

**Physical, cognitive, emotional and psychosocial characteristics  
of children and age- appropriate on- ice skills for junior hockey  
players**

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<p>Educating and training children in ice hockey is a responsible task. Coaches of youth players have to be mature people with well-developed values, sport-specific knowledge and an understanding in the development of children. This thesis gathers and presents both scientific data and practical experiences from ice hockey and sports in general with the purpose to help coaches to manage children more effectively.</p> <p>Three periods of child development are described. Early childhood (2-6 years of age), middle childhood (6-12 years of age) and puberty/adolescence (above 12 years of age). Each chapter is divided into three subchapters; The first deals with physical characteristics of growth and motor development, the second with brain and cognitive development and the third with social and emotional development.</p> <p>Additionally, very important topics, coaches should pay attention to, are included. Safety principle has to be considered in every ice hockey practice. Threats of early specialization and selection are listed together with solutions. The importance of game like drills to develop cognitive skills is explained.</p> <p>The attachment is an on- ice coaching manual, which includes tables of hockey skills that have to be mastered on the ice at a certain age. Key points for each age group are listed.</p> <p>The aim of the thesis is to create valuable teaching material for ice hockey coaches, especially for countries like Slovenia with an underdeveloped bibliography in ice hockey. Part of the content has been already presented during the 2012 Slovenian ice hockey coaching symposium and can now enrich study material for coaches of youth.</p>	
<b>Keywords</b> Child development, on-ice skills, ice hockey.	

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# 1 Introduction

Ice hockey is a fast team sport with a lot of physical contact. To control rapid changes that are happening in the game, a player needs to have great playing skills. Highly developed motor skills are required to move efficiently on the ice without risking an injury and to be in control of the body which is in touch with the ice on 1 square centimeter. The technical skills of the sport (skating, puck handling, shooting, passing and body checking) are not natural movement for humans and they must to be learned. Mastered technical skills are the important requirements which enable players to play ice hockey on a high level.

Cognitive skills are also extremely important in a dynamic sport such as ice hockey. Coaches in the past used to concentrate more on technical, tactical and physical preparation and neglected the mental training. Caserta, Young and Janelle (2007, 479) discovered that perceptual- cognitive skills can be trained even by aged individuals. Coaches can develop those abilities on the ice with decision making drills. Science and business went even further and developed tools that help to increase brain capability. For example, USA Hockey (2014), in collaboration with Applied Cognitive Engineering, have made the The Hockey IntelliGym, a video game that enhances awareness and improves on-ice decision making.

High quality literature on youth ice hockey and coaching is available. High developed hockey countries and clubs have their own written guidelines for long term player development. Czech, Finnish, Canadian and USA hockey associations, for example, have plenty of quality material regarding coaching and developing athletes. Bukac and Studnicka (2012, 3) are stating in the Long term player development of the Czech ice hockey association that reaching the player's highest possible potential and to develop a life-long lasting interest for ice hockey are the main points of their work. Hockey Canada has many booklets and guidelines for and about all subjects related to ice hockey; for players, for coaches, for parents, as well as referees. Hockey Canada (Player development, 15) emphasizes that minor hockey players need to experience a wide variety of learning activities that correspond to their level of abilities and capabilities.

Even though developed hockey clubs and association material was a base and inspiration for this thesis, this document is unique because it goes deeper in respect to children's physical, cognitive, emotional and psychosocial characteristics and gives more practical examples from hockey and sports in general.

Many smaller clubs and less developed hockey countries which do not have enough hockey knowledge, are usually not following any programmed route with their youth hockey program. Objectives of this thesis are to help coaches to understand children better, to present directions for coaches to plan and execute their training program the way that can be most beneficial for their athletes and to create useful teaching material for coaching clinics and students in sport universities specialized in ice hockey.

I am coming from Slovenia and I know Slovenian hockey very well through my 25 years of activity as a player and a coach. Slovenia is one example of a country that is missing ice hockey bibliography. The hockey vocabulary used in this thesis will enrich Slovenian coaches' knowledge and enable them to use the correct vocabulary on an international level. Because one of the problems in Slovenia is, that we use our own hockey slang, which is different in every hockey centre, even though they are only couple of tens of kilometers apart. This presents a difficulty even inside Slovenia, but when coaches work abroad it is an even bigger disadvantage.

This thesis presents children's characteristics and guidelines for youth coaching. It is divided into three parts, taking children's age groups into consideration. Inside each age group are subchapters on physical characteristics including growth and motor development, brain and cognitive development, and emotional and social development. Additional subchapters are describing important topics for coaches and children such as safety principles, developing cognitive skills on the ice or the danger of early specialization.

Chapter two describes the preschool period and children traits from the age of 2 to 6. According to Crespo (2010, 20) children at the age from 4 to 6 are egocentric in nature, they think they are the centre of the world. That is why this is a demanding age group to coach. At the end of the preschool period, children usually get in contact with

organized sport activities for the first time. In case of a pleasant, positive and playful entrance, we can expect a long lasting interest towards an active life. Teachers, coaches and instructors have to have proper education, values and sense for successful work with children. Safety, as the number one principle, when dealing with children, has to be taken into account.

The third chapter describes the middle childhood period that lasts from the age of 6 to 12. Bukac and Studnicka (2012, 7) are stating the importance of practice that develops versatility and participation in different sports. Competitions are starting, but the main focus has to be on the long term player development. Children are getting more independent and entering school presents a huge step in their lives. The dangers of early specialization are mentioned and described in this chapter.

The fourth chapter is on the puberty and adolescence period of life, a period of drastic physical and also cognitive changes. The training program becomes more serious and is more focused in competitions. Game like drills help to develop a player's playing skills.

This is a product oriented thesis and is made as a coaching manual. It helps to develop an understanding of characteristics in children's growth and explains how this is reflected in ice hockey. Scientific data and practical experiences from the world of sport will help coaches to manage their players more effectively.

Attachment of this thesis adduces tables of hockey technical, tactical and playing skills, together with habits, that have to be taught on the ice for each age group from complete beginners to senior players. The tables are showing the logical sequences and timing of learning hockey skills. Even though, every coach has his own view of a player's progress, the tables give ideas and are the base for the coach to plan his program. Thus, they help them to develop ice hockey players.

## **2 Preschoolers- early childhood (2-6 years old)**

Most of the children start to do organized sport activities at the end of the early childhood or beginning of the middle childhood. It is very important for the children, what kind of experience they have from the beginning. The first joyful impression might give them a positive attitude towards sport, physical activity and effort. Coaches, teachers and instructors should prepare proper games and activities for young beginners. The main goal should be on developing basic movements, motor abilities, socializing and raising children through play. A fun and relaxed atmosphere is an important factor to create a positive environment, for easier learning and to fulfill the children's need for playing. That kind of environment also allows the children to express themselves as individuals. It is the coach's responsibility and obligation to wake up a passion and joy in children towards physical activities. The goal should be to develop in the children a life-long lasting interest in sport activities. Ewing (2002, in Diaz 2005, 26) points out that sport can play an extensive role in determining if children will be life-long participants, be physically fit, have positive social and emotional development, learn moral values, and have an increased sense of self. To achieve that, coaches themselves have to have a positive attitude and knowledge on children's traits and development in certain periods of their youth. Coaches of youth have to present the sport path of life to the children, whether it is going to be a professional one or an amateur one in the future.

Parents have the main role of raising a child. But also teachers and coaches have their important part. They can help the children understand what is acceptable in the society and what is not. Children have to know and learn where the limits are. They have to play by the rules in sport and in everyday life as well. They have to compete in the spirit of fair-play. It is important to place group needs in front of individual needs, and to teach values like empathy and altruism. Having goals in our lives is very important. Goals are like markers and give orientation to our life. It is not always easy to achieve our goals. Hard work is paid with satisfaction. Marko Juhant, a Slovenian teacher, is warning in his interview: "We have never had so many kids who just do not care about anything." (Juhant 2013.) This is a big warning for parents and other people who are

involved in raising youth. We want active people who think with their own head, who care for others and nature, not people with no goal or will.

