

Hockey training at different age levels



With special acknowledgement and thanks to my friend and colleague, Jack Blatherwick, Ph.D. /Physiologist, Washington Capitals Hockey Team. His thoughts, insights, and knowledge were invaluable in helping me write this article.

In recent years sports scientists have spoken out emphatically about the harmful effects of premature and over-intense athletic training of young children. Many complain that hockey programs for youngsters are too intense, competitions too many, seasons too long, emphasis on winning too great. Young children are pushed by parents and coaches to choose and specialize in the sport way before they are mature enough to do so.

Up to the age of eight, children should enjoy a variety of fun and stimulating activities; they need to develop a broad base of movement skills. Intensive training and competition at too early an age inhibits the development of skills such as balance, agility, and coordination, and it prevents youngsters from learning other sports. It's been shown that children who specialize too early do not develop the varied motor skills necessary for maximum athletic performance in later years. These children are the physical equivalents of specialists who have little competency outside of their specialty.

Young children (up to six) should engage in many different movement activities. Dancing, tumbling, and jumping, are excellent activities. Since these youngsters have very short attention spans, instruction has to be unstructured and fun; teaching should be short and simple; it is best accomplished using "show and tell". There is no long term advantage from structured practices at these ages.

Between the ages of seven to ten, postural and balance skills mature and become more automatic. Children are able to master some of the basic movements needed for organized sports, but they still have short attention spans. They have difficulty making rapid decisions involved in complex sports. Fundamental skating skills can be introduced and practiced at these ages but again, practices must be fun. Sports like hockey, soccer and basketball, as well as martial arts, swimming, t-ball, lacrosse, etc., are excellent choices.

Between the ages of ten to twelve (pre-pubescence) there is great improvement in coordination, motor skills, and decision making capabilities. For children who choose to participate in hockey, skating skills now must be strongly emphasized. Skating techniques should be emphasized and built upon in the ensuing years.

Players are now ready for some endurance and quickness training as well; they should engage in activities and perform drills that incorporate core strength, quickness, coordination, body awareness, balance, and rhythm. Fun and variety is still important so kids should be encouraged to participate in other sports.

Between the ages of thirteen to sixteen (adolescence) athletes can incorporate complex skills and integrate large amounts of information. They can focus appropriately and their decision making capabilities improve dramatically. They are ready to specialize in their sport of choice and to practice with true dedication and intensity. It is also the time of the Adolescent Growth Spurt ("AGS"), the time of greatest and most obvious (catastrophic) change in a young person's life.

The Adolescent Growth Spurt: Body changes during the AGS can temporarily diminish over-all skill and speed and increase vulnerability to injuries. The effects of AGS and its effects on core strength, postural control, and performance (coordination, skill, speed, quickness, agility, technique) can be enormous while athletes struggle to adjust to their rapidly changing bodies. At their fastest, boys grow by four inches a year and girls by two and a half inches a year. It's no wonder teenagers are clumsy -- their bodies shoot upwards at speeds their brains can't keep up with. As height increases, the center of gravity lifts. This happens so quickly that the brain does not get a chance to calculate the new rules for balance.

On the average, boys grow fastest between fourteen and fifteen and girls grow fastest between twelve and thirteen. Girls finish their growth spurt at eighteen while boys need another two years before they finish growing at about twenty.

Medical aspects of AGS must also be noted. Injuries such as shin splints, stress fractures, and growth plate injuries such as Osgood-Schlatter Disease, are most prevalent during the periods of fastest growth. Training should be modified to avoid such injuries.

All of these considerations, combined with normal adolescent hormonal and emotional changes, can lead to lack of self-confidence and low self-esteem. Adolescents need to be assured that they will regain their technical control and skills when the AGS has ended.

AGS starts at the outside of the body and works in. Hands and feet are the first to expand. Needing new shoes is the first sign. Next, arms and legs grow longer, and even here the "outside-in" rule applies. The shin bones lengthen before the thigh bones, and the forearms before the upper arms. Finally the spine grows. The very last expansion is a broadening of the chest and shoulders in boys, and a widening of the hips and pelvis in girls.

Early and Late Maturers: Early maturers hit their growth spurts sooner than their peers. They tend to have an advantage in sports like hockey that require speed, power, endurance, and body mass. For biological reasons, not necessarily because of greater talent or ability, they are able to out-perform their peers. In childhood, they may have had successes for which they received much reinforcement and recognition.

Problems arise during adolescence. Early maturers who experienced success in their younger years get frustrated because their peers suddenly catch up. They no longer experience the same success as before. Coaches may conclude it is because they are not working hard. Part of the dropout rate around age fourteen is due to early maturers' frustration. They don't understand that the physical changes that are occurring in their peers are allowing them to catch up. Parents and coaches could do a lot to shore up their self-confidence during this difficult time.

Late maturers have a different set of issues. They often experience failure at the early ages because they are not as physically strong or developed as their early maturing peers. Even though they may work as hard, they often can't keep up, which is a huge source of frustration. Even as their physical maturity and skills "catch up", they may continue to have trouble getting coaches' attention, encouragement, and recognition. In other words, coaches may not give them a fair chance to "show their stuff". Some of these youngsters drop out because of frustration. This seems to hit late maturing boys the hardest because they are at a particular disadvantage. Parents and coaches need to figure out how to keep late maturing kids interested and involved despite a lack of early success. They may turn out to be the "stars".

