



## **Player pathway for female hockey players in SaiPa**

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## Abstract

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<p>SaiPa is a hockey club that has a strong desire to develop its girls' and women's hockey. This thesis was made to support the development. This thesis aimed to create a player pathway for the hockey club SaiPa. The focus on the player pathway was on the girls' and women's hockey's already existing groups: skating schools, girls' hockey, women's hockey, and hockey as hobby groups.</p> <p>The theoretical framework consisted of different player pathways around the world and from Finland. Female as an athlete is introduced the chapter. The chapter contains as well physical differences, hormonal effects, and typical female disorders and injuries. The theory part also presented special characters on the physical training aspect.</p> <p>The case club is a hockey club. The next chapters cover hockey-specific female specialties: differences in rules and equipment. In the last part of the theoretical part was presented the case club SaiPa: the background and current situation.</p> <p>The practical part was formed by creating the manual. The manual collected the information based on each existing group. Different pathways, sports, and hockey-specific focus points were taken to create the manual. Female as an athlete and gender-specific features were considered. Each phase of a girl's journey as a hockey player has presented possibilities outside the club, starting from nationwide season-ending tournaments all the way to the national team pathway.</p> <p>The final product is a shareable manual for the hockey club's needs. It consists of player pathways and special characters for each hockey group from the female player, coach, and club perspective. Details in the manual support the club to develop its work on women's hockey.</p>
<b>Keywords</b> Women's hockey, girls' hockey, player pathway, hockey development

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## 1 Introduction

Hockey as hobby has gained popularity massively in the past few years – not just among boys but especially among girls. New records have been broken in past few years. In past seasons more girls have participated in hockey. The Finnish Ice Hockey Association announced that in season 2021-2022 all recruitment events records were broken the clubs having more girls joining to the events. The increases are huge, in every event the number of participants doubled (Levander 2022). The direction remains upward in upcoming seasons. In sentence “There is clearly a demand and need for girls’ hockey” ends the news from girl’s hockey record year from previous season (Levander 2022).

The same trend is visible in hockey club SaiPa. New teams and groups have been established. The direction has been the same in Finland. The amount of participants has steadily grown in past five years. When looking at the number of registered players in the club the increase has been significant. Compared to five years ago the number of female players in SaiPa has more than doubled from 30 players to 75 players (Suomisport 2023c).

Beside this growth in females participating in hockey there still exist many questions around girls’ playing hockey. Working for several years in women’s hockey and being also a woman in a sport that is preferred as more masculine has opened my eyes and led to this thesis topic. Even though the gap has gotten smaller, there is still a lot of work that has to be done to raise awareness and solve all the obstacles for girls in ice hockey.

The final idea for this thesis came during my years at the hockey club SaiPa. I worked at the club as the head of women’s and girls’ hockey operations and also as girls’ hockey coordinator at Finnish Ice Hockey Association’s Kymi-Saimaa region at the same time. During my daily work, I discovered a lack of understanding and knowledge about girls’ hockey. That realization led to the topic of this thesis – to create a clear pathway for SaiPa to help them to guide and coach girls in each step on the way of developing into a hockey player.

Past few years SaiPa has put some effort into developing the pathway for girls. The Club understands and recognizes those special characteristics in girls that are needed to be considered to make hockey easier and enjoyable for female players. In the order to maintain the capability to run girls’ and women’s hockey smoothly in the future, this thesis will focus on creating pathway for them.

The thesis begins with the theoretical part. In the theoretical part several player pathways around the world are presented. Firstly, the long-term athlete development model and International Ice

Hockey Federation's player development guide are introduced. The other examples are from Canada, USA, Sweden, and Finland.

Understanding what female athletes are facing, which is different compared to males, is an important factor. Female's growth process is presented in the third chapter. Hormonal work affects, typical female disorders and for females' common injuries are shown in that chapter. Physical training characteristics from females' perspective are presented as well. Specific rules and equipment for females are introduced in the third chapter. Special characteristics seen from coaching perspective are finally reported.

The information regarding the hockey club SaiPa is placed before the final product, the manual. The text also includes a description on the process leading to forming the manual that clarifies among other things what were the main points chosen from the theoretical background and how the manual was made as optimal as possible for the club. As a result, new player pathway was produced for existing groups. The club needed a guiding tool for already existing teams to help coaches to do their job better, develop the hockey in the club and show the possibilities of the player pathway to players. The player pathway and supporting manual to organize hockey for current groups are based on individual needs. The final product can be found in the appendixes.

## **2 Player pathways**

Many countries have launched their player pathways to lead players from the beginning to the top. The models have similarities, which can be explained by many of them following the long-term athlete development -model (LTAD) steps. The LTAD model is used for over 100 sport-specific athlete development models (Balyi, Way, Higgs 2013, 8).

Five different athlete/player development models are presented in this thesis. Each of them has principles from the long-term athlete development model and moves phase by phase toward professionalism. However, the first steps focus on having fun with sports and building a lifelong physical base and interest in sports. Besides each step countries' development programs offer tools for coaching and organizing sports. For example, there are mobile tools for planning practices, examples of practices, and education.

### **2.1 Long-term athletic development**

Long-term athletic development LTAD was established to help plan a systematic process of athlete progress in sports. The model takes into consideration what needs to be done in each stage of children`s process and how to ensure that sport is part of a lifelong lifestyle. The model is also called LTPD, long-term participant/player development. (Balyi & al. 2013, 11.)

The model was established by Balyi and Way in 1995 and in the beginning, there were four steps, in 2005 three steps were added to the model The stages go from the beginning towards adulthood and steps are based on the person's capability to proceed to next level rather than the chronological age.

The process begins with learning fundamental skills and continues with learning more sport-specific skills. Progressively the amount of training and competitions as well as the importance of results grow. Some of the participants can reach professional and international levels but the model doesn't require it. (Balyi & al. 2013, 19, 28.)



Figure 1. Long-term athletic development (adapted from Balyi & al. 2013)

In LTAD- all begins with an *active start*. This period covers the ages 0 to 6 years in both genders. In the first phase, the aim is to learn fundamental movements and a good amount of physical activity to develop a healthy lifestyle in a safe environment. Physical activity should be done daily, and they should include fundamental movement skills for example balance, object manipulation, and different ways of movement. The activities should be fun and versatile. The play should be 75 percent nonstructured led by children and 25 percent structure led by an adult. This timeframe is also important time for the development of the brain: the links between activity and muscle work are starting to form and the working memory develops. (Higgs, Way, Harber, Jurbala, Balyi, Carey, Trono, Mitchell, Grove & Laing 2019, 24.)

The next phase is *FUNDamentals* which covers approximately the ages of females 6 to 8 and males 6 to 9 years. Fundamental movement skills are still being developed and encouraged to have daily physical activity. This point is a good time to encourage to have several sports and daily activities. Sports and physical activity should be as the name says fun. Only a few rules inside sports are recommended and the results of for example games are not counted. At this point attention span is short and that causes children to be action oriented. (Higgs & al. 2019, 25; Sport for Life 2016, 50.)

*Learn to train* -phase is the third phase in LTAD-model. This phase starts with females approximately at the age of 8 and males at the age of 9. This time is important for the development of sports skills because the maturation process makes it efficient to adapt skills (Sport for Life 2016, 52). The atmosphere for sports should stay fun and children should be encouraged to do different sports. It is also a good time to teach kids example warmups, stretching, and cooldowns (Sport for Life 2016, 52). At this point, it is good to take into consideration the maturation process which starts during this time. This is the last phase of preparation for basic sports skills. (Higgs & al. 2019, 26.)

In early adolescence starts *Train to train* -phase. It is time for transitions from childhood towards maturity. For females, this phase takes place at the age of approximately 11 to 15, and for males at the age of 12 to 16 at the time of the growth spurt. This phase is time for aerobic, speed, and strength training, yet the growth spurt is needed to be taken into consideration. In sports, it is time for sport-specific skills. The amount of training is increasing, and, in some cases, the choice of competitive and non-competitive pathways is needed to be done. This time is a risky time for dropouts. That is the reason why having fun and a good atmosphere becomes extra crucial. (Higgs & al. 2019, 27-29.)

*Train to compete* -phase is the time for specialization in sport. The time for this phase depends on progress in sports and it can vary. Train to compete -phase starts typically after the growth spurt. At this point, more specific sport-specific skills and tactics are taught. The aim is to maximize development. The increased amount of practicing also requires a focus on the athletic lifestyle and balance of school and sport. (Higgs & al. 2019, 32.)

The final stage from the athletics perspective is *Train to win* -phase. At this phase, all is maximized to get the best results in sports. The focus is on individual needs both in sports and physical training. Also, the mental side is trained to get the most optimal performance. The training competition rate can be 25/75 percent. It is important to prevent burnout and take care of recovery. (Sport for Life 2016, 58-59.)

*Active for life* is the last, lifelong, phase where the aim is to have a smooth shift from sports to physical activity. The main focus is on finding the own way to do physical activity, either on a competitive or non-competitive level. At this phase switching from one sport to another is common and even suggested to ensure that everyone finds their way to move. (Sport for Life 2016, 60.)

## 2.2 International Ice Hockey Federation – Player development guide

International Ice Hockey Federation (IIHF 2023) provides its associations with resources to build up player development programs. The programs can be already existing models of player development or newly established ones. The guide works more like a guideline and support tool for player development. In the end, IIHF highlights the importance of everyone who works with hockey, no matter in which role, developing individuals as much as possible.

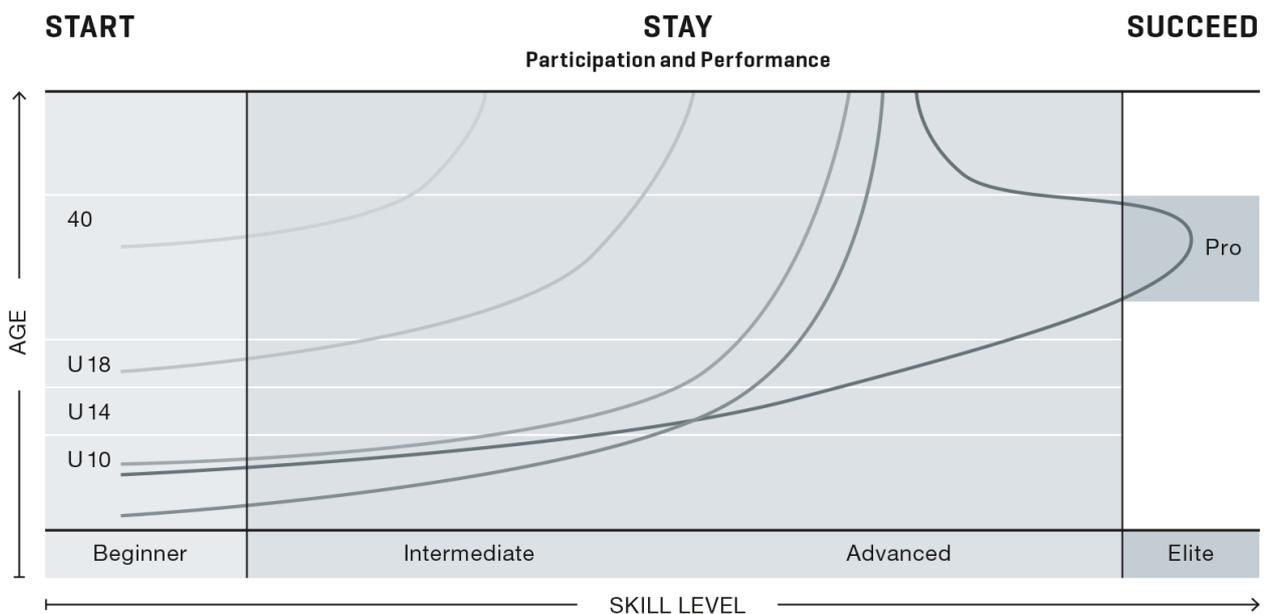


Figure 2. International Ice Hockey Federation – Player development guide phases (IIHF 2023)

According to the Player Development guide, there are three stages on the player's journey: *start*, *stay*, and *succeed*. These stages can be seen in also on Figure 2. The idea is that everyone has a *start*. The starting age can differ from the first years of life to the adulthood. In the beginning, the aim is to learn basic skills. The next *stay phase* is a life-long moment with hockey. At this phase, players can play either competitive or non-competitive, or recreational level and they have average or advanced hockey skills. Player development should be suited to the player's needs. The final phase of *succeed* is available only for a few players. It is the level of professional and international hockey. (IIHF 2023.)