## **2.1 Safety principle**

Safety issues have to be in a coach's mind when planning and executing activities. How many kids do we have and how many coaches do we need? Are all the kids under supervision all the time? Where is the potential danger? Do the kids have a medical certificate for participating in training and competition? These are examples of questions coaches should ask, especially with young kids.

On the ice in the complete beginning, when skating is the main topic of learning and children are without sticks, only skates are needed. A helmet is recommended to protect the head; this can be a hockey, a cycling or a skiing helmet. Gloves can be ordinary winter ones. Winter clothes prevent a child from being cold and protect him slightly when he falls on the ice. Once the sticks are in children's hands it becomes more risky, because beginners do not have good balance and their sticks might be all over, so face protection is needed as well. The whole hockey equipment is not needed at the beginning when learning to skate. In most cases the clumsy equipment interferes with the children's proper movement. Once the basic skating has been learned, when the speed increases, when pucks and sticks are added to the hockey training process the whole hockey gear is needed. There are different views whether to start with hockey stick at the beginning on the ice. Bukac and Studnicka (2012, 3) suggests having a stick from the first step on the ice, while Brun (2013, 7) advocates to learn first steps on the ice without it.

The coach also needs to be aware of the own safety on the ice. This is a topic not often discussed; even in coaching clinics this is rarely on the schedule. Many injuries that have occurred among ice hockey coaches, while coaching on the ice, have been very serious, sometimes even deadly. CBCNews (2008) reported on a death case on the ice and that wearing helmets became mandatory for coaches in Alberta, Canada after that tragic happening. Very dangerous is the situation when a child comes from behind under the coach's legs. That might cause a coach to fall on his back or head. The coach



protects himself from these situations with standing completely with the back along the boards. Second common threats to a coach are the pucks. Older players have strong shots, but mostly they know where they shoot. Younger players often just look at the puck and try to lift it as high as possible. They have to be trained to look where they shoot and in which areas and at what time they are allowed to shoot. Considering the danger of the pucks, a coach also has to have some game sense to avoid potential danger. Therefore helmets are much recommended for coaches and instructors.

## **2.2 Physical characteristics: growth and motor development**

Children in early childhood are steadily growing and gaining weight.

The average 3 year old weighs only 14 kilograms, but most gain additional 6.4 kilograms by age of 6 (average of 2 kg a year). In three years they also grow for about 20 centimeters. As they get taller, they lose some fat and their BMI (body mass index) decreases from age 2-6 and after that gradually increases. (Poole, Warren & Nuñez 2007, 215.)

Skating is an unnatural movement. Skating strides, with the proper setting of the skate edges, which enables smooth movement on the ice, have to be learned. But also on the ice, other activities can be executed to improve balance and posture. Walking and jumping are two examples. Ice presents a completely new environment to children. And because motor skills are still developing coaches have to be patient when teaching children. The game of hockey also requires fine motor skills and there is no need to insist on complex movements. It can cause more negative effect, frustrating a child who is not capable of doing certain things.

Boyd and Bee (2009) mention the delay of fine motor skills development compared to general motor skills development in their work *Lifespan Development*.

During the preschool period children make an impressive gain in large muscles skills. By age of 5 or 6 they are running, jumping, hopping, galloping, climbing, and skipping. Some kids can already ride two- wheeled bike. Fine motor skills are not developing with the same speed and kids are not so accurate for example in writing and cutting with scissors. For example there is a whole body involved in writing or drawing. (Boyd & Bee 2009, 177.)

As stated by Gallahue and Ozmun (2006, in Poole et al. 2007, 215), who are explaining the reason why kids usually go to school at the age of six.

Young children are curious and eager to learn, yet most societies wait until they are about 6 years old before starting formal education. There are good reasons to wait. Preschoolers are still acquiring the motor skills they need to dress themselves, eat neatly without supervision, and manipulate paper and pencil. Their eyes aren't ready for long periods of close work, and they need a healthy balance of active play and frequent rests. (2006, in Poole et al. 2007, 215.)

The same reasons have to be considered, when including a child into the sport. Instructors have to be aware that the attention span of children is short and playing should be the main form of activity in practice. There is no reason to hurry or be pushy, especially in late specialization sports which team sports are. Children are not independent, so parents have to drive them to the rink and dress them. Children actually look like a coat-hanger, when parents are hanging the gear on them like they would hang decoration on the Christmas tree. But this is a great opportunity for parents and coaches to teach the children to dress themselves and get independent step by step, of course with the help of the parents and the coaches, especially with tightening the skate laces. Children should be taught and reminded also on topics such as personal hygiene and the locker room order.

### **2.3 Brain and cognitive development**

Tanner states (1990, in Poole et al. 2007, 218) that brain development and behavioral development go hand- in- hand. Brain at the age of 2 is about 75 percent of the adult's weight and increases to 90 percent by age of 5.

The synaptic pruning helps to sculpt the brain into adult form. In a child's brain, an over production of connections- synapses between brain cells - occurs. Pruning causes snipping away some of the synapses while allowing others to strengthen (Zukerman & Purcell 2011).

But pruning is differently timed in certain parts of the brain. Nelson and his co-writers are saying (2006, in Poole et al. 2007, 219): "By 3 years, significant pruning has already

occurred in regions responsible for vision, auditory perception, and language. In the prefrontal cortex, which handles higher cognitive functions such as solving problems, pruning is just beginning and will continue throughout middle childhood and early adolescence.”

“Due to their immature brains, 3-year-olds manage best in unstructured environments whereas 6- year-olds are ready for more organized activities.” (Poole et al. 2007, 219.) This is very important information for coaches of preschoolers. Three and four year old kids are “sensitive clients”. Talking about the right or left hand doesn’t mean anything to them. There is no need to be too specific with details, demonstrations count much more. Even though coaches should be strict with certain rules, practices with preschoolers look chaotic. It is important that the coach keeps the children active and with a smile on their face. Instead of explaining the biomechanics of skating it is better to ask who their favorite cartoon hero is!

## **2.4 Emotional and social development**

In the early childhood period, playing is the predominant form of behavior (Boyd & Bee 2009, 231). Playing games should represent the main activity during the practice. Through playing, also practice goals should be accomplished: teaching skating technique, developing motor skills such as coordination and balance, and respecting the rules. Instructors have to encourage creativity within the boundaries of fair play.

Mildred Parten (1932) points out that child’s play develops in stages. At the age of 3 or 4 children start to use cooperative play, where they work together to accomplish a goal. They might use constructive play for example to build a city out of blocks or symbolic play as playing “mommy”, “daddy” and “baby”. (Boyd & Bee 2009, 231.)

In interaction with other people preschoolers display the full range of human emotions. According to Stein’s study (2002, in Poole et al. 2007, 239) they express them over 200 times a day.

Preschoolers like to compare themselves to others and do things the others do. Preschool time is a sensitive period of slowly becoming independent. Parents, coaches and teachers should be aware that preschoolers need a proper balance of independence and control.

Boyd and Bee (2009) are mentioning Erikson's view of importance that a child has a certain autonomy, which is needed for its healthy development. Too much control will not provide the child with enough opportunity to explore, but too little control will cause the child to become unmanageable and it will lack social skills for the interaction with peers and adults. (Boyd & Bee 2009, 208.)

