Fit players
- Physical characteristics-children and adults
- Ages 6-11
- Training principles