Inside all of the phases there are different skill levels: *beginner*, *intermediate* and *advanced*. They go hand in hand with previously presented stages and are visualized in Figure 2. On the IIHF PDG, the skill levels are more focused on the appropriate skill level than the player's age. That's why on skill levels the ages are approximate. (IIHF 2023.)

On the *Beginner level*, approximately at the age of under 10, IIHF suggests station-based training on the ice. That ensures that players will have a good level of participation and many touches to the puck. Training on stations with an increased number of touches to the puck helps to develop stickhandling and puck-possession skills. Also, skating develops. Playing is suggested to be played on cross-ice 3 on 3 games. The aim for it is to maximize the activity and decision-making inside the game as well as the growth of the enjoyment. The games should be played based on a ratio of 1 to 7 compared to practices and not farther away than 50 kilometres from the home rink. The players are also recommended to participate in up to four other sports to build a good athleticism base and develop sports skills. (IIHF 2023.)

In the next level, *Intermediate*, the focus is put on performance and development both on and off the ice. The level starts approximately before the age of 14. IIHF suggests station-based training and adding more focus on tactics and hockey-specific training. The number of touches to the puck and reps should stay high. The games are suggested to be played on half-ice as 4 on 4 games which is the progression from cross-ice 3 on 3 games. This will develop the decision-making process and change of speed and direction as well as hockey sense. The games should be played ratio of 1 to 4 compared to practices and not farther away than 100 kilometres from the home rink. The players are also recommended to participate in up to three other sports to build sports skills and prevent boredom and overtraining in hockey. (IIHF 2023.)

The third phase *Advanced*, which is reached approximately at the age of under 18 is time for hockey-specific training. Also, at this phase, off-ice training is getting into a bigger role. On-ice training in the form of station-based training is recommended. IIHF suggests still using smaller area formats 2 on 2, 3 on 3, and 4 on 4 to ensure the amount of puck touches and repetitions. Different formats are useful to keep developing basic skills and hockey intelligence. The ratio of games and practices differs depending on the game schedule, but it is suggested to have at least one recovery day per week. At this point, the games are played-around the country. (IIHF 2023.)

Few players will have the opportunity to climb up the extra level, elite, and succeed phase. Normally this is reached at the age of 20 and after. In this phase, professional clubs and national teams are in main responsibility to provide guidance. (IIHF 2023.)

### **2.3 Canada – Long-term player development plan**

The country of hockey, Canada has launched a long-term player development plan. The plan has similarities to every other plan: it forces an athlete-centred approach, and it has several stages. It bases on Sport Canada's Long-term Athlete Development model. The model follows several

principles which all follow the main idea that all the players develop in different schedule and at every stage, the best option should be found for each individual. Player development is seen as a long-term process where the coach's role is to find the right tools. Hockey Canada has its own DrillHub online for coaches to help players. (Hockey Canada 2022.)



Figure 3. Long-term Athlete Development model (adapted from Way, Balyi, Norris, Higgs, & Cardinal, 2013, 10)

The plan has nine different stages for every age and skill level that players go through. At every level, some things should be taken into consideration—physically, emotionally, mentally, and cognitively. Step-by-step the model moves towards more competitive hockey whereas the first steps encourage an active lifestyle. (Sport Canada 2018.)

Everything begins with discovery where children find out their abilities of movement and slowly start sports. The next step *Fundamentals* focuses on starting phase where the focus is on fundamental movement skills (FMS). By doing Fundamental Sports Skills children are building a base for an active lifestyle. The first step is for the players ages 0-4 and the activities take place at the skating schools nearby players' home. (Sport Canada 2018.)

In the next stage, the focus stays on *Fundamentals*. The player should command fundamental movement skills. The children are still encouraged to have many sports to upkeep an active lifestyle. In the hockey context, the focus is on skating, puck control, and basic hockey skills. Working as a

team is taught with competitions that focus on having fun than competition. In the second phase of fundamentals, coordination and motor skills are still under development. Participating in other sports is strongly present and recommended. Hockey should be practiced two times per week and focus on basic skills. Fundamentals cover the ages of 5-6 (stage 1) and 7-8 (stage 2). Hockey Canada suggests that these actions should happen locally. (Sport Canada 2018.)

In the next two stages focus goes toward competition and learning to train and play. Females ages 8-9 and males ages 9-10 are focusing on *Learn to Play* phase to refine motor skills in order to be able to utilize technical skills and team tactics later. The upcoming growth spurt characterizes this phase and that makes it more important to prioritize a combination of motor and other skills. Motor skills can be implemented in hockey practices and games.

*Learn to practice* phase is an important phase of development. Females enter this phase at the age of 10-11 and males at the age of 11-12. In hockey, the focus is on development by practicing. The players are also taught how the team is working. In physical training, motor coordination should be considered. (Sport Canada 2018.)

Last four phases focus on developing with the help of competitions and on improved performance. Females aged 11-15 and males 12-16 are stepping into the *Train to train* phase. At this phase training strength, speed, and aerobic capacity are emphasized. Hockey-specific skills are highlighted and at this point, ice hockey is taking a bigger role by putting other sports aside. Working as a part of a team is a more important role and both group and individual tactics are introduced. (Sport Canada 2018.)

The *Train to Compete* phase comes next for females aged 16-18 and males 16-17. At this phase actions are moving wider from provincial to national – some players might have the opportunity to join international games. Players are taught to be independent and self-aware athletes. Focus on off-ice training goes from strength training more towards power training. Aerobic capacity should also be trained. In hockey-specific training, the focus is on specific tactics and tactical skills. (Sport Canada 2018.)

At the gate of adulthood, there are two phases left. The *Train to Win* phase comes into the picture for females aged 18-22 and males 18-20. All the actions are directed towards the high-performance and maximizing skills. At this stage, the player should have established physical, mental, technical, and tactical skills. (Sport Canada 2018.)

The last phase is the *Excel* phase which is reached at the age of 22+ for females and males 21+. International games and activities are on this level in a big role and players are playing in the highest competitive series. All the skills and physical abilities are maximized. Testing and monitoring as well

as other performance-supportive activities are used. Still, the enjoyment of hockey and training is important. (Sport Canada 2018.)

## 2.4 USA – American Development Model

USA's player pathway is called as *American Development Model (ADM)* and is based on Long term athlete development model. The model was established in 2009 for the needs of USA Hockey. The public health crisis and passive lifestyle were reasons for launching the model. The aim of the model is to suggest options for developing physical activity and a healthy lifestyle. The model follows the kid's age. Model notices that it is not a straight shortcut to elite performance. Instead, its` aim is to develop players to fulfill their potential and direct kids to have an active and healthy way of life (Sportsengine, inc. 2023).

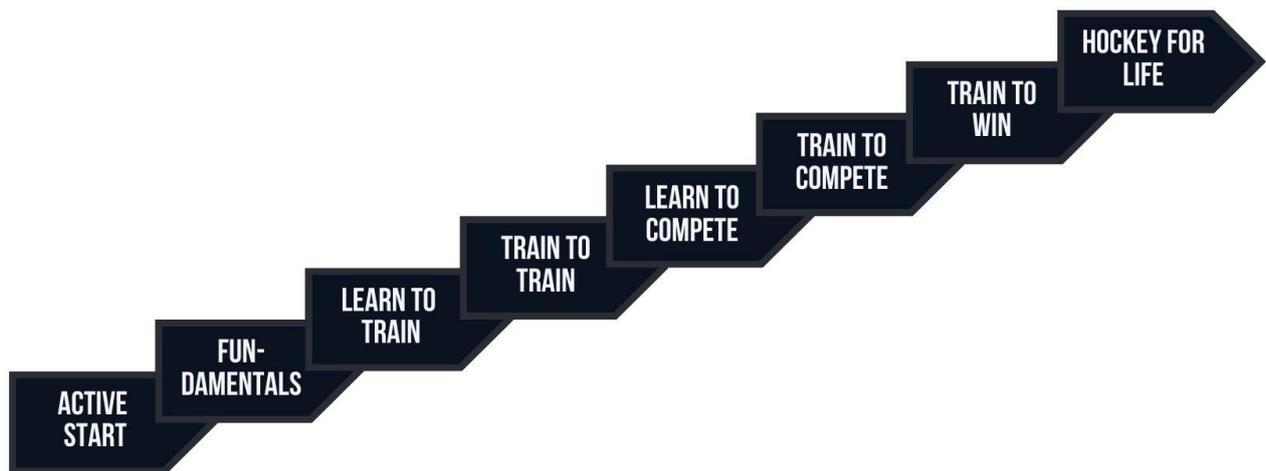


Figure 4. American Development Model steps (adapted from USA Hockey 2016)

The ADM has eight stages and for each stage, there are suggestions for the most suitable activities and recommended ages. For practicing there are also suggestions for the number of training sessions, duration of the training, group sizes both for goalies and skaters, and total game days for a season. (USA Hockey 2016.)

All begins with an *Active start*, learn to skate at the age of 0-6. The first stage focuses on fundamental movement skills to prepare children to further skill learning and more complicated movements. The model suggests that these should be performed on different surfaces: in the water by swimming, on

dryland by running, in the air by gymnastics, and on ice by skating. In hockey context, the active start happens in skating programs. (USA Hockey 2016.)

The next stage *FUNDamentals*, play to learn emphasizes refining the previously focused fundamental movement skills to build a strong base for more complicated skills. At this stage, the focus moves also towards basic sports skills. The fundamentals stage covers the ages 6 to 8 for females and 6 to 9 for males. It is suggested that in this stage kids are participating in different sports. Skating and puck control skills are trained in hockey. These skills build blocks for further sport-specific learning. Competitions should be fun and used as a part of teamwork. (USA Hockey 2016.)

The third stage in USA Hockey's (2016) model is Learn to Train. This covers the ages 8 to 11 for females and 9 to 12 for males. At this point before the growth spurt, the timing is optimal for adjusting the refined motor skills and training hockey skills. The model points out that the skills learned in this phase have a remarkable effect afterward on games. Hockey skills should be transferred to the games and the development of social skills in a team environment is important. A combination of practices and games will bring the best results for hockey skill development. (USA Hockey 2016.)