It looks like children in the Western World are much protected from their parents, always supervised and always told what to do. Even teachers of physical education and coaches are often avoiding dangerous situations, because they are afraid of the consequences that might follow in case of any injury or pain. Protective parents often sue the school, course or sport club. Through the lack of free play and the reduction of any potential danger situations are created where junior hockey players have a deficit of basic athletic skills, for example backward roll, climbing or hand stand. Coaches have to follow safety principles, but complete absence of any danger is impossible. It is recommendable that coaches provide themselves with an insurance which covers the costs of a potential lawsuit.

In ice hockey countries, the average age of a child starting to play hockey is somewhere between 5 and 8 years. Sometimes children (or parents) would like to try it at even younger age. That presents a big challenge for a coach- teacher. In some cases it does not work and is better to wait another year during which the child grows, gets more mature and independent. Groups of so young beginners have to be small. Brun (2013, 5) suggests, that there should be one coach for as many children equivalent to their age. That means four 4 year old children in a group or five 5 year old children in one group. At that age also parents, especially those with hockey background, are welcome to assist the coach and the children on the ice.

Branta, Haubenstricker and Seefeldt (1984, in The American Academy of Pediatrics 2013) are warning coaches and parents in their publication not to rush the children into the sport, because basic motor skills, such as throwing, catching, kicking, and hitting a ball, do not develop sooner simply as a result of introducing them to children at an earlier age.

Stryer, Toffler and Lapchick (1998, in The American Academy of Pediatrics 2013) are pointing out that teaching or expecting these skills to develop before children are developmentally ready is more likely to cause frustration than long-term success in the sport. Organized sports sessions should be tailored to match the developmental level of participants. Most preschool children have short attention spans and are easily distracted; therefore, exercise sessions should be short and emphasize playfulness, experimentation, and exploration of a wide variety of movement experiences. A reasonable format would consist of no longer than 15 to 20 minutes of structured activity combined with 30 minutes of free play. (The American Academy of Pediatrics 2013.)

It can be concluded that 45min of training for children until the age of six is enough. Sport activities therefore are eligible for preschoolers. The activities have to entertain children, develop them physically and mentally and also challenge them. Copying the adult's practices is the wrong way. Structured activity, with emphasize on the teaching process when the main topic of the practice is being taught, should follow the warm up. In between the structured part or after it, unstructured activity- play has to happen, where children have more freedom to do, behave and create on their own. A savvy coach will achieve his goals of the practice through a proper version of certain play.

### **3 Middle childhood (6-12 years old)**

It is a huge period of time between 6 and 12 year old children. Many characteristics from the previous chapter about preschoolers hold also true for 6 or 7 year old children. Whereas 11 and 12 year old children are already much more motor, cognitive and emotionally developed. Older children are facing more systematic training and are getting ready for competitions. Competition often has an influence on the parents and coaches the way that they start to push and demand too much from the children and winning becomes very important. Drawing the tactics on the coaching board before a cross-ice game for U-8 children is one example of exceeded expectations by a coach. Coaches and parents have to be patient. Nothing happens overnight. Overall systematic development of the young athletes has to be the top priority. Children should do a wide range of activities and try different sports. Playing on different hockey positions (goalie, forward, defenseman) gives a child a wide range of game understanding and teaches him the key points of a certain role. Today's hockey needs universal players who are capable of playing on every inch of the ice effectively. Limitations with respect to playing on one spot only through the teenage period ruins the great variety of skills that a top players need. Entertainment, fun and love for sport activities should still be an important part of every practice.

Bergen and Fromberg (2009) point out the importance of play in middle childhood years. Unfortunately, although there is abundant research evidence showing that play supports young children's social, emotional, physical and cognitive development, it has often been ignored or addressed only minimally. (Bergen & Fromberg 2009, 426.)

For many children, the opportunities to freely choose to play are narrowing because of music or dance lessons or participating in sport teams (using adult defined rules). There are also homework or test preparation sessions taking time away from the children to be able to just play. (Bergen & Fromberg 2009, 427.)

### 3.1 Physical characteristics: growth and motor development

Children through the middle childhood gain on average 6 cm of height and 3 kilograms of weight per year, although that gain is not linear, but it usually has slower and faster periods. Children grow from 115 cm to 149 cm for boys and to 151 cm for girls. (Poole et al. 2007, 215.)

By the age of 12 is the period when girls are higher, heavier and look more mature than boys. Tanner (1990, in Boyd & Bee 2009, 246) researched that by 12 years of age girls have attained about 94% of their adult height and boys reached only 84%.

It means that at the age of 12 girls can match up with boys on the ice. In countries where there are not many hockey players, girls play in boys' teams, in average until the age-group of U-14. After that age, when ice hockey becomes more physical and boys are getting stronger, girls join the women adult teams.

Thomas, Yan and Stelmach (2000, in Boyd & Bee 2009, 246) point out that large muscle coordination continues to improve, together with increasing strength, speed and improving hand- eye coordination.

Even more significant for school children is the improvement of fine- motor coordination, which makes writing possible as well as playing an instrument and doing other activities (Boyd & Bee 2009, 246).

No wonder that 10 year old children are capable of doing significant stick- handling drills. All they need is exercises and repetitions. And Granlund, to give an idea!

Shenouda, Gabel and Timmons (2011, 1) are stating that the 'Golden Age' of motor development is already occurring during the preschool years between the ages of 3 and 5 years, when important skills like running, jumping, throwing and catching are developed.

Bukac and Studnicka (2012, 3) are describing the age period from 8 to 12 as another 'Golden Age', when the human body has a great potential for learning skills. That is why Bukac and Studnicka (2012, 3) are appealing to start with ice hockey in an early age, because it is such a motoric demanding sport. Before puberty Bukac and Studnicka (2012, 7) express the need of developing coordination, speed, frequency and different hockey technical skills in the practices.

The middle childhood period can also hide some risks for the youth, coaches should be aware of.

Children's expanding abilities in middle childhood are not without risks. Parents and coaches need to be aware that children's bodies respond to heat and exertion differently from adults, so it is dangerous to assume that children can do what adults are comfortable doing. Heat-related illness is an example. Children produce relatively more heat during physical activities, sweat less than adults, and overheat easily. Their tolerance for exercise declines markedly when temperatures exceed 95° F (35° C), and they are vulnerable to heat exhaustion. Heat exhaustion occurs when body temperature rises, causing dizziness, weakness, nausea and vomiting, and muscle aches. Severe cases can progress to heatstroke, a life-threatening condition that damages internal organs. (Poole et al. 2007, 305.)

How serious and real the problem is, is obvious from the statement of Andrew J. Grundstein, a professor at the University of Georgia. According to his statistic 123 high school football players died of heat-related illnesses between 1960 and 2009, and the annual death rate is rising. (Brady 2011, 2B).

The threat exists also in hockey, especially (outside, or in equipment), at the beginning of the season, when temperatures are higher and the body is getting used to the gear which heats the body up even more. One also needs to be careful in outdoor activities like in-line hockey. Getting accustomed to the heat, having breaks often during the training time and a proper drinking regime decreases the risks of heat related illness.

Another potential risk is decreased flexibility because bone growth temporarily outstrips muscle and tendon growth and that can cause a painful condition. Power lifting can be dangerous as well, because it can injure growth plates in the bones, leading to reduced growth. (Poole et al. 2007, 306.) That is the reason why the American Acad-



emy of Pediatrics, Committee on Sports Medicine and Fitness (2001, in Poole et al. 2007, 306), recommends delaying maximal lifts until children are fully grown.

### **3.2 Brain and cognitive development**

Spreen et al. (1995, in Boyd & Bee 2009, 246) point out that two major growth spurts happen in the brain of children in the middle and late childhood; the first happens between the age of 6 and 8 and the second between the ages of 10 and 12.

Van der Molen and Molenaar (1994, in Boyd & Bee 2009, 246) state that the growth of the brain between the ages of 6 to 8 has an influence on sensory and motor areas. There is an improvement in fine- motor skills and eye- hand coordination. The growth of the brain between the years of 10 and 12 has most influence on the frontal lobe which is responsible for the cognitive functions such as logic and planning.