TRAINING CONSIDERATIONS

SKILL (TECHNIQUE) TRAINING

Skating is an extremely complicated activity and hockey is an extremely complicated sport. Skating moves are not natural to the human body; in fact they're the opposite of natural. Skating moves are numerous, intricate, and inter-dependent. Each hockey maneuver consists of many parts. Each part must be learned separately and then integrated into the whole move. Proper technique training is essential for players to become fast, powerful, quick, and efficient skaters.

The teaching/learning process is a long one. The most effective teaching method is one that has a systematic and integrative approach. I believe in the "pyramid" method; a strong foundation must be built at the bottom of the pyramid. Then work up from there to integrate and refine each part into its "whole".

No one can learn a new skill or skating maneuver "going fast". It's too much for the brain and body to accommodate. Here's my approach to teaching skating techniques:

- 1. Correctly.**
- 2. Correctly-powerfully.**
- 3. Correctly- powerfully-quickly.**
- 4. Correctly-powerfully-quickly with the puck.**
- 5. Same as 4, now under lots of pressure and in game situations.**
****It is imperative to learn "correctly" before worrying about powerfully and quickly – no matter how long it takes. And, when performing "powerfully" and "quickly", "correctly" is still number one. That's what makes explosive, efficient skating so difficult.***
- 6. At the end of each practice, players should be allowed to skate fast and have fun without worrying about correct technique.**

Skill (technique) training programs for very young hockey players (and for beginning players of all ages) should include basic and simple skating fundamentals done at a comfortable level, with a concentration on understanding, smoothness and efficiency.

Skating technique must be combined with power and quickness at fairly young ages. From ages eleven and up hockey players should engage in training that includes some interval training (work:rest training). Whether the workouts are for sprinting, strength training, agility, skating, or for athletic attributes such as balance, rhythm, and coordination, they should include some interval training.

It has been shown that long-slow training, without quickness training, teaches muscles to perform slowly. Therefore, jogging alone doesn't train quickness. *
Note: Long distance jogging needs to be carefully monitored. When over-done and when performed on hard and/or uneven surfaces it can result in growth plate injuries, especially during AGS.

Work (sprint) periods for all young players, including adolescents, should be short (maximum ten to fifteen seconds) to avoid the accumulation of lactic acid. There must be enough rest time between each work (sprint) period for full recovery. When still learning skating techniques, quickness training can be done mostly off the ice so as not to interfere with skill development. Coaches need to remember that developing players cannot learn, perform properly or perform effectively when they're fatigued. Quality repetition is the key to learning skill.

Strength Training: If strength training is to be done with pre-pubescent children, it should involve sub-maximal resistance, such as one's own body weight, light dumbbells, or medicine balls. Sophisticated and restrictive weight exercises, particularly on machines, are harmful for strength-limited children. Whole-body activities are the most important and beneficial, especially for improving core strength. For skating, kids should work on two-legged and one-legged strengthening. The more they strengthen their legs at a young age, the better chance they have to learn to skate correctly. Learning to skate, and developing leg strength (especially one-legged) are synergistic, so they should be done at the same age. And it should be fun.

MODIFYING TRAINING DURING THE ADOLESCENT GROWTH SPURT

During AGS kids often lose coordination and skill. Core strength, postural stability, concentration, technique, explosive power, and foot speed are all affected. The AGS has a negative impact on the learning process in general.

During growth cycles, kids don't have the biological base of one-legged strength or muscular endurance to get into a good skating position. On-ice practices should focus on skill and technique rather than on power. Off-ice work should include two legged and one legged exercises for coordination, balance, and agility. Exercises to improve core strength and postural stability are critical. Heavy strength/power workouts should be postponed until the muscles are stronger.

To improve hockey skating: Off-ice work on two legged and one-legged postural stability, combined with good skating fundamentals, should be incorporated into the training regimen. Coaches should have players do off-ice exercises for foot speed and explosive jumping (power) from a position of good knee bend with the shoulders up. When this is combined at every age, with sound skating fundamentals, players have a chance to reach their skating potential.

Speed and explosive power should become part of skating patterns around puberty. The three to four years just after puberty are the most critical for developing foot speed and explosive power. However, it is very important to continue training for technique, power, quickness and foot speed during and after the AGS because many players lose these qualities during their periods of rapid growth. Patterns are fairly well defined by puberty. However, if players have a solid base of good skating mechanics and quick feet, the elements of explosiveness, quickness and efficiency can be improved after puberty and for several years beyond.

In conclusion: Competition is an important part of a young person's development. ***Hockey is one of the greatest competitive sports. Correctly managed it is a critical training ground for teaching youngsters to compete successfully in life's many competitive and challenging situations. But its value depends on how it is conducted. Parents and coaches have a very important role to play in ensuring that development occurs in an intelligent, well-structured, well thought-out process that teaches positive life-lessons, maximize each player's inherent potential, and provides a positive learning experience along the way.***

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