At the ages 11 to 15 female and 12 to 16 male players are entering the fourth stage, *Train to Train* where hockey-specific skills are developed in a more competitive atmosphere. At this level, the number of other sports is getting less. Speed and strength training are focus points on the physical side. The model reminds as well to maintain flexibility. Group cohesion stands out on the social side, which means emphasizing team building and interaction. In hockey, the focus goes more into tactics as far as both individual and team perspectives are concerned. (USA Hockey 2016.)

The next step is to prepare players for the competitive environment when they are entering to *Learn to Compete* -stage. The stage is reached at the age of 15 to 18 for females and 16 to 18 for males. At this point, the physical development and skill training is specified to individual needs. (USA Hockey 2016.)

Optimal physical performance is in the focus, and it should be individualized based on needs. In the training, the volume and intensity are rapidly growing as well as the number of games. That makes it important to learn recovery. Good mental skills are needed when the performance is in the spotlight. In hockey, technical and tactical skills are very crucial to performance. Mental skills also need to be developed. (USA Hockey 2016.)

The *Train to compete* -stage is reached by females at the of 19 to 21 and males at 19 to 23. At this stage, the training season is over 10 months long. During that time training is hockey-specific and goal-oriented. The volume of the training is high, and games are played on competitive levels. Moving to another city because of hockey is common when the aim is to find the most suitable place

to train, play and develop. The athlete's focus is on skill and physical development. Mental training and recovery are also important roles. (USA Hockey 2016.)

Train to win is a stage where the level of performance is at its highest. Only a few players get to this level, and it is approached usually at the age of over 19 years old. At this point all previous stages are completed, the maturation process is finished, and players are playing at professional leagues and international events. In the last stage, the focus is to maintain performance at the highest level by also taking care of recovery to prevent over-training. From a hockey perspective, the aim is to create winning strategies. (USA Hockey 2016.)

Hockey For Life is a stage where the aim is to make hockey a lifelong hobby where playing hockey brings enjoyment. At this stage there are no age limits. This stage encourages to participate at any age with or without previous experience. There are two groups in Hockey for Life -stage: children and adults. (USA Hockey s.a.)

Players under 18 years of age are considered as children. Having fun is the main idea for children. Besides having fun children are taught the basic skills of hockey and being part of the team. After that, stepping from this level to competitive level should be possible. There are youth recreational leagues for children at different skill levels. The aim is involvement and by that fulfilling the guidelines of physical activity. (USA Hockey s.a.)

At the adult stage, the hockey career is made possible for not just a player but also for a coach, an official or a volunteer. Adult players from the competitive levels are encouraged to continue with hockey at the non-competitive level. They are offered different tournaments from pond hockey to adult leagues and adult recreational tournaments. There are also skill clinics for adults. Achieving the physical activity guidelines remains also as a goal in this phase. (USA Hockey s.a.)

## **2.5 Sweden – Hemmaplansmodellen**

Swedish Ice Hockey Association has launched *Hemmaplansmodellen* – translated as the *Home plan model*. The model aims to bring together all the persons around hockey; players, coaches, parents, and associations, and point out to all groups the main objectives that the Swedish Ice Hockey Association has chosen for children and youth hockey. The main point is to build up a lifelong interest in ice hockey and feel that you are at home while you are on the rink. (Svenska Ishockeyförbundet s.a.a.)

Hemmaplansmodellen consists of four principles: the main focus is always on the person, everyone is given a chance to improve, training and matches should be adapted to the group, and training should be versatile. These four principles are pointed out from the associations', coaches', and parents' perspectives. (Svenska Ishockeyförbundet s.a.a.)

### **2.5.1 Associations' four principles**

The associations in Sweden have a big responsibility to build up an atmosphere based on good cohesion between the coaches and association as well as the players. The association's role is also to choose the right coaches and support them. One task for the association is to collect feedback to be able to be on the track. (Svenska Ishockeyförbundet s.a.b.)

Additionally, the role of the associations is to ensure that every moment their members spend in hockey is developing them. It is the association's duty to make sure that every player has the right place to develop and divide teams by using that idea. It is good to remember that many coaches are working as volunteers, using their free time. From that perspective, they might have different goals in their own development. (Svenska Ishockeyförbundet s.a.b.)

In the development process, the game results are not in an important role. More important is to make individual development. It is good to understand that good results and performance can take time. The role of the association is to make sure that playing is adapted in such a way that development is possible. The model also reminds that adults' and children's activities and games should not look the same. (Svenska Ishockeyförbundet s.a.b.)

The Association's role in producing comprehensive training is emphasized if there are players who play only hockey. Then the variety of hockey training is important. The model suggests that players have many other sports to be able to create a movement bank and with that become better hockey players. The benefits of having many sports also are to keep the motivation to hockey high. (Svenska Ishockeyförbundet s.a.b.)

### **2.5.2 Coaches' four principles**

For the coaches, the model gives more practical tools and tasks. The coach's role is to create relationships and an atmosphere. In that, players should be treated not just as players but also as human beings. The coach is a markable role model who can have a long impact. The model advice reflects on mutual expectations and goals with players and thus gives players confidence and makes them feel meaningful. The model also encourages to give leadership to players and that way teaches them responsibility. Lastly, the model highlights that to be successful it is good to remember that we are dealing with people. (Svenska Ishockeyförbundet s.a.c.)

Additionally, the coach has a big role in ensuring development. The understanding is needed that every player has a different skill level. They might be of different ages and have different ambitions and backgrounds. To be able to develop players, coaches need to be open-minded to these factors. The model highlights focusing on long-term development, thus ensuring that everyone gets enough time to develop. (Svenska Ishockeyförbundet s.a.c.)

The coach's role to adjust training is crucial. The model highlights that training should be adjusted to the target group. There is a difference between children and elite players and because of that practices should not look the same. The elite level is the time for more systematic training. Before that the training can be more unsystematic. The models suggest competing to be able to grow. Again, there are differences between children and adults: the first year's result should not matter. According to Hemmaplansmodellen playing the game should take place through various small area games. (Svenska Ishockeyförbundet s.a.c.)

Lastly, the model directs coaches to ensure that training is comprehensive. At a young age it is suggested to practice several sports. The skill level will increase when there is an experience in several sports. That helps players to become better. The activities can be led by the sports club or be non-organized. The advantage of multisport background is staying in hockey and not getting bored with it. It also helps to prevent injuries. According to the model, there is no need for concern about overtraining, if there is the possibility of recovery, training is versatile and based on the athlete's own will to train. (Svenska Ishockeyförbundet s.a.c.)

### **2.5.3 Parents' four principles**

Parents' role is to support the child and be a role model. It is important to make children feel safe and then be able to just focus on having fun while playing hockey. For parents, it is also good to remember to give space to do sports. Adults' responsibility is also to react if something is not going right and report it. (Svenska Ishockeyförbundet s.a.d.)

Concerning the second principle, it is good for parents to remember that every child develops at different speeds. Parents should give children time and space to develop. The main focus should be on having fun and learning simultaneously. For parents' model advice to look behind the results. If the children are pushed too much, the journey with hockey might end. Parents are advised not to stress about the development, the goal should be supporting the long-term development. (Svenska Ishockeyförbundet s.a.d.)

The model shows up that there is a reason why the different game forms (small area games) are used. The reason for using game forms is that they make different experiences inside the game. (Svenska Ishockeyförbundet s.a.d.)

In the last phase, the model's advice to parents is the same: to let children have many sports. As long as they want to do that of their own will, it is versatile and there is room for sufficient rest and recovery. (Svenska Ishockeyförbundet s.a.d.)

## 2.6 Finland – Leijonapolku

In Finland, the player pathway both in females and males follows the *Leijonapolku* ('Lion's pathway'). Pathway has four phases, and it was launched in 2014. The aim is to provide information about playing hockey to the players, parents, and coaches about every phase of the player's journey. (Aalto s.a.)



Figure 5. Leijonapolku pathway (adapted from Suomen Jääkiekkoliitto s.a.)

First stage covers the ages 5 to 9. It is time for *Inspiring the kids to play* hockey. At that age, children are joining hockey school and Leijonaliiga-series small area games. There are three principles: directing to a physical lifestyle, healthy self-esteem, and building a passion for playing. For the coach, the first phase recommends teaching hockey through games and plays. Skills focus is on skating, passing, stickhandling, and shooting. Certain "golden rules" are taught for offensive and defensive area playing and observing the game by keeping head up. Small area games with applied rules are used as well as positions are changed. On the physical and mental side, the role of the coach is to encourage children to have active lifestyles and encourage them to do their best by respecting every player as a person. (Aalto s.a.)

Next stage of playing is called *Preparatory phase* and refers to the ages of 10 to 14 in both genders. At this point players are participating in games that prepare them for the future. There are two principles: to teach the game and grow up to be a hockey player. The main responsibility at this time is to develop individuals and teach more specific game skills. As far as the basic hockey skills are concerned focus stays on skating, passing, stickhandling, and shooting. The drills are developing

from drills performed by few players to five-player drills. Changing positions is recommended. At this point, the game situation roles and basic principles of turnover play are introduced. On the physical side, it is time for developing muscular strength and basic physical skills. The importance of a healthy lifestyle and rest is introduced. Focus on the mental side is on growing self-esteem, tolerating setbacks, and learning independence. (Aalto s.a.)

The third phase is for 15 to 19 years old players, who are stepping into the *Training intensification phase*. The main point of this period is to direct to sporty lifestyle and develop players to be as self-guided and victorious as possible. In the hockey context, this is the time for refining speed and game skills. The player skills are developed by recognizing game situations in penalty killing and power play and turnover play without delay. Working as a team and special teams are on focus. On the physical side, all the training should support playing skills and promote recovery. To support performance the mental side has a crucial role because mental side needs attention. Recognize different emotions and how to control them. (Aalto s.a.)

The fourth and final phase of Lion's pathway is the *High-performance phase*. It starts at the age of over 20 years. The main points for that time are emphasizing the sporty lifestyle and developing self-guided and victorious athletes. The player's sport-specific skills should be to an extent where the player is able to use them to win situations. When reaching the final phase, the players should also be able to recognize the different game situations and make winning choices by using the game system. All five players are working as a team continuously together to be able to win. On the mental side, the player has the tools to be at his/her best when performing under pressure game after game. Otherwise, the player learns to maintain a top athlete's lifestyle. (Aalto s.a.)

### **2.6.1 National team pathway**

Parallel to the lion's pathway exists a route to the national teams in Finland. The journey at the national team level as a girl starts approximately at the age of 14 when the first developing camps are held regionally.

The national team path for women starts from Pohjola Pre Camp which is available for every girl born 2008-2009 at 2023. Pre-camps are held in three different locations around Finland: Kuortane, Tanhuvuara, and Rovaniemi. The aim of the camp is to gather girls together to be able to sort out the current level. (Parkkali 2023.)

Next on the Suomen Jääkiekkoliitto (s.a.) pathway is the Pohjola-camp. Seventy (70) of the players, the best players from the pre-camp age group are invited to this camp. During the camp, there are practices, games, and physical tests. From this camp, several players are chosen for the under-16 team which has camps and tournaments, for example, European Youth Olympics Festival. The next

group is the under-18 team. Players are selected to this team from three different age groups. The oldest players who are selected are turning 18 years that season. Under-18 is the first team to participate in the world championships. The final stage for the girl is the women's national team which participates both in the World Championships and the Olympics. (Suomen Jääkiekkoliitto s.a.)