Lin et al. (1999, in Boyd & Bee 2009, 247) point out that the ability to control attention increases significantly between 6 and 12 year old children.

The same progress has to be followed with methodical procedure in the practices. With age, drills can become more demanding, repetitions can drastically increase, so does the amount of information a child can process. A huge development in cognitive functions enables athletes to react properly, to predict situations better and to find right solution more often and faster. Suddenly everybody is surprised; the child, the coach and the parent, because of the giant step in the players abilities. That is the reason why everybody has to be patient in younger years and why general movements have to be mastered.

“Middle childhood play fosters cognitive development. Children exercise their executive skills when planning pretense scripts, using symbols in games, designing constructions, and organizing games with rules.” (Bergen & Pronin Fromberg 2009, 428.)

### 3.3 Emotional and social development

Sport has the potential to provide young athletes with opportunities to learn about appropriate internalization and social integration of their emotions, and interpreting and responding to other's emotions. By learning to control one's emotions (emotion regulation) during competition, children will benefit from learning socially acceptable behaviors during a myriad of sport experiences (emotional competence), including tryouts, meetings, practices, games, tournaments, team parties or social gatherings. (Diaz 2005, 27.)

In the middle and late childhood, development of self- perceived competence is the overarching theme of social and personality development (Boyd & Bee 2009, 277). Kids start to evaluate themselves through their actions and interactions with others. Erikson states (1950, in Poole et al. 2007, 324), that in the case of success a child develops a sense of mastery and competence, but when they fail, they feel inadequate and inferior.

An athlete who does not believe in himself cannot be successful. It is very important that the coach gives positive feedback and introduces the strengths of the athlete to raise his awareness of being good in certain things. The mind set, of being good, presents one of the psychological needs an athlete needs to perform at his optimal level. Ryan and Deci (2002, in Hodge et al. 2008, 836) are stating in their self- determination theory that humans have basic psychological needs for competence, autonomy and relatedness that must be fulfilled in order to enjoy optimal wellbeing. Hodge and colleagues (2008) are continuing: "In a sporting context, competence refers to a feeling that one has the ability and the opportunity to be effective in one's sport. Feelings of autonomy indicate a perception of choice and self directedness, while relatedness is defined as a sense of mutual caring and connectedness with others (e.g. teammates and coaches)." (Hodge, Lonsdale & Ng 2008, 836.)

Middle childhood is a time when children are going to school and participating in different activities outside of school. Thus, their social environment changes drastically. Parents are not all the time present and they let their kids play more on their own, as their trust in the children's independence increases.

Children also feel power and independence by imagining “what if” there was no adult society. That is why they seek privacy from adults in tree houses, basements and other “private” spaces. (Bergen & Fromberg 2009, 429.)

Peers and friends become a very important aspect in their social life. “Relationships with peers become more stable and many ripen into long-term friendships. In fact, the quality of 6- to 12 year-olds’ peer relationships shapes their future in many important ways.” (Boyd & Bee 2009, 286.) Hartup (1996, in Poole et al. 2007, 335) points out that friendship gives children a chance to practice social skills that are not emphasized in other types of relationships.

### **3.4 Danger of early specialization**

The American Academy of Pediatrics (2000, in Poole et al. 2007, 306) is recommending not shifting into specialized training too early, because older athletes who participated in a variety of sports during childhood perform more consistently, experience fewer injuries, and maintain their interest in sports longer than athletes who specialized at a young age.

Nowadays we live extremely fast and we also expect that everything will happen fast. We want results immediately. In a restaurant, food has to be on the table within a couple of minutes, we expect less kilograms on the next day since we started a nutrition diet, we are disappointed if there are three people in front of us at a pay desk in the grocery shop and we are all angry with a grandfather driving in front of us 20km/h under the speed limit.

Similar “rushing” exists in sport. Let’s bet how many coaches will be fired after the first month of competition in KHL! But unfortunately, the rush is not only at a professional level. Also parents, coaches and children are often impatient. And if the coach drops under that pressure, if he doesn’t have knowledge and doesn’t see the whole picture, winning and specialization come in first place very quickly, instead of the long term player development. And that presents a big danger. Because an athlete cannot reach his maximum potential, if he starts too soon, in an early youth, doing narrow

specialized training and not developing basic motor movements, out of which late specialization in adolescence is possible. Early specialization in ice hockey can bring success only on a short term basis. But it can cause also irreparable damage to the body of a hockey player.

Croisier et al. (2008, in Prusnik 2012, 153) point out that comparison between maximal concentric torque of hamstring and maximal concentric torque of quadriceps should not be under 0.57 (57%), otherwise chance for a knee injury increases.

Rok Prusnik tested 36 ice hockey players from Jesenice, Slovenia; 12 players from the U-16 team, 13 players from the U-18 team and 11 senior players with an average age of 21. He found out that only the U-16 players had a proper balance between the hamstring and quadriceps muscle strength. Especially, the senior players' hamstrings were too weak. (Prusnik 2012, 153.)

Hockey posture can cause certain abnormalities in the posture of hockey players. In a survey made among junior hockey players of HK Bily Tigri from Liberec, Czech Republic, Filip Pesan found out that the height of the shoulder and the shoulder blades differ, when comparing the left and the right side to each other. Asymmetric and stiff back muscles and weak flexibility of the lower back muscles and knee flexor's muscle as biceps femoris, semitendinosus and semimembranosus are further imbalances of the muscle development of hockey players caused by the hockey posture. (Pesan 2005, 16.)

Chronic back pain is common for older hockey players. To avoid those troubles, office practices are needed to improve flexibility and strengthen weak muscles. But those who are searching for instant success and short cuts are not aware of that and do not put any emphasis on compensation exercises.

Burnik (2006, 7) suggests to hold a hockey stick sometimes on the "weak" side, to diminish some negative consequences (different height of the shoulder) in the ice hockey posture and to develop coordination.

Ivica Kostelic, excellent Croatian alpine skier, one of the best in the World Cup in the last decade and half, said, he has always practiced outside, where nature offers thousands of options for different practices and he has never done two of the same conditioning practices (Mocnik 2011). Not a single professional sport is healthy and Ivica has gone through many surgeries in his carrier. But in this paragraph I want to emphasize on diversity of the training process, which can reduce the risk of an injury.

Nowadays, some parents, mostly those who were involved in professional sports by themselves, are more aware and concerned about high health risks in professional sport and a huge need of doing different sports to develop motor skills on maximum level, so they encourage their children to be involved in different sports. It is also the coach's responsibility to implement more sports and variety in his training. As an example, independent work of hands and legs, a coordination skill needed in ice hockey, cannot be only developed with hockey stick and skates, but also with basketball and sport shoes. Today, during the pre- season phase, when athletes develop basic motor skills such as speed, strength, coordination, balance or endurance, which is very similar in all sport disciplines, many athletes join other sport clubs during this period. A hockey player might practice with an athletic team or hockey players and skiers can practice together in the pre- season period.

## 4 Puberty and adolescence (above 12 years old)

Puberty and adolescence are periods that last together approximately 10 years and they make an independent woman or man out of a child.

Puberty is the period of rapid development during which individuals become capable of reproduction. In contrast, adolescence is the time between puberty and adulthood when children undergo the physical and psychological changes they need to assume adult roles. In industrialized societies, puberty usually marks the beginning of a period of adolescence that lasts up to a decade. (Poole et al. 2007, 390.)

At age 13 and later, playing a sport becomes more serious and demanding for most athletes. The amount of practices and games increases. Children start to pick their favorite activities and they spend more time doing them. That presents the only way to be above average in a certain sport. Many dream to play at a professional level in good leagues, but few understand how much work it takes. That is why coaches and parents have to educate children continuously about the demands to reach the highest levels.

A stable and supportive sport environment is one of the key factors in a player development. Mills and his colleagues (2014, 147) made a survey, on the optimal development environment, among experienced coaches in the elite English soccer academies. The authors described four crucial parts in their publication.

- Operating system as the central part includes organizational core and its strategy.
- Psychological architecture is a field which deals with player's welfare, key stakeholder (coach, parent, and player) relationship, involvement and goal settings.
- Organizational functioning includes adaptability, stability and effective communication.
- Physical environment as material provisions.

(Mills et al. 2014, 147).

During the puberty period first selections are taking place. In Finland, the U-14 Pohjola camp presents the first selection for the ice hockey national team, where 180 candidates from the whole of Finland are chosen, from which 44 will form the U-16 national team two years later. From among the 178 selected players of the Pohjola camp

in 2012, only 47 (26.4%) were born during the second half of the year (from July until December). Taking a closer look only at the goaltenders, only 2 out of 20 (10%) were born during that period. This example clearly shows the danger of selection during the puberty period, when not all the players are equally matured. In FIHA (Finnish Ice Hockey Association), coaches are aware of that phenomenon, they also follow players who have not been selected to the first camp, but the danger of losing late mature talents definitely exists. The chance to lose talents in huge hockey nations like Canada and USA is much bigger, on the other hand in Slovenia with the average of 40 hockey players in the whole country born in the same year, losing a talent because of selection should not happen.

Until the age of 18, winning still should not be the most important thing. It is still a period in the player's development, when they have to be trained to compete in the top level in the near future. The main focus in the practices should shift from technical skills in middle childhood to individual tactics, special team situation and team systems during puberty and adolescence. Game principles have to be presented to the players for their better understanding of the game. A reasonable amount of video sessions (1/2 hour a week) are priceless to explain the coach's demands and to set new dimensions in the player's awareness.

Most of the drills in the on-ice practice have to simulate game-situations. Those drills are called game-like drills or decision making drills. Decision making drills are effective, because they create game-like environments, where opponents are present, where situations are constantly changing and players have to read the game and make decisions very fast. With drills like that not only physical, technical and tactical skills are trained, but also cognitive ones. Players are mentally ready for the game; they are concentrated and confident, they can handle the pressure better and they make right decisions more likely.

#### **4.1 Physical characteristics: growth and motor development**

Malina (1990, in Poole et al. 2007, 392) points out that an adolescence growth spurt can add up to 0.4 millimeters of height per day and is often accompanied by big increase in appetite.

Finkelstein (1992, in Poole et al. 2007, 392) points out that maximum growth is usually reached by mid-puberty, at roughly 11 to 13 years for girls and 13 to 15 years for boys. Sometimes the growth is so intensive which drastically reduces the motor skills of an athlete. I heard from my Czech friend, the hockey player and the coach Kamil Vavra, that Zdeno Chara, when he joined Sparta Prague juniors, was so uncoordinated after his huge growth spurt, that some men's team players stayed in the rink after their own practice and observed the junior ice practices with purpose to laugh at Chara's silly movements! (Vavra, K. 10 Jun 2014.)

“After the growth spurt, teenagers add height and weight slowly until they reach their adult size.” (Boyd & Bee 2009, 308.)

Differences in heights between girls and boys are usually obvious at the beginning of puberty. But at the end of it, boys start to overtake girls. Tanner (1990, in Boyd & Bee 2009, 308) states that girls attain most of their height by the age of 16, while boys are growing until they are 18-20 years old.

#### **4.2 Brain and cognitive development**

Changes in the brain are happening also during the puberty and adolescence time. Huttenlocher found out in his study (1979, in Blakemore 2007, 85) that a second wave of synaptic reorganization in the frontal cortex at the onset of the puberty exists. The frontal cortex is the area responsible for important cognitive abilities. Another process in the frontal cortex is myelination. Myelin increases the speed of transmission of electrical impulses from neuron to neuron. According to Yakovlev and Lecours (1967, in Blakemore 2007, 85) axons in the frontal cortex continue to be myelinated well into adolescence, whereas sensory and motor regions of the brain become fully myelinated in the first years of life.



There might be times, when coaches are asking themselves if children are stupid, because they are not able to execute the drawn drill. But, are the coaches just too demanding and not smart enough to take the children's' maturation and their cognitive abilities into account? It might be that the coach's explanation or drill selection is improper.

### **4.3 Emotional and social development**

The level of independency is increasing in puberty and adolescence. Some adolescents leave their family and hometown for longer periods for the first time and they go to a secondary school or a sport club in another city and start to live there in a school dormitory. Adolescents spend more time with their peers and their opinion become very important. They want to be liked and want to be accepted in the group of friends. Through their desire to belong to a certain group, through rebelling over rules and the adult's world, adolescents often come in touch with cigarettes, alcohol, drugs and crime. The National council against drug abuse (2014, 1) reported that parents and teachers have a strong influence in dissuading young people from experimenting with drugs. Teachers and coaches have their own part of responsibilities to create an environment where adolescents have the feeling of being accepted in the team or school class. Beside the parents, they can also increase children's self esteem and self-confidence, so it is more likely that adolescents will react properly, when dealing with above mentioned threats.

## 5 Empirical Part

### 5.1 Project planning

The idea for this project was born in autumn 2011 at the Workshop class. We were told to make a hockey related product and I was immediately looking for something useful for Slovenian ice hockey. Because I knew many Finnish clubs and the Ice hockey federation, as well as all top hockey nations, have coaching guidelines, long and short term goals and written steps for dealing with young hockey players and I had not seen anything like this in Slovenian hockey, the decision was clear. I tried to make a coaching manual for Slovenian coaches.

The products of the Workshop class were the tables in the appendix which show what to teach on the ice at a certain age. In this thesis the tables present a product and are listed as an attachment. The most important references were Hockey Canada and USA Hockey websites and Czech ice hockey federation bibliography. A year later, in autumn 2012, when I decided to make a thesis out of the Workshop project, I started to add the theoretical background. Those were children's physical, cognitive, psychosocial and emotional characteristics. Most of the references for theoretical part I found in the Vierumaki library and from the research articles on the internet.

The main objective is to have a coaching manual that would help coaches, especially beginners, to work more systematically and adjusted to the children. Secondly, the thesis is written in English, because Slovenian hockey coaches are lacking language skills in international hockey vocabulary, which is mostly in English. Learning English will present an additional value for Slovenian coaches and enable them to work more efficiently at home and abroad. As a third objective, this thesis presents a literature study for hockey students in Slovenian Sport Universities and for coaching beginners at Ice hockey federation courses.

## **5.2 Project implementation**

The theoretical part of the thesis is divided in three parts. Part one describes pre-schoolers or early childhood period between the age of 2 and 6. The second part deals with the middle childhood that includes children from 6 to 12 years of age. Puberty and adolescence is the third part starting after 12 years of age and lasts for about a decade.

All three age groups have subchapters on physical, cognitive, psychosocial and emotional characteristics. The preschool period includes also a subchapter on players and coach safety and the middle childhood includes a subchapter on the danger of early specialization.

The product part of the thesis, an attachment, contains tables of hockey technical and tactical skills that need to be learned on the ice at a certain time. The age groups are U-7, U-9, U-11, U13 and U-15 and older. The text above each table lists key points for the coach. The content of the tables was checked, discussed and changed with some of the DP-10 students.

## **5.3 Project Outcome**

The project outcome is a clear and short ice hockey coaching manual. The theoretical part is useful also for other sport coaches or sport teachers. The attachment could be called a “hockey pocket bible” that helps coaches to run practices systematically and to choose suitable goals. The thesis contains information that clubs and federations without their own development plan may use or rebuild for their guidelines.