National teams' pathways differ from each other's. When the males have national teams in all age groups starting from under-16 national teams up to men's teams the females have only three teams. On the female side missing national team groups are under-17 and under-20 teams.

### 2.6.2 Regional pathway in the Kymi-Saimaa region

During season 2020-2021 started the discussion about creating our own pathway for girls who are playing in the Kymi-Saimaa region. There was a need to sort out the possibilities for the girl players because there was no clear pathway. Where girl could play hockey was unclear for many clubs and families. Because of that the pathway was built.

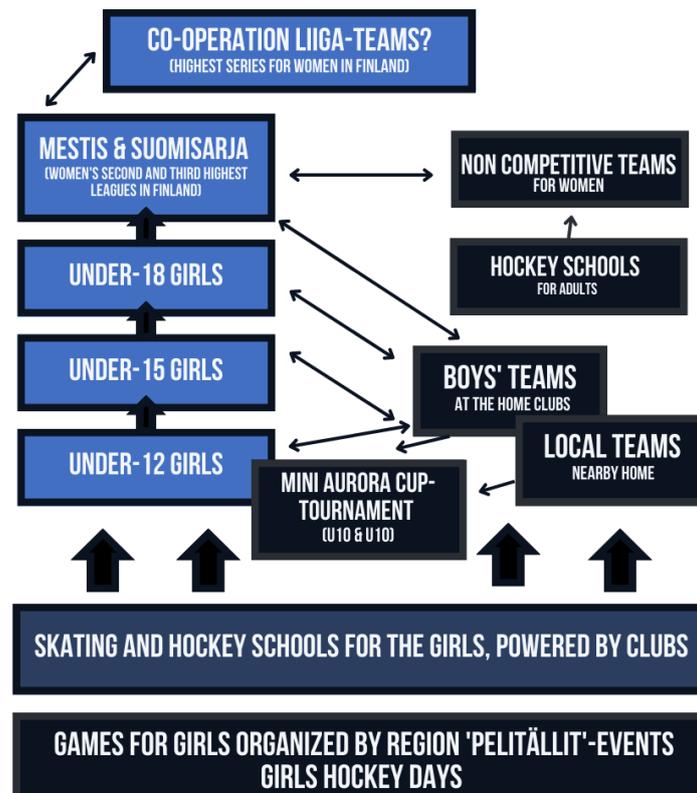


Figure 6. Regional, Kymi-Saimaa area girl's pathway (adapted from Kymi-Saimaa 2021)

Figure 6 shows the pathway for girls. In the ideal situation, the player is able to go through every step. More common is that when there are no teams in every age group some stages are missed. During the season 2022-2023, the highest competitive team in the region was SaiPa's women's team which played in the second-highest series Mestis. On the girl's side, the only team is Mikkeli in the under-15 girl's series. That shows how scattered the actions are compared to other regions. That makes it also impossible to go through every step. The girl can go also on the boy's side which is mentioned in the figure. In the end, the main idea of the pathway is to show the possibilities nearby homes.

### 3 Characteristics for women`s sports and hockey specifically

Gender brings several differences, not just body function but as well as performance is concerned. The journey of a female athlete varies compared to a male athlete because there are things that affect female athletes more. The cultural environment and historical background still have an impact on how the girls participate in and feel about sports. The *Coaching through a Gender Lens: Maximizing Girls' Play and Potential* -research (Zarrett, Cooky, & Veliz 2014, 5, 24) points out that in the context of sports females still tend to experience a high impact from the environment, gender-based stereotypes, and norms. That all influences females' thoughts about participation in sports by saying that several sports are masculine and for boys.

In past years, women's sports have been seen as dangerous, against the natural habit, fertility, and the norm of being a mom and a wife (Koivusaari 2012, 14-15). Nowadays, female athletes tend to have more stress due to work or study-related issues.

The pressure can also come from inside in situations where the athlete needs to schedule training and school-work. The money is needed but at the same time practices and competitions are taking time. Athletes tend to be highly ambitious, and they want to do both extremely well. Females need to justify their choices more than males have to – both to themselves and others. Also, they reflect more on having a family than males do. These all are the factors that colour the path of a female athlete. Understanding what the female athlete is facing is an important factor. (Merikoski 2012, 344.)

#### 3.1 Puberty

As a child, there are no major physical differences between the genders. The differences show up when children are approaching puberty. Reaching puberty is an individual experience that takes place at different ages for boys and girls. After puberty physical differences are shown both in the body height and weight and form of body mass. The function of hormones will be different. (Laine & Mero 2012, 49-50.)

Girls and boys are following the same growing scale until puberty starts. After birth, the first two years are the time for the fastest growth. The time from the age of two until puberty can be called steady growth phase. Girls reach puberty a few years before boys, approximately at the age of 12. The age varies depending on the individual. The growth difference between sexes is the result of boys having their puberty later, which gives boys extra years to grow and because of this between the ages 10 and 14 girls are usually taller than boys. (Laine & Mero 2012, 49-52.)

The peak of gaining weight is reached a half year after the growth spurt. Before that weight correlates with height growth. Genders have a difference in how their body weight is formed. At puberty, boys will have fast growth of muscle mass because testosterone levels increase tenfold. In girls' bodies testosterone levels are not progressed so aggressively which means that muscle mass growth is steadier, and growth is smaller. Changes in fat mass are happening also during puberty before boys and girls follow the same scale. During the puberty girls' fat mass is increased more than boys'. The increase in fat mass can be 125 percent. Overall women's body consists of 12 percent of fat while boys' percentage is 3. (Laine & Mero 2012, 52-56.)

### 3.1.1 Periods

There has been a lot of talk about periods in sports context as well. Periods are one special characteristic of physical development from girl to woman. It is a sign of hormonal development. In Finland girl gets her first period approximately at the age of 13, the wider timeline for periods is between ages 10 to 16. Normally the length of the menstrual cycle is 24-38 days (counted from the start of the leakage), but periods can be irregular in the first years (Hohtari 2012, 234; Tiitinen 2022).

Over 50 percent of women who do sports activities will have some menstrual disorders which are mainly caused by low energy intake in relation to energy consumption, physical or mental stress, and overtraining that lowers hormone levels (Ihalainen & al. s.a.). Periods can be irregular or can even stop. The absence of periods is called *amenorrhea* and is more common for athletes: according to Torstveit etc. (2005, in Hohtari 2012, 234) 2-4 percent of non-athletes have an absence of period when athletes have 6-7 percent possibility of menstrual absence. Other menstrual disorders can be anovulation, decreased length of menstruation and luteal phase (Ihalainen, Löfberg, Salmi, Mustakoski, Leppänen s.a.).

The period cycle is divided into three stages: follicular, ovulation, and luteal. In each phase, women's body goes through different phases which impact both on body and mind. In the first phase of periods, the follicular phase, the hormonal levels are low compared to other phases. That can reduce the performance. Also, the pain and stomach problems caused by menstrual bleeding can reduce performance and increase the injury risk. (Ihalainen, Löfberg, Salmi, Mustakoski, Leppänen s.a.)

During the second phase, ovulation, the injury risk is at its highest. That is caused by higher levels of hormones during ovulation. Higher levels of hormones can reduce the stiffness of tendons which can lead to a bigger risk to have tendon injuries. Stiffness on tendons can also reduce performance. This can be one detail that explains why females have more tendon-based injuries than males, for example, ACL injuries, luxation, and sprains. (Ihalainen, Löfberg, Salmi, Mustakoski, Leppänen s.a.)

In the third, luteal phase, premenstrual syndrome (PMS) can affect both body and mind. PMS symptoms are wide. They can vary from different pains to sleeping problems and from the accumulation of fluid and weight gain to mood swings. These are not just affecting performance but also cognitive skills. (Ihalainen, Löfberg, Salmi, Mustakoski, Leppänen s.a.)

Laine & Mero (in Mero & al. 2012, 75) found out that in the luteal phase body temperature, ventilation and heart rate are higher. This affects negatively the cardiovascular system and performance. Hormone levels vary during the different menstrual phases and that affects both performance and injury risk. These effects are individual and can vary. Possible usage of hormonal contraception can also affect the menstrual cycle and its changes in performance. It is also good to notice that there are several other factors that affect performance and injury, despite hormones and gender. (Ihalainen, Löfberg, Salmi, Mustakoski, Leppänen s.a.)

## **3.2 Typical disorders for female athletes**

There are several injuries and health issues that females have a higher risk to get. Many injuries happen after puberty, which links them to hormonal effects. Females and males have no difference in the number of injuries before puberty (Pasanen 2012, 220). Several health issues, for example eating disorders are more common to females.

### **3.2.1 Iron deficiency**

As a female athlete, it is good to be aware of *iron deficiency risk*. The survey made for U.S. Women's Hockey team during the 2014 Olympics brought out the fact that 20 to 30 percent of the team's players suffered from low iron levels. Especially for an athlete decent iron levels are important because iron commits to haemoglobin when oxygen is transported from the lungs to the organs. (Ojala, Mehtänen, Kattilakoski s.a.; Park 2014.)

Iron deficiency can be the result of heavy bleeding during the periods. Excessive amount of training, certain diets and low energy intake can also cause it. Other reasons for iron deficiency can be the quality of iron and that it is not absorbing, losing iron by sweating, and intestinal diseases. Sport can cause that iron is not absorbing because training can increase hepcidin hormone production. Foot hitting the ground while running can cause hemolysis, the breakdown of red blood cells. Because of periods females have a naturally higher need for iron (15mg/). For young girls and after menopause the need is lower (9mg/day). (Ojala, Mehtänen, Kattilakoski s.a.)

It is also good to note that only 15 percent of iron is absorbed from the food. Heme iron (animal proteins) absorbs better than nonheme (plant-based) iron. Products that contain calcium, peanuts, seeds, legumes, coffee, and tea weakness absorption. Vitamins C and A as well as beta-carotene (i.e., carrot, sweet potato) enhance absorption. (Ojala, Mehtänen, Kattilakoski s.a.)

The iron deficiency symptoms are headaches, dizziness, paleness, ear hum, shortness of breath, high heart rate and palpitations of the heart. Low iron can also cause continuous tiredness and lower performance. Recovery process can also be distracted. Visible signs are hair loss, brittle nails, and dry skin. The body is also able to manage iron deficiency and by adapting it hides many symptoms. (Englund 2022.)

Englund (2022) highlights that reason for low iron levels is always necessary to be sorted out. The symptoms might be similar to many other diseases, but iron deficiency can be found through blood tests. Together with the doctor the reason, i.e., heavy periods, is necessary to be found out and taken care of. The treatment to get iron values higher is iron supplements or infusion (Englund 2022).

### **3.2.2 Eating disorders**

There are several disorders that are more common among females. These are examples of different eating disorders and female athlete triad syndrome which are presented below. Both conditions are dangerous not just to performance but even more to the female's own life.

*Eating disorders* are more common in females than males. 20 percent of females suffer from eating disorders while in males the number is 8 percent. Different eating disorders are anorexia, binge eating, and bulimia. The research done on young girls showed that girls who had more exercise had a higher risk of eating disorders. That connection wasn't shown in males. Sports that require aesthetics or being on an exact weight scale increased the risk of disorder. For eating disorders there are many risks: atmosphere, using excessive training to control emotions, perfectionism, and inheritance. On the other hand, reasonable exercising and its positive social effects can reduce the risk. (Anis, Aaltonen & Keski-Rahkonen 2019.)

*The Female Athlete Triad* is a syndrome that includes three typical errors for the female athlete: menstrual disorder, low energy intake (with or without an eating disorder) and fragility of the bone. Mostly this syndrome emerges in sports where body image and low weight are in focus. The syndrome can cause tiredness, inefficiency in training, and stress fractures. Due to the common symptoms, the Female Athlete Triad can be difficult to detect. (Hakkarainen 2012, 217.)

### 3.3 Physical training

There are several differences between the genders from the physical training perspective. The main differences show up when boys and girls are reaching the age of puberty and right after that. It is good to note that puberty is an individual process.

The next chapters cover strength, speed, endurance, and mobility training from the females' perspective. Most common injuries are also presented likewise disorders that are many times connected to training being more typical to the females.

#### 3.3.1 Strength

Strength training is necessary in order to develop performance and physical condition. After puberty, the male and female bodies are formed differently. The amount of body fat becomes bigger in the female body which is causing more resistance in sports. At the same time, boys' muscle mass increases because of the higher level of male hormones. That can cause up to 50-70 percent difference in maximal power between the genders.

In both genders, slow and fast muscle cell sizes are growing equally in the first six months when starting to train the muscles. After that females' muscle mass growth stays lower than males. The results of maximal strength can grow fast. For females, it can be even faster than for males at the starting phase. Hypertrophy training combined with good nutrition brings results after many years of strength training, yet the difference is smaller compared to males. (Häkkinen & Ahtiainen 2012, 117,119.)

Strength training is known for preventing injuries by enhancing connective tissue structure. For females, it is important because it can prevent osteoporosis by increasing bone density. Females run four to six times bigger risk to have knee injuries because the back of the thigh is weaker than the front of the thigh. The pelvis is wider and that can affect the knee angle which also can be a risk factor for knee injuries. (Häkkinen & Ahtiainen 2012, 110,113.)

All these factors highlight the importance of strength training. On the lower body, the focus should be on the right movement technique. To prevent knee injuries, it is good to strengthen the muscles on the back of the thighs. Females can follow the same main principles as males in strength training. To grow muscle mass and strength the load should be large and 5 to 12 reps per set can be used until momentary fatigue. Maximal strength training should be done with 85-90 percent load and 3-5 reps or over 90 percent load and 1-2 reps of maximal load. This also supports the development of ligaments, tendons, and bones. In weightlifting, it was noted that 3 to 6 weeks of training were optimal for development. In strength training females achieve the steady phase faster than males and

because of that training periods can be shorter than with males. (Häkkinen & Ahtiainen 2012, 113-114; Lundahl 2012, 293.)

The exercises should vary regularly, and there should be progression by adding more weights added. The strength training should be based on individual needs. The biological age is also good to take into consideration. The periods can also affect training because of hormonal changes. Right before and during menstrual flow the power output may decrease. Right after the menstrual flow and mid-phase of the cycle, the power output can be at its highest. These influences are individual. To reach optimal results it is good to follow the cycle and how it affects performance. Regarding the usage of contraceptive pills, the results are uncertain because there are so many contraceptive pill options and each of them affects individual to the female body. (Häkkinen & Ahtiainen 2012, 113-117; 121-123.)

### **3.3.2 Speed**

Speed can be divided into three categories: reaction, movement, and explosive speed. These three categories are used in the Finnish speed training context and can differ in different sports. Reaction speed is the capability to react as fast as possible to stimulation, movement speed is moving from one place to another (i.e., skating, running) and explosive speed means that one exact speed movement is performed as fast as possible (i.e., pass, kick, and jump). (Mero & Jouste 2012, 123-124.)

Speed training should be highlighted in childhood. Before the age of 10, there are no differences between genders. Running as a skill of speed develops fastest at the age of 5 to 7. The time for explosive speed begins at the age of 7. Differences were not found between females' and males' speed training. Males tend to have longer stride lengths and more power which makes them achieve faster maximal speed than females. (Mero & Jouste 2012, 124,129-131.)

### **3.3.3 Endurance (aerobic/anaerobic)**

Aerobic capacity is seen as females' body's benefit compared to males. The female body is able to manage better in long-lasting sports because of the smaller energy consumption. Smaller energy consumption is caused by the smaller body. The female body also has more fat which keeps the muscle protein breakdown minimal. The body uses fat as energy besides proteins. In training, building a base for the harder exercises for females is good to use long-lasting and low-intensity endurance training. For females, it is good to notice that they tend to have higher HRmax and base heart rate while exercising than males. (Vuorimaa 2012, 140-144.)

As mentioned previously, heart rates differ so it is highly recommended to measure the heart rate thresholds and base training on those measurements before starting training. In training, it is good to remember the risk for lower body injuries, which are more common in females. Because of that training combinations including running, biking, and swimming are recommended. (Vuorimaa 2012, 140-144.)

Strength training has proven to have a positive impact also on endurance training. The lack of strength can also be the reason for endurance training errors. When the right muscles are trained, it helps to keep the body position optimal and helps to reduce extra muscle work and additional movements. (Vuorimaa 2012, 140-144.)

### **3.3.4 Mobility**

At a young age boys and girls are on the same level with mobility until the growth spurt. The decline in mobility begins to show up at the age of 12 in females and at the age of 10 in males. The fast growth causes muscles and tendons not to be able to grow as fast. (Kalaja 2012, 148.)

Women have more body fat and that tends to give them better mobility compared to men. More fat causes smaller and more stretchy tissue density. Additionally, the body structure favors mobility in a certain movement. (Kalaja 2012, 147.)

On the other hand, there are several aspects that can negatively affect mobility. Inflammations, hormonal or neural inaccuracies, overtraining, and injuries can cause contracture, and tighten joints and ligaments. Using shoes with high heels can also shorten the length of tendons and muscles and that can be the reason for the tension in the back of the thigh and Achilles tendon. (Kalaja 2012, 148.)

One difference is that the girls might be more used to stretching. They also might do more stretching and be naturally more flexible. It is important to be aware risks of stretching too much because that can cause that the body control is not enough for over-mobilized tendons and muscles. (Kalaja 2012, 147-149.)

Static stretching should be avoided before competitions: it can affect strength, speed, and endurance. They can be used afterward as an own training session. Rather than static stretching short, dynamic stretching can be used. In stretching and mobility training is good to focus on those parts that need focus. This is based on individual and sports-based needs. (Kalaja 2012, 147-149.)

### 3.3.5 Common female injury risks

On the list of common injuries among females can be seen that knee injuries are at the top of the list and the risk for a knee injury is five times higher for women than men. The most often damages are found from the knee anterior cruciate ligament. Among the most common are also injuries such as dislocations, and patellofemoral and collateral ligament injuries. When comparing the training hours in non-contact joint injuries and certain repetitive strain injuries these are more common in females than in males. On the top of the common injuries list are also ankle sprain injuries and stress fractures. (Pasanen 2012, 220-221.)

After the age of 12 females get more repetitive strain injuries and ligament injuries. The reason can be found in hormones, and different body types as well as the practicing methods. Hormones, like estrogen, affect bone density. Possible errors in estrogen stimulations increase the risk of the stress fracture. Estrogen also adds to joints' movements and looseness. Body type difference is a risk factor for females because they are doing the change of direction movements, stops, and landings on higher hip and knee angles than males. That can produce more force on the body and ligaments which can add to the injury risk. All these links to the practicing, if it is done badly or concentration is not on the right movement patterns the injury risk rises even higher. (Pasanen 2012, 220-223.)

According to a study that researched injuries of female hockey players who played for Finland's National Team, there was a total of 16 injuries listed in a one-season period. 19 players participated in the study. The study showed that 7 of the injuries happened in games and 6 at practices. Most of them, 13, were lower body injuries. Most common were joint and ligament injuries (total 5) or muscle and tendon injuries (total 5). In 9 cases injuries came from contact with another player or puck. (Västilä 2015 10, 15-16.)

### 3.4 Women's hockey compared to men's hockey

Finnish Ice Hockey Association materials for hockey clubs are listed as special characteristics of girls' hockey. Hockey is still an unusual hobby for girls: In Finland, we have approximately 5600 registered female players and 26 000 registered male players (Suomisport 2023a).

One characteristic is that girls start hockey later than boys. When boys start at the age of 3-4 years in skating schools, girls find their way to hockey even at the age of 12. That causes the major difference in basic hockey skills between boys and girls. Yet there are girls that start at the same age as boys and are able to practice and play with boys. At the ages of 13-16, puberty makes girls

and boys different, and that causes differences in the physique that can lead to the point that girls need to change a team. (Suomen Jääkiekkoliitto 2021.)

At that point, when boys are heading for professionalism and choosing the club where they want to play, women need to think from a different perspective. Often their choice is made based more on factors such as studying or working possibilities. In women's series in Finland, this can show up as different ages and skill levels of players. The players might have totally different goals: someone is just playing, and someone has goals to be a pro athlete. (Suomen Jääkiekkoliitto 2021.)

### **3.4.1 Rules & equipment**

IIHF official rule book 2022/23 (International Ice Hockey Federation 2022, 164) specifies rules for women's hockey. The special rule concerns bodychecking, which in women's hockey is allowed only when the player's aim is to make attempt to get the puck or play the puck. Both players should move to same direction and no clear hits are allowed.

Sweden was the first country that allowed bodychecking on women series. The season 2022-2023 was the first season when the bodychecking in parallel motion was allowed in two highest series SDHL and Damettan (SDHL 2022).

Rules for age limits are different: the boys' and men's series define the age limits for each series and stricter rules for players moving from one team to another. In girls' and women's series rules are more flexible. The female player can play in any series, both in women's and boys' series. There are no quotas for minors or upper age limits. The home club is responsible for determining the series. In under-16 and under-20 Finnish Championship series and tournaments players should be in the age range and two one-year over-aged players are allowed per team if they are not playing in the women's series. (Suomen Jääkiekkoliitto 2023, 25.)

IIHF official rule book 2022/23 (International Ice Hockey Federation 2022, 165) defines one specific rule regarding the equipment. Females must wear a helmet that has full facial protection, either a cage or full full-visor protection. Besides, special lower body protection has been designated for females.

### 3.5 Characteristic for coaching female athletes

When looking for the most used terms and keywords on the internet searches related to this thesis topic, I found out that there are a lot of discussions around this theme. This shows how many questions this topic gives to people. Because of the cultural and socialization aspects, females and males do not sense sports the same way. There are a few specific features that are good to take into consideration when coaching females besides the basic norms of good coaching and an athlete-centered approach.

Being part of a team and being an equal member of a team is important for females and help to engage in sports. The relations between coach and athlete as well between athletes, are something to draw attention to. Females value that they are seen as a person behind the player. Also, it is important that females are able to build friendship with other players. That has a crucial role in keeping females in sports. (Miliucci 2019; Zarret & al. 2019, 42-43.)