## 6 Discussion

This thesis is showing the incredible huge role that the coach has in the young athlete. A hockey coach has the responsibility to run appropriate practices, to lead and mold kids towards mature adults and to give them a positive experience through the sport. It is the coach's duty to know the children's characteristics and hockey skills that have to be learned at a certain age.

In the preschool period the first impression a child gets from the coach and a club can be crucial for further active involvement in the sport. All children should be individually treated as much as possible and have equal chance to develop. Playing has to be the main form that socializes children, satisfy the need for movement and teach them first hockey steps. The hockey rink at this point is a completely new environment. Children might even get scared when someone appears in front of them in hockey gear.

In the middle childhood unstructured play is still needed. Fun has to stay the goal Nr.1 in practice. Even though first competitions are taking place, the score does not matter! What matters is long term player development. Lin et al. (1999, in Boyd & Bee 2009, 247) point out that the ability to control attention increases significantly between 6 and 12 year old children. That fact coaches have to implement in practices with the right selection of drills and games.

Playing sport become serious in the puberty and adolescence. Hockey is the way of life for those who are seriously hoping to become professionals. Championships are played for titles and selections are very common. Petlichkoff (1996, in Qusted et al. 2013, 2) states, that it is well documented that youth are at risk of dropping out of sport during the adolescent years.

Research results indicate that a positive and challenging environment, together with individual care for each player, brings benefits. Fulfilling basic psychological needs, competence, autonomy and relatedness, are a guarantee for success in any relationship, whether in family, sport or business.

Autonomy refers to the psychological need to feel a sense of volition, choice and decision making and an internal locus of control. Relatedness infers feeling that one is respected, connected and cared for by others in the context. The need for competence describes feeling efficacious and effective with regard to the tasks at hand. (Quested et al. 2013, 2.)

I believe it is quite easy to be an authoritarian or easy going coach. You demand only your own views, make limits all the time and punish mistakes or you leave everything to the flow. Being a democratic coach with feeling and a will to give your athletes the best of you and from the sport is a very hard task. You can choose which type you want to be!

Findings from this work would be beneficial for every coach beginner, for hockey students in the university and for experienced coaches to refresh their knowledge, get some new ideas and complete their hockey philosophies. The tables in the attachment are stating all the necessary hockey skills that have to be learned at a certain age. Further research could go deeper inside each skill and describe methodical steps for learning it and examples of the drills. For example- how are we teaching forward cross-overs.

On the following example from Slovenian hockey I would like to indicate the importance of quality coaching. How is it possible that Canada with over 90,000 registered male players plays draw after 60 minutes at the world championship against Slovenia with 148 registered male players? Frequently asked question in the hockey world, where Slovenia has had enormous success in recent years, does not have a clear answer. One reason is, that Slovenia has most of the national team players playing abroad in good European, North American leagues and the KHL. It might be the Slovenian character, the mixture of hard working and playing by the rules on one side and the Balkan mentality of easy going and inventiveness on the other. Matjaz Kopitar, head coach of the Slovenian national team, said in April 2014 on the world championship Division 1A in Goyang, South Korea, at the pre-game meeting of the second game, after the loss of the first game against Japan and when the next loss would probably mean to stay in division 1A for another year: "Guys, we have some of this Balkan mentality. Obviously we need to have a knife on our throat to give our maximum." (Kopitar, M. 21 Apr 2014) Slovenia won all four remaining games!

It is no doubt that Slovenia has today a golden generation and some important tight games turned positive at the end. But the future in Slovenian hockey does not look very bright, because of the financial problems in all 10 clubs playing in 7 ice rinks. Probably the most important Slovenian advantage has been the quality of coaching. Approximately half of the Slovenian coaches are professionals, one third of all coaches have a degree from University of Sport and they are all former hockey players. Quality foreign coaches from North America, Slovakia, Czech Republic and Finland have added value. All of the current Slovenian national players were raised at home. Is it also about coaching- for sure it is! The Slovenian story is proof what can be achieved worldwide with few hockey players. But there is still room for improvement. Clubs have no long term plans and coaches have no real programs they could follow. It is more or less surviving and improvising from day to day. But maybe that is the reason for a successful story!

I learned once again that nothing happens overnight. And more important that winning, are positive experiences and the personal characteristics young people have to get in order to be responsible, self- confident and satisfied humans, ready to take challenges in their lives and be active citizens in today's world, trying to make our environment better.

## References

- American Academy of Pediatrics 2013. Organized Sports for Children and Preadolescents. URL: <http://pediatrics.aappublications.org/content/107/6/1459.full>. Accessed: 23 Feb 2014.
- Bergen, D. & Pronin Fromberg, D. 2009. Play and social interaction in middle childhood. *Phi delta kappan*. February 2009. pp. 426-430.
- Boyd, D. & Bee, H. 2009. *Lifespan Development*. 5th ed. Pearson Education, Inc.
- Blakemore, S.J. 2007. Brain development during adolescence. *Education Review*. Education Publishing Worldwide Ltd. United Kingdom
- Brady, E. 2011. Heat, athletes: Danger signs. *USA Today*. 2B. 17.8.2011.
- Brun, B. 2013. Beginners in ice hockey. *Ice hockey coach*. Ice hockey federation of Slovenia.
- Burnik, A. 2006. Methodical basics of ice hockey for youth. Thesis. Ljubljana. Faculty of sport.
- Bukac, L. & Studnicka, P. 2012. Long term player development. *Czech Ice Hockey Association*. Prague.
- Caserta, R.J., Young, J. & Janelle C.M. 2007. Old dogs, new tricks: Training the perceptual skills of senior tennis players. *Journal of Sport & Exercise Psychology*, 29, pp. 479-497. Human Kinetics, Inc.
- CBCNews 2008. Alberta minor hockey coaches required to wear helmets. URL: <http://www.cbc.ca/news/canada/calgary/alberta-minor-hockey-coaches-required-to-wear-helmets-1.727034>. Accessed: 1 Nov 2014.
- Crespo, M. 2010. Psychological issues when dealing with 10 & Under tennis players. *ITF Coaching and Sport Science Review*, 51 (18), pp. 20-21. URL: <http://ezproxy.haaga-helia.fi:2086/ehost/pdfviewer/pdfviewer?sid=78ab181e-557e-4a5d-8283-3f8508a9e902%40sessionmgr110&vid=17&hid=123>. Accessed: 29 Oct 2014.
- Diaz, C.S. 2005. Can sports promote competence? *Parks & recreation*. September 2005. pp. 26-33.
- Hockey Canada 2014. *Development Programs*. Player development. URL: <http://www.hockeycanada.ca/en-ca/Hockey-Programs/Players/Resources>. Accessed: 29 Oct 2014.

Hodge, K., Lonsdale, C. & Ng, J. 2008. Burnout in elite rugby: Relationships with basic psychological needs fulfilment. *Journal of Sport Sciences*. June 2008. pp. 835-844.

Juhant, M. 2013. We have never had so many kids, who do not care. URL: <http://www.rtv slo.si/slovenija/nikoli-nismo-imeli-toliksnege-deleza-otrok-ki-jim-je-vseeno/316490>. Accessed: 16 Nov 2013.

Kopitar, M. 21 Apr 2014. Head coach. Slovenian national hockey team. Game meeting. Goyang.

Mills, A., Butt, J., Maynard, I. & Harwood, C. 2014. Toward an understanding of optimal development environments within elite English soccer academies. *The Sport Psychologist*, 28, pp. 137-150.

Mocnik, S. 2011. Ivica Kostelic: Moti me sovinižem velikih reprezentanc. URL: <http://www.delo.si/sport/zimski-sporti/ivica-kostelic-moti-me-sovinizem-velikih-representanc.html>. Accessed: 3 Sep 2014.

National Council Against Drug Abuse 2014. Parents and teachers are strongest anti- drug influencers: Youth perception survey 2013. URL: [http://www.cnb.gov.sg/Libraries/CNB\\_Newsroom\\_Files/Parents\\_and\\_Teachers\\_Are\\_Strongest\\_Anti-Drug\\_Influencers\\_Youth\\_Perception\\_Survey\\_2013.sflb.ashx](http://www.cnb.gov.sg/Libraries/CNB_Newsroom_Files/Parents_and_Teachers_Are_Strongest_Anti-Drug_Influencers_Youth_Perception_Survey_2013.sflb.ashx). Accessed: 4 Nov 2014.

Pesan, F. 2005. Examination of the locomotive system of the ice hockey players.. Thesis. Prague. Faculty of Physical Education and Sport.

Poole, D., Warren, A. & Nuñez, N. 2007. *The Story of Human Development*. Pearson Education, Inc. Upper Saddle River. New Jersey.

Prusnik, R. 2012. Isokinetic value of strength for thigh muscle of hockey players. *Revija Sport*, LX, 3-4, pp. 146-154.

Quested, E., Ntoumanis, N., Viladrich, C., Haug, E., Ommundsen, Y., Van Hoye, A., Mercé, J., Hall, K.H., Zourbanos, N. & Joan L. Duda, L.J. 2013. Intentions to drop- out of youth soccer: A test of the basic needs theory among European youth from five countries. *International Journal of Sport and Exercise Psychology*. URL: <http://dx.doi.org/10.1080/1612197X.2013.830431A>. Accessed: 5 Oct 2014.

Shenouda, N., Gabel, L. & Timmons, B.W. 2011. *Child Health & Exercise Medicine Program*. McMaster University. URL: [http://www.canchild.ca/en/childrenfamilies/resources/physical\\_activity\\_motor\\_skill\\_newsletter\\_july\\_2011.pdf](http://www.canchild.ca/en/childrenfamilies/resources/physical_activity_motor_skill_newsletter_july_2011.pdf). Accessed: 18 Aug 2014.

USA Hockey 2014. Boost your hockey sense skills. URL: <http://www.usahockeyintelligym.com/>. Accessed: 28 Oct 2014.



Vavra, K. 10 Jun 2014. Coach. Czech International Hockey Camp. E-mail.

Zukerman, W. & Purcell, A. 2011. Brain's synaptic pruning continues into your 20s. NewScientist. URL:<http://www.newscientist.com/article/dn20803-brains-synaptic-pruning-continues-into-your-20s.html#.VFZCOFfe6Sq>. Accessed: 2 Nov 2014.

## Attachments

### Initiation U-7

- launching sport has to be a pleasant experience for the kids! Doing sport has to be fun!
- develop basic movements (running, jumping, climbing, throwing, catching...)
- balance, edge control and skating technique drills are the main topic on the ice
- playing is a dominant learning method
- implement rules about safety, discipline, team work and fair-play

<b>Initiation U-7</b>			
<b>Balance and agility</b>	<b>Edge control</b>	<b>Starting and stopping</b>	<b>Forward skating and striding</b>
<ul style="list-style-type: none"> <li>● falling on the ice</li> <li>● getting up from the ice</li> <li>● basic stance</li> <li>● balance on one foot</li> <li>● gliding on two skates</li> <li>● gliding on one skate- forward</li> <li>● jumps &amp; lands</li> </ul>	<ul style="list-style-type: none"> <li>● forward skating- outside &amp; inside edge gliding</li> </ul>	<ul style="list-style-type: none"> <li>● T- start</li> <li>● V- start</li> <li>● crossover start</li> <li>● backward C- cut start</li> <li>● backward crossover Start</li> <li>● one o'clock- eleven o'clock stop</li> <li>● outside leg stop</li> <li>● two- foot parallel stop</li> <li>● one- leg backward stop &amp; T-start</li> <li>● two- leg backward stop &amp; V-start</li> </ul>	<ul style="list-style-type: none"> <li>● C- cuts- simultaneously, alternating</li> <li>● T- push</li> <li>● forward striding</li> <li>● forward skating- whole technique</li> </ul>

<b>Backward skating</b>	<b>Turns, crossovers and pivots</b>	<b>Stationary puck control</b>	<b>Moving puck control</b>
<ul style="list-style-type: none"> <li>● gliding on two skates</li> <li>● C- cuts- simultaneously, alternating</li> </ul>	<ul style="list-style-type: none"> <li>● glide turns</li> <li>● C- cuts- around circle- outside foot- forw. &amp; backw.</li> <li>● lateral crossovers</li> <li>● crossovers- forw.</li> <li>● pivots: backward- forward &amp; forward- Backward</li> <li>● pivots open &amp; reverse</li> </ul>	<ul style="list-style-type: none"> <li>● stance, grip</li> <li>● narrow</li> <li>● wide</li> <li>● side</li> <li>● side- front- side</li> </ul>	<ul style="list-style-type: none"> <li>● narrow</li> <li>● wide</li> <li>● open ice carry- forehand &amp; backhand</li> </ul>

<b>Stationary passing and receiving</b>	<b>Moving passing and receiving</b>	<b>Shot</b>	<b>Habits</b>
<ul style="list-style-type: none"> <li>● stationary forehand Pass</li> <li>● stationary backhand Pass</li> <li>● stationary bank pass</li> <li>● receiving (stick)</li> </ul>	<ul style="list-style-type: none"> <li>● moving forehand Pass</li> <li>● lead pass</li> <li>● receiving (stick)</li> </ul>	<ul style="list-style-type: none"> <li>● sweep shot Forehand</li> <li>● flip shot Forehand</li> <li>● flip shot Backhand</li> </ul>	<ul style="list-style-type: none"> <li>● stick on ice</li> <li>● head up</li> </ul>

## Novice U-9

- kids have to have fun
- develop basic movements (running, jumping, climbing, throwing, catching...) and implement various sport disciplines (gymnastic, athletics, soccer...)
- learning skating is the main topic on the ice
- playing is a dominant learning method
- cross- ice hockey

Novice U-9				
Backward skating	Edge control	Turns, crossovers and pivots	Stationary puck control	Moving puck control
<ul style="list-style-type: none"> <li>● gliding on one skate</li> <li>● backward skating- whole technique</li> </ul>	<ul style="list-style-type: none"> <li>● backward skating- inside &amp; outside edge gliding</li> <li>● one leg weaving- forward &amp; backward</li> </ul>	<ul style="list-style-type: none"> <li>● crossovers- backward</li> <li>● forward &amp; backward crossover</li> <li>● tight turns</li> </ul>	<ul style="list-style-type: none"> <li>● toe drag- side</li> <li>● toe drag- front</li> <li>● wide on backhand- one hand</li> </ul>	<ul style="list-style-type: none"> <li>● side- front- side</li> <li>● wide on backhand- one hand</li> <li>● weaving with puck</li> <li>● toe drag - front &amp; side</li> <li>● puck in feet</li> <li>● change of pace</li> <li>● turns, crossovers and pivots with the puck</li> </ul>

<b>Stationary passing and receiving</b>	<b>Moving passing &amp; receiving</b>	<b>Shot</b>	<b>Individual offensive tactics</b>	<b>Offensive tactics</b>
<ul style="list-style-type: none"> <li>● receiving (leg)</li> </ul>	<ul style="list-style-type: none"> <li>● pairs passing forehand/ backh.</li> <li>● moving bank pass-forehand/ backh.</li> <li>● receiving (leg)</li> </ul>	<ul style="list-style-type: none"> <li>● sweep shot</li> </ul> <p>Backhand</p>	<ul style="list-style-type: none"> <li>● body fakes</li> <li>● stick fakes</li> <li>● attack triangle- puck under stick</li> <li>● facing the puck (carrier)</li> <li>● getting open</li> <li>● puck protection</li> </ul>	<ul style="list-style-type: none"> <li>● cross &amp; drop</li> <li>● pass &amp; follow</li> <li>● give &amp; go</li> <li>● headman</li> <li>● net drive</li> <li>● direct pass- wall</li> </ul>