Females like to be precise and do exactly what they are guided to and understand what and why. That is causing many 'why' questions when they are told the instructions on how to do exercise. Females want to understand, not just do and that makes them ask and thus question the way things should be done. To intensify the learning process, it is good to ask back questions about the topic and let them participate in the process. When the coach can listen to ideas from the athletes and give them a chance to influence, it builds engagement for the females. The possibility to give feedback is very important for females. It is a good reminder that girls tend to start later, and because of that, their skill level is not as high, and more guidance is needed. When a lot of guidance is needed it is preferred not to direct too much by the coach. It is better to let them learn by guiding. That helps to build confidence and does not give too much information which can be hard to process. Giving too much information can give a feeling of a too goal-oriented way of coaching which can stress females. (Miliucci 2019; Zarret & al. 2019, 33, 38-39.)

In communication, the most optimal results are reached when communication is based on a good coach-athlete relationship, it has positive sound. Kalaja (on Möller 2021) brought up that females are more capable to notice different voice tones. The tone should be positive and when giving feedback on possible mistakes it should be given in a more encouraging way than direct feedback. Like in coaching overall, the feedback from successful performances is beneficial to give as well. (Zarret & al 2019, 38.)

Sami Kalaja (2021, in Möller 2021) points out that females are more sensitive. Zarret & al (2019, 41) found out that females took more stress if they have experienced stress-causing situations with a coach for example arguing or feeling to be treated unevenly. In those situations, females also

became more avoidant of stressful situations. Females are also found to feel success-oriented atmosphere more negatively than males. Highlighting the meaning of winning can lead females to end sports. From the coach's perspective, this emphasizes the importance of creating a positive environment where winning is not the most important thing. The environment should be safe and fun and be encouraging to learn from mistakes. (Zarret & al 2019, 34.)

In sports where most of the players are males the role models are even more important. If there is a possibility to have a coach of the same gender, the girls are more likely to see the coach as a role model. Besides seeing them as role models, female coaches break stereotypes and help girls to feel they belong to sports. Role models can also be older players or players whose careers are over. They can be leaders for younger players. (Zarret & al 2019, 29, 52.)

## 4 Girls' and women's hockey in SaiPa

"Proudly yellow and black" is a slogan for the hockey club that was established in 1948. That hockey club is Saimaan Pallo, known as SaiPa and is located in Lappeenranta in Finland. SaiPa also has a Liiga-team. This thesis focuses on the junior side which organizes hockey for juniors and females.

Hockey club SaiPa mentions (SaiPa ry s.a.) that the aim of the club is to "promote junior hockey, develop and maintain both recreational and competitive hockey". Club mentions three different values which are community, individuality, and goal orientation. With the value community SaiPa highlights togetherness in its' actions. Individuality as a value for the club means that every player can be a part of a team. The goal is to produce players for different age groups' national teams. (SaiPa ry. s.a.)

### 4.1 Background and history

Women have always been a part of SaiPa hockey club. The formation of teams and series where teams have participated has changed. On the girls side the journey hasn't been that long and the focus for the grassroots level is quite new for the club. Word 'always' means in this context since the organized women's series have existed in Finland. SaiPa was one of the first women's teams participating in organized series in Finland. SaiPa made its' first appearance in Finnish women's hockey during the season 1981-1982. That was the first year when official series were played. (Mennander s.a.)

### 4.2 Current situation

At the moment there are 75 registered female players in the club (Suomisport 2023b). For those 75 players there are several options to play hockey. Most girls are playing in girls' teams, there are just few players that are playing in boys' teams.

Starting from the beginning, the youngest players participate in skating and hockey school groups. There are two options: hockey schools together with boys or girls own skating school group. Hockey school groups with boys offer three different age-based groups: the youngest group 'Kuutit' born in 2017 or later, the second group 'Norpat' born in 2016, and 'Under-8' born in 2015. Besides the birth year suitable group can be chosen by skill level and during the season the group can be changed for the best option for the child. For girls' only there are own skating school group where focus is on learn to skate. In that group there are no age limit, and no gears are needed. (SaiPa ry 2023.)

Next step is a team for girls, 'SaiPa Kristat'. Season 2022-2023 team consisted of players between the ages of 8 to 16 years. SaiPa Kristat practices two times per week on ice, once off-ice and plays regional league in Under-10 boys` Leijonaliiga-series. Games in that series are played half ice, four against four and game day includes two games with two times 20 minutes games. Per month there are approximately two to three tournaments. (SaiPa ry - Tyttökiekko 2022.)

'Ladyt' team is the non-competitive option for older players and adults. Season 2022-2023 team consisted of players between the ages of 15 to 55 years (Leijonat Tulospalvelu 2023a). The team practices one to two times per week. Ladyt-team participates in regional non-competitive women's league.

The women's team played in the second-highest women's league during the season 2022-2023. The team went up from Mestis-qualification by winning its` division and returned to Mestis after having been in two seasons at the lowest Suomi-Sarja level (Silvennoinen 2022). The team consisted of players between the ages of 15 to 44 years. The total amount of players was 2 goalies and 20 skaters. (Leijonat Tulospalvelu 2023b.)

### **4.3 Comparison from the past to this day**

The path as a girl player in the SaiPa hockey club develops season after season. The number of players has grown steadily, and the number of new teams and groups has increased. The comparison below consists of five seasons during the years 2018 and 2023. The data on the licensed players have been collected from Suomisport (2023c) database. The database keeps count of all the players who have participated in sports at hockey clubs.

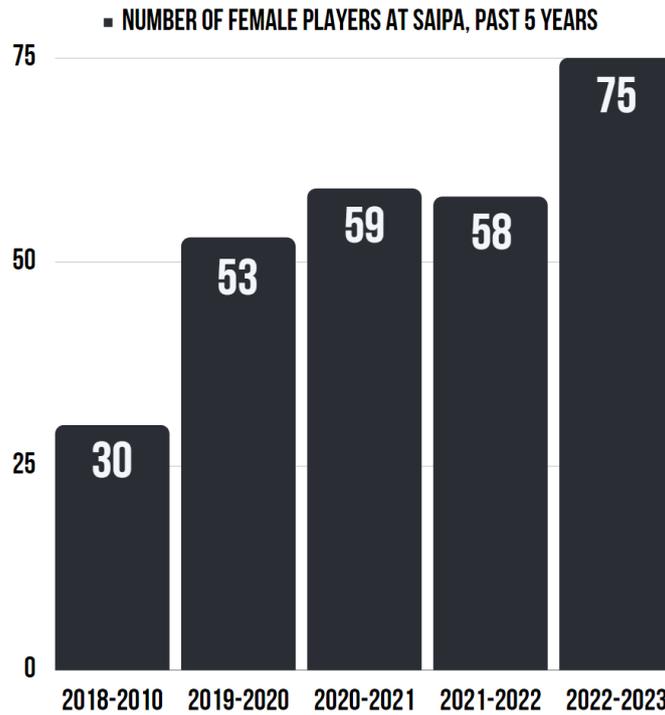


Chart 1. Licensed players in Saimaan Pallo 2018-2023 (Suomisport 2023c)

As the chart shows, the number of players has increased. The biggest steps were taken from season 2018-19 to 2019-20 and from 2021-22 to 2022-23. In the first step, the increase was 23 players. The reason for that was the launching of the free hockey school for girls in season 2019-2020. Significant is also the +15 non-competitive players increase

The second biggest increase took place season 2022-2023. Over 15 new players were registered that season. One reason behind it can be the new group that was started. The girls also played series that required registration. These are factors that can explain the growth. The steady growth highlights the importance of this thesis. If the growth continues as in previous years, there is a need for new teams for the girls and support for organizing them.

## **5 Manual for arranging girls' hockey and the player pathway**

At the moment there are four groups for the girls in the club: skating school, girls' hockey, recreational hockey, and competition team. The characteristics placing them into different stages of the athlete pathway can be found in each group. By combining the different player pathways that are presented in this thesis, I was able to produce the player pathway for the girls playing in the club. The aim is to show key elements on each step both from the player's perspective and how to organize hockey for girls at that step.

The final pathway is attached to the appendixes. Final product, the manual, is formed in a way that can be presented for example to parents. The format has been chosen according to the wishes of the club. The manual is based on existing pathways and at each phase the most relatable points are highlighted. The main points for coaches can also be found in the manual as well what the club should take into consideration. The most essential information for the club and every group is also collected.

### **5.1 Process description**

The process for the final product is described below through existing groups at the hockey club SaiPa. All the main characteristics in sports, sports specific, and gender-specific phases are explained for different groups. Development and lifelong interest both active lifestyle and hockey interest goes hand by hand in model.

The information on each of them is based on the materials from the different player and athlete development pathways. The aim was to find the most suitable aspects for building the pathway for the club. The main points were chosen to final manual.

The ages are more giving an example. It is good to notice that first of all girls tend to join hockey later than boys (Suomen Jääkiekkoliitto 2021). Secondly, the most compatible group for any player should be chosen based on what is the most suitable for the player. The ages shown in the manual are the ages that Leijonapolku has refined. They are built similarly in SaiPa. While working in the club, there were a lot of questions and discussions about SaiPa's age limits and age separations in children's hockey groups. Due to all the questions and discussions, the club published its' policy regarding age limits for each stage.

There was no exact pathway that could have been used as such for the club. In conclusion, the club's pathway combines International Ice Hockey Federation's Player Development Guide and Finnish Leijonapolku pathway.



Figure 7. IIHF player development model in the manual (adapted from IIHF 2023)

Three items are taken from the International Ice Hockey Federations *Player Development Guide*. Items are skill level line, beginner/intermediate/advanced development, and start/stay/succeed progress. The guide shows simply in one word what stages the players go through: start, stay, and succeed. Under those stages, the player goes from beginner to intermediate and up to advanced and elite. The IIHF's guide also shows the timeline how skill level improves at the same time.



Figure 8. Leijonapolku (adapted from Suomen Jääkiekkoliitto s.a.)

Finnish Leijonapolku was chosen for hockey specific pathway. It was most suitable because it is already known in Finland, and it has suitable phases for this Club's needs. Compared to the example of USA and Canada's pathways the number of steps differs, the Finnish pathway has fewer steps. In this case, less is more because in Finnish versions four steps include everything that is needed for this case. The Finnish model has a variety of teaching hockey in each step. The main points are taken into the final product, and they can be used when doing the annual plan for the groups.

In addition to those, there were also three parts chosen from the Canada Long-Term Athlete Development Model (CLTAD) and the American Development Model (ADM). The additions from these development models were from the CLTAD timeline that highlights being physically active throughout every moment., *Hockey for life* stage was chosen from ADM which like Canada's model highlights that hockey is for every moment throughout life. Both were added to the model because other models were focused to proceed toward the next phases and not taking into consideration the different eras of life.

A detail from American Development Model was added to the club's pathway. (Sportsengine, inc. 2023) – *Hockey for Life* which brings together the whole journey with hockey. This addition is necessary because that phase in the Finnish version ends in *Adulthood high-performance* stage. A separate phase was needed for those, who want to play hockey as a hobby as well.



Figure 9. Teams for girls and women in SaiPa

The girls' groups from the Club's pathway were also added to the model: skating and hockey schools, girls' hockey and girls playing in boys' teams, women's team, and hockey as a hobby.

Possibilities outside the own club are also presented: Liiga, playing abroad for example in the Swedish Women's Hockey League (SDHL), and universities abroad. They seemed to be important to show that girls have possibilities.



Figure 10. Timeline for Girls` hockey in FIHA (adapted from Suomen Jääkiekkoliitto s.a.)

The figure above shows the timeline for Finnish Ice Hockey Associations events for girls. They begin recruitment events with Girl's hockey day and Girl's Global Game and continue to the Mini Aurora Cup tournament for the age of under 10 and under 12. The pathway continues to be more competitive after a few years when the players are able to participate in Pohjola Pre Camp which is available for every player in that age group. After that, the pathway continues through selections, first to Pohjola Camp and then to under-16. After that, the journey proceeds to the under-18 and women's national teams.

## 5.2 Skating schools and 'Luisteluleikit'

At the club level, children come first to try skating and the basics of hockey. In SaiPa this entry level includes a skating school together with boys or a skating school with girls. The girls' side focuses even more on basics of skating by using different games and plays. The starting age differs, the youngest skaters are three years old, and the oldest skaters are first graders at school. More important than age is to find the most suitable group for every girl. The Leijonapolku-pathway puts this category under the ages 5-9 which makes it overlapping the next phase as well.

According to the IIHF stages this stage is the start phase. The participants are on the beginner level and there are no significant skills – learning is starting (IIHF 2023). Leijonapolku describes this stage as *Inspiring to play*, the time to *Get Excited on good atmosphere* (Suomen Jääkiekkoliitto s.a.). According to the Leijonapolku (Suomen Jääkiekkoliitto s.a.), the main points are to direct to physical lifestyle, healthy self-esteem and to build the passion playing.

The most important is to have fun and with having fun build positive experiences with sports. The children should be encouraged to have daily activities and try different sports. In this, the parents and families have important role in building habits: physical activity should be included as part of the daily schedule. The children are also seeking acceptance from parents which makes support more important.

In physical activity, the main focus should be on fundamental movement skills which are for example moving in different ways (jumping, running), object manipulation skills (throwing, kicking, passing), and balance skills. Training the fundamental skills are building the base for better sport-specific skills. Besides that, they are even more important for children in learning multiple skills for lifelong activities.

According to the long-term athlete development plan the activities should be led more by the children. LTAD suggests that 75 percent of activities should be led by children. Let children do instead of telling them what to do. 25 percent of practices should be led by adults telling what to do (Higgs & al. 2019). This is good to remember at this phase when planning and guiding practices.

In hockey, fundamental skills can be practiced on the ice. Skating is one way to move. It also requires body balancing and control. Object manipulation skills can be practiced with different exercises where children pick up pucks or balls and throw or pass them – this also develops balance. It is important to have a safe environment and also be on the ice to build confidence. Basic hockey skills are introduced to the children, and they are introduced in more open than technical ways. The aim is to make children able to try themselves in a safe environment when little assistance is needed from a coach.

To offer experience with hockey for everyone there are several recruitment events that are launched by the Finnish Ice Hockey Association. Girl's Hockey Day is a day when all the girls can try hockey for free in their nearby hockey clubs. The second one is Girl's Global Game. Under this week numerous games are played around the world and every girl can join. The game week can also be used to arrange games for new possible players, for example at schools. Pelitällit events are organized by clubs and besides playing they offer the possibility to test hockey. At the end of the phase the players can participate in the nationwide season-ending tournament, Mini Aurora Cup, which is available for under 10 and under 12 girls.

### **5.3 Girls' teams and girls in boys' teams**

In the next phase the girls enter their own teams. Some girls, who usually have started earlier with boys, are playing in the boys' teams. The age gap is big, from first grades of school to secondary school. The aim is to find the most suitable group for every girl.

At this point, the players proceed from start to stay, yet there are still new players coming into team entering the start and beginner phases. Some of the girls are playing with the boys, mostly they are players who have started their hockey pathway with boys. The new players are directed to the girls' pathway. According to Higgs & al (2019, 27-29) this is the time for dropouts and that is good to take into consideration and be aware of it.

The step highlights being more together as a team. In SaiPa this phase is when the players participate in the under-10 boys' series for the first time. Even though the series is meant for an age group of under-10, it is good to remember that age limits do not apply for girls. Girls are allowed to play in the most suitable series. The under-10 boys' series is considered the best option for girls. In that league games are played nearby, they don't require official referees or many officiants, there are no statistics, and game results or goal scorers are not published. The games are played on half-ice games that ensure activity and development inside the game. Besides these games, girls have the option to play against other girls in Pelitällit events. There is cooperation with the SaiPa's non-competitive team and other girls' teams in the area to give an opportunity to participate in the girls' series.

At this age, the girl enters puberty and goes through a growth spurt. This will cause changes for both body and mind. Those will also affect learning. Setbacks in performance are possible. It takes time both for the body and mind to adjust to the changes that puberty brings. In a team environment, there might be players in several different stages of puberty and growth scale. Girls who are playing in boys' teams are gradually faced with the physical and gender differences.

In physical training, the focus goes more from fundamentals to more specific sports-specific training. Fundamentals are good to maintain because fast growth can cause setbacks. The growth spurt is good to take into consideration when training and adapting the child's training to changes in the body. At this age it is still important to encourage girls to have daily physical activities in different sports. The IIHF (2023) highlights the importance of having many sports to avoid getting bored with hockey.

At this age, with off-ice training it is suggested to begin train strength, speed, and aerobic capacity. Alongside it is suggested to focus healthy lifestyle and recovery (Sport Canada 2018; Aalto s.a). USA Hockey (2016) suggests focusing also maintaining flexibility when the body is in an ongoing transformation.

Hockey specific focus is on basic hockey skills development: skating, stick handling, shooting, and passing. According to Leijonapolku this is a good time to teach the game. Teaching and learning should remain fun. The games can be taught by using changing positions, which helps also to understand the game situation roles. At this phase it is good to remember that there are different ages and skill leveled players.

Girls might start playing hockey later and because of that many new players will enter this phase. That is one reason to keep training simple, not too tactical. It is also good to understand that for many players hockey is the second sport alongside other sports. This can be seen in determination and goal setting. Because of all this, it is important to find a suitable team for every girl. It can be done by dividing the ice (rink) based on skills and age levels. The amount of training has changed from the first phase when the girls have now two ice training and one off-ice training. As well the games are played approximately twice a month which increases ice time.

The girls who are playing in boys' teams are advised to take part in girls' training. That is important because in the next phase, all the girls will get gathered into the same team. At that moment teambuilding is easier when players are familiar with each other.

In recruitment process Girls Hocket Day and Girls Global game are important. They make testing hockey easier for new potential players. Along them comes the first bigger tournaments the biggest being the Mini Aurora Cup at the end of the season. The girls can participate there in two different age groups: under-10 or under-12 teams. At the end of this phase, players are able to participate in Pohjola Pre Camp. These all are Finnish Ice Hockey Association's launched events.

## 5.4 Women's Team

The women's team is the highest and most competitive team in the club. In season 2022-2023 the team played in the second-highest Women's league in Finland. The players in the team are 15 years and older. This phase is the most competitive stage for the females in this club.

Women's team can be compared to Advanced and Succeed levels on IIHF's player development guide. The players have spent several years with hockey and have the desire to succeed. Women's team can be placed in two phases on Leijonapolku-pathway: *training intensification* and *adulthood high performance*. In both phases, the characteristics are "Quality and winning in the good atmosphere" (Suomen Jääkiekkoliitto s.a). Intensification is seen in the number of practices and games. Relegations bring competitiveness to this level.

The manual also clarifies other possible player pathways outside the club. These are for example playing in the highest league in Finland Liiga, abroad for example in Sweden, or in North American universities. National team pathway is also presented from the first steps of under-16 to under-18 and women's teams. These all are an important part of the journey to high performance and meant for players trying to achieve the highest level.

### 5.4.1 On-ice training

At this point of the hockey journey, the focus is on the best performance in the game environment and working together as a team. Focus points on hockey are recognizing different game situations and being able to react in taking smart decisions. Focus is also put into the special teams. Basic hockey skill development is based on individual skill development. These factors are good to include and define precisely in the annual plan.

Even though the official games are played 5-on-5 and many practices are done as well using 5-player lineups, it is good to follow the guidelines of IIHF (2023) and use small area formats, for example, 3-on-3. Using the small area games, the puck contacts and activity rates are high.

### 5.4.2 Off-ice training

Physical training has an important role in this phase when all focus is on the best possible performance. All the physical training targets support performance and keep the player healthy. At the women's team physical training should be a natural part of training in combination with the on-ice training. It can include for example strength, speed, aerobic and anaerobic, and mobility training. Also, recovery has an important role.

In injury prevention, strength training is both important to promote performance and prevent injury risks. For female players, it has also a significant role to prevent osteoporosis and knee injuries. Females run a higher risk for them than males. The focus should be on the right technique and versatile training. Practice contents based on individual and sports-specific needs bring the best results.

Players in the women's team have gone through the puberty phase or are in puberty's last moments. Periods are already part of many players' life. It is personal, but for someone, the different phases of the hormonal cycle can affect performance and mood. Performance can be distracted because of pain, bleeding, stomach, and sleeping problems. Mood can be distracted by pain and premenstrual syndrome which causes mood swings.

## **5.5 Hockey as a Hobby**

The one option for playing hockey in SaiPa is the women's non-competitive team Ladyt. The team is for girls that are over-aged for other girls' teams and also for women who are retired from active-level hockey. If the player has the motivation to succeed and take the step to the high-performance phase, there is a possibility to move to the women's team.

The main aim is to find the most suitable team for each player. The phases should be seen as flexible, moving from one to another should be smooth and everything should be based on finding the most suitable place for every player. This phase can include the different roles in hockey: coach, volunteer, referee, etc. Those all are remarkable roles in hockey for life to make it possible to keep on playing hockey.

In this team players have different backgrounds and players' skill levels vary. The age can also differ a lot. During the season 2022-2023 there were players from 15 to 55, making the age gap 40 years. Compared to the women's team there are fewer practices. Therefore, the level of physical activities and conditions varies. That is good to take into consideration when planning team actions.

The actions in hockey as a hobby focus on the same principles as in the beginning which is to have fun while learning basic hockey skills and playing hockey. At this phase it is even more important to focus on keeping activities suitable for all and remember that this is a hobby. Encourage players to have a variety of physical activities. Recognize the individual and understand the different stages of life.

## 5.6 Suggestions and development ideas for the future

Main points that are presented in this can be used as guidelines. They can assist when building the annual plan. Annual plan is place where specify more detailed the guidelines that are presented on this thesis and manual.

The point of view on the topic in this thesis has been skaters' perspective. I want to point out that goaltenders need to have possibility to develop their special skills as well. Goaltender coaches needs support from the club.

The mental side and nutrition could me specified more in the future. It is commonly known that those have a huge impact in sports and life overall. In the case of female sports nutrition plays an even more important role to prevent many disorders like iron deficiency and menstrual disorders. The significance of mental training is commonly known, and it is getting more common alongside physical training.

There are also unused opportunities to individual development. The pathway presents the possibility to join hockey class (secondary school level) and academy secondary education). In past years there have been few girls who have participated in hockey class and academy. That is an excellent way to add more ice time on the pathway towards high performance.

On the grassroots level the focus is needed to keep on recruiting because there are still quite small group of players. Bigger steps such as creating new teams or player pathway phases is not likely to happen without having new players.

According to Finnish Ice Hockey Association and Kymi-Saimaa region pathways to girls, there are own series for girls, if a group proceeds and grows. The next possibility could be the current players age structure under-12 or under-15 girls. This requires that the existing players keep playing and new players join the team. The challenge in this area is that the nearest teams are at least three hours' drive away which adds expenses and challenges in a situation where hockey is a second sport for many girls. Game days take more time because of travelling.