<b>Individual defensive tactics</b>	<b>Defensive play- defensive zone</b>
<ul style="list-style-type: none"> <li>● angling</li> <li>● poke check</li> <li>● lift the stick check</li> <li>● active stick</li> <li>● body contact (body blocking)</li> </ul>	<ul style="list-style-type: none"> <li>● DZ coverage- basic</li> </ul>

## Atom U-11

- kids have to have fun
- avoid early specialization
- implement various sport disciplines (gymnastic, athletics, ball games...)
- continue teaching skating elements with and without the pucks, stick handling, basics of hockey tactics, 1:1 situation
- whole ice hockey; 4 game situation roles; puck carrier, non- puck carrier, defending puck carrier, defending non- puck carrier

Atom U-11					
Stationary passing and receiving	Moving passing and receiving	Shot	Tips and deflection	Individual offensive tactics	Offensive tactics-defensive zone
<ul style="list-style-type: none"> <li>● stationary saucer pass- forehand</li> <li>● stationary saucer pass- backhand</li> <li>● one time pass</li> <li>● receiving (hand)</li> </ul>	<ul style="list-style-type: none"> <li>● moving saucer pass- forehand</li> <li>● receiving (hand)</li> </ul>	<ul style="list-style-type: none"> <li>● wrist shot</li> <li>● snap shot</li> <li>● slap shot</li> </ul>	<ul style="list-style-type: none"> <li>● on ice tips</li> <li>● out of air tips</li> </ul>	<ul style="list-style-type: none"> <li>● change of pace</li> <li>● fake pass</li> <li>● fake shot- deke</li> <li>● defender as screen</li> <li>● picks &amp; screens</li> <li>● screening the goalie</li> <li>● drag &amp; shoot (D)</li> <li>● sprint &amp; shoot (D)</li> </ul>	<ul style="list-style-type: none"> <li>● rim pass</li> <li>● basic breakouts</li> <li>● escape moves</li> <li>● direct pass- midlane</li> <li>● puck retrieval basics</li> <li>● D-D pass (direct, bank, reverse)</li> <li>● chip pass</li> </ul>

<b>Offensive tactics neutral zone</b>	<b>Offensive tactics-offensive zone</b>	<b>Individual defensive tactics</b>	<b>Defensive tactics-offensive zone</b>	<b>Defensive tactics-defensive zone</b>	<b>Face- offs</b>
<ul style="list-style-type: none"> <li>● stretch skate &amp; pass (create space)</li> <li>● Chip pass (winning space)</li> <li>● Regroups (maintaining position)</li> <li>● dump (maintain defensive readiness)</li> <li>● Defence stagger</li> <li>● Saving ice-maintaining the speed</li> </ul>	<ul style="list-style-type: none"> <li>● entering the OZ</li> <li>● high delay</li> <li>● low delay</li> <li>● wrap around</li> <li>● middle drive</li> <li>● attack triangle</li> <li>● walkout</li> <li>● give &amp; go out of Corner</li> <li>● give &amp; go behind Net</li> <li>● cycle</li> </ul>	<ul style="list-style-type: none"> <li>● denying space and time</li> <li>● positioning</li> <li>● pinching</li> <li>● gap control</li> <li>● closing the gap</li> <li>● pressure or contain</li> <li>● back checking</li> <li>● head on a swivel</li> <li>● play non puck carrier-take away pass</li> <li>● play puck carrier-with pressure</li> </ul>	<ul style="list-style-type: none"> <li>● basic forchecking</li> <li>● role of F1</li> <li>● role of F2</li> <li>● role of F3</li> <li>● role of D1</li> <li>● role of D2</li> <li>● blocking passing lanes</li> </ul>	<ul style="list-style-type: none"> <li>● role of F1</li> <li>● role of F2</li> <li>● role of F3</li> <li>● role of D1</li> <li>● role of D2</li> <li>● puck carrier behind the net</li> <li>● corner- into/ out of net front</li> <li>● defending the cycle</li> </ul>	<ul style="list-style-type: none"> <li>● face- off techniques</li> <li>● defensive zone loss</li> </ul>

<b>Habits</b>
<ul style="list-style-type: none"> <li>● stop at net</li> <li>● communication</li> <li>● 4 game situation roles: puck carrier, non-puck carrier, defending puck carrier, defending non-puck carrier</li> </ul>

## PeeWee U-13

- players should play in all playing positions (winger, center, defenceman)
- implement various sport disciplines (gymnastic, athletics, ball games...)
- emphasize on technical skills with puck, individual and team tactics, game principles
- educate players about training process, human body and nutrition
- huge increase of practise time and amount of games

<b>PeeWee U-13</b>				
<b>Moving passing and receiving</b>	<b>Shot</b>	<b>Tips and deflection</b>	<b>Offensive tactics-defensive zone</b>	<b>Offensive tactics neutral zone</b>
<ul style="list-style-type: none"> <li>● moving saucer pass- backhand</li> <li>● one time pass</li> <li>● "no look" pass</li> </ul>	<ul style="list-style-type: none"> <li>● one timer</li> <li>● shooting from skating</li> </ul>	<ul style="list-style-type: none"> <li>● shot/ pass deflection-forehand &amp; back-hand</li> </ul>	<ul style="list-style-type: none"> <li>● breakouts</li> </ul>	<ul style="list-style-type: none"> <li>● jackhammer</li> <li>● counter attacks</li> </ul>



<b>Offensive tactics- offensive zone</b>	<b>Individual de- fensive tactics</b>	<b>Defensive tactics- neutral zone</b>	<b>Breakouts</b>	<b>Forechecking</b>
<ul style="list-style-type: none"> <li>● counter (high) cycle</li> <li>● change point of Attack</li> <li>● back door (D)</li> </ul>	<ul style="list-style-type: none"> <li>● body checking</li> <li>● shot block</li> </ul>	<ul style="list-style-type: none"> <li>● role of F1</li> <li>● role of F2</li> <li>● role of F3</li> <li>● role of D1</li> <li>● role of D2</li> </ul>	<ul style="list-style-type: none"> <li>● wheel option</li> <li>● quick up</li> <li>● over (D-D)</li> <li>● D turn back</li> <li>● D-D reverse</li> </ul>	<ul style="list-style-type: none"> <li>● OZ 2-1-2</li> </ul>

<b>Special teams</b>	<b>Face- offs</b>	<b>Transition- turn over</b>
<ul style="list-style-type: none"> <li>● power play OZ</li> <li>● penalty kill DZ</li> </ul>	<ul style="list-style-type: none"> <li>● defensive zone win</li> <li>● offensive zone</li> </ul>	<ul style="list-style-type: none"> <li>● transition from defence to offense</li> <li>● transition from offense to defence</li> </ul>

## Bantam U-15 and older

- train to compete period
- emphasize on game like drills and team tactics
- specialize a player for certain playing spot (forward or defence)
- U-18 and older game result and team performance level become important
- selection time
- start using weights in off- ice session

<b>Bantam U-15 and older</b>		
<b>Shot</b>	<b>Forechecking</b>	<b>Special teams</b>
<ul style="list-style-type: none"> <li>● changing the re-lease point of the shot</li> <li>● creating re-bounds</li> </ul>	<ul style="list-style-type: none"> <li>● OZ 1-2-2</li> <li>● NZ 1-2-2</li> <li>● NZ 2-1-2</li> <li>● or other system by the coach's philosophy</li> </ul>	<ul style="list-style-type: none"> <li>● power play breakout</li> <li>● penalty killing fore-check</li> </ul>