One possibility is also to do co-operation with clubs nearby. The co-operation already exists between SaiPa and Jukurit, the hockey club located 1,5 hours away from the Lappeenranta, where older SaiPa players are playing in Jukurit under-15 team. It is recognized around the region that at the moment there are not enough players for own girls' teams participating in the official girls' series but with co-operation playing could be possible. One good example of this is regionally built team that participated spring 2023 in U12-girls Mini Aurora Cup tournament.

An idea that I recommend for the future, is to plan a new program that combines studying and hockey with local universities. In Lappeenranta this kind of co-operation exists in other sports excluding hockey. This kind of "Hockey academy"-program could increase the interest for young players to choose SaiPa as their team.

Overall, the most significant factor for the future is the willingness. There is a mindset to develop the girls' hockey which can be seen in actions that club has made in past seasons. The number of players has grown, the phases in the player pathways are slowly filling completed with new teams and players. Desire dictates the future.

## 6 The results of the project

The final product of this thesis is the manual. Other clubs can use information of the manual as well. Alongside manual theoretical part gives useful information of female as an athlete. The information from thesis can be used in other sports as well.

The final product summarizes well this thesis. It selects the main points where the club can focus. When the idea is maintaining already existing hockey groups, the manual gives good tools for that. Visually the manual is made simple, and every page is similar so with one look you can pick up the main points from selected categories. The player pathway inside the manual shows on one page the hockey journey in SaiPa, supportive actions, and events around hockey. A Finnish version of the manual was made for the club.

Next, the manual is ready to be used in SaiPa and presented to the audience. The ready presentation shows that the main goal of this thesis from the participant's point of view has been achieved. As a result of the thesis, SaiPa has now a player pathway. Alongside the pathway there is material for club and coaches how to arrange activities for female players. In this work, the female players are also in the spotlight.

Alongside the development, player recruitment remains in a crucial role. It is good to note that fewer children are born. In 2022 birth rate was the lowest in hundreds of years and (Suomen virallinen tilasto SVT 2023). With the current birth rate all the players are needed. The increasing amount of female players in the club is essential to keep the club alive. Having fewer female than male players can even facilitate the recruiting process. A lot of potential from the female side is still unused.

Several factors can be used to indicate the usefulness of this thesis. Other indicators are the continuation of operations and the growth in the amount of participants. If the club uses the manual the goal is achieved. If the organization and coaches find something new that can help players to be better, the thesis has fulfilled its` goal

## 7 Discussion

This project was an intense but long-lasting project. Firstly, it took time several seasons to observe and prepare the subject. After observing and preparing it was time to plan the thesis. That time was very hectic. There were lots of new things to learn and understand in a quite short time.

Luckily, the topic became more specific as the work progressed, and that helped work with the thesis. The most difficult thing still was to choose the main ideas where to focus on in this work. There were so many ideas that needed to be left outside this thesis or covered only superficially. Only the main points could be taken into the final product. At some point, it was hard to stay on the main topic when new information led to another perspective. As a human being who wants to understand a lot that was very difficult. It was hard to leave outside some ideas that were not directly suited to this topic. The time limit on the other hand forced me to stick to the main context.

As mentioned before, when writing my thesis, I needed to define the subject. That left many ideas out from this thesis. That leaves space for future ideas and development. In order to maintain operations in the club it is crucial to help coaches as well. For the future educating coaches from female perspective could be useful and support this thesis. At the moment all the educations are general or even more from men's hockey perspective. As known now there are several differences that are good to take into consideration.

That also made me think if all the already chosen information was the most suitable. Overall, this thesis covers lots of different player pathways. The pathways being similar to each other, the research could have focused more on pathways from the coaching perspective, how the coaches develop on different phases. In this thesis all but one pathway was related to hockey player development pathways. Could there have been good examples from other sports? Could that have disclosed something that could have been adjusted to this thesis, especially from a female sports perspective? Maybe the outcome would have been better with different information. This is something that could have been done differently and considered in the planning.

The communication with the club has been good throughout the project. The instructions and needs from the club's side were clear and that helped the thesis process. The most important was true willingness. The club showed that they wanted to focus on this subject and supported it. In any case or problem, there was a low threshold to contact the club and ask. That kind of atmosphere motivated me to do this work.

Spending several years in the club and working with women's hockey gave good basic understanding. Together with a theoretical part and open communication with the case club, the

project was formed into its` final version. Understanding the different pathways helped a lot to do the club's pathway. Most of the pathways followed the long-term athlete development model which made it easier to build SaiPa's player pathway. The research for female-specific aspects was most interesting in the theoretical part. As a woman and coach, I was able to mirror those outcomes to my own experiences.

It has been an educational journey with this thesis. This thesis has taught me to plan in the long term. I improved myself in planning the bigger research-based project. In the beginning, there were difficulties to sort out the right pathway. When the process continued, working with this thesis became more familiar. That also taught me the scheduling when working on the thesis. Concentration was needed a lot, so it required sitting down and focusing. In the learning process, the turning points have been moments of realizing that you are on the right pathway, and that you understand what you are doing. That also gave me the confidence and energy to keep going and do even more.

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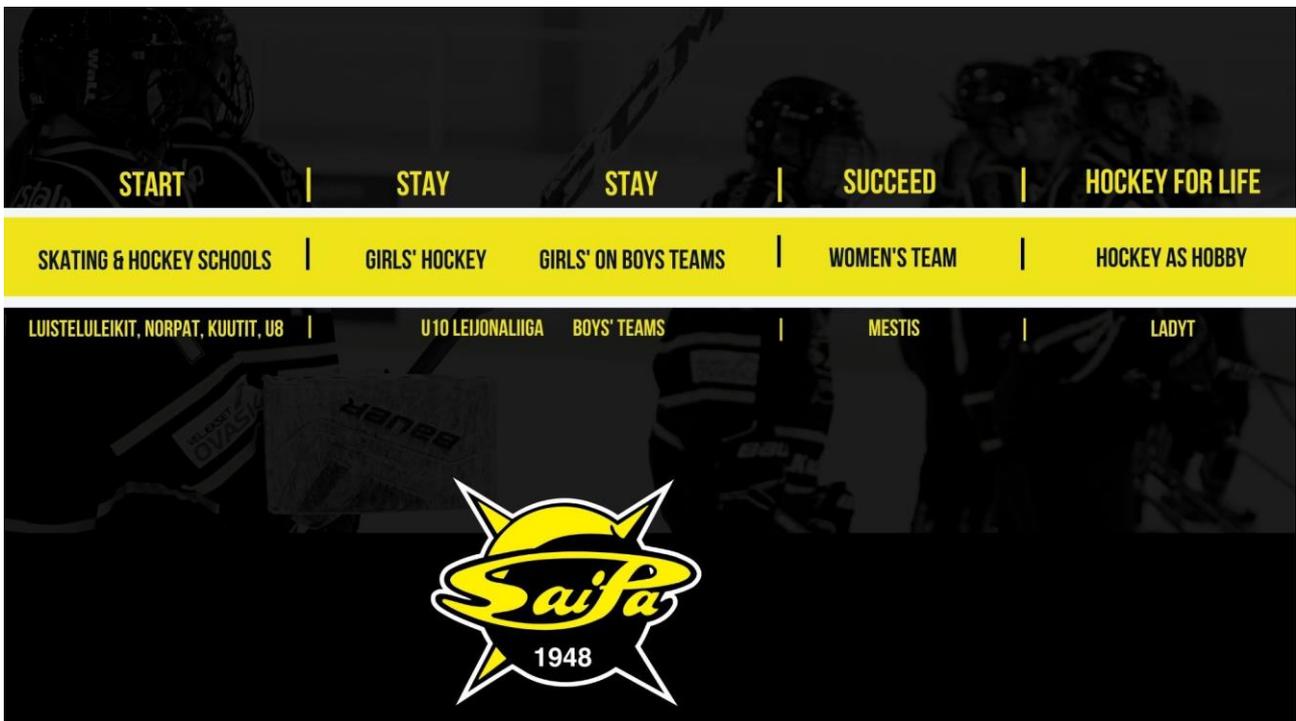
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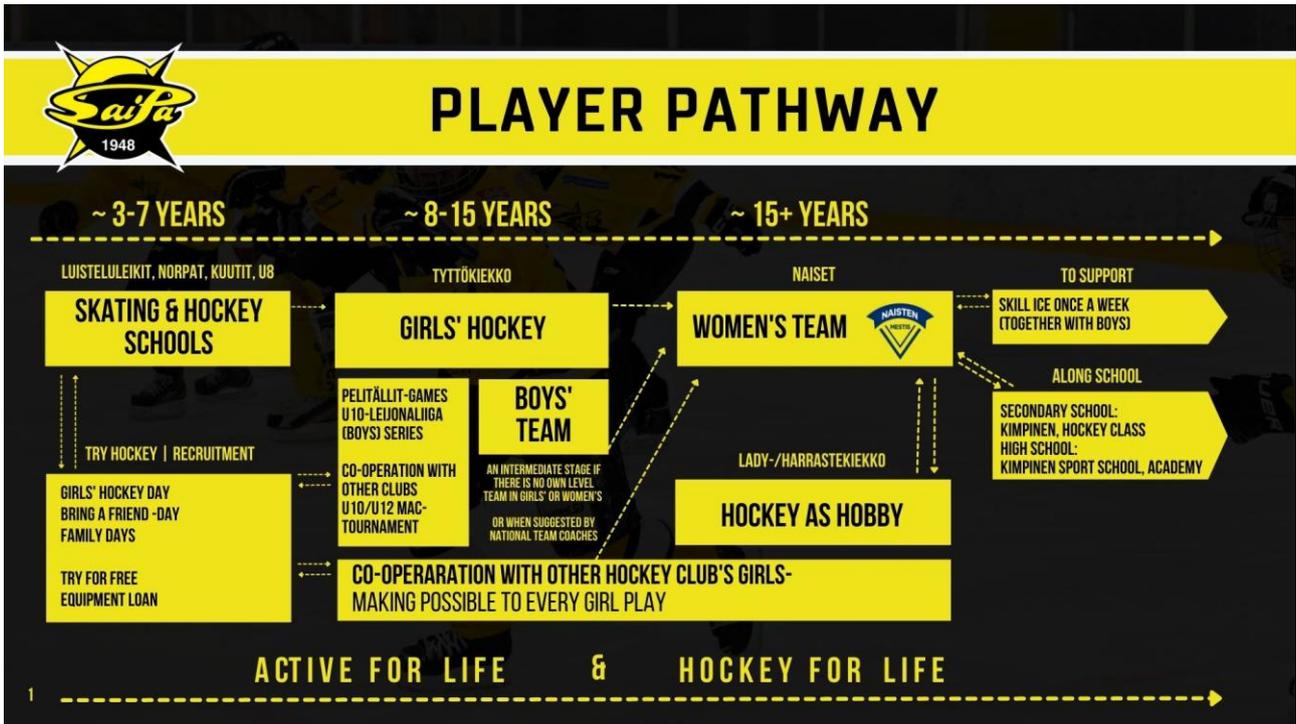
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## Appendices

### Appendix 1. Manual for SaiPa hockey club







## AT THE AGE OF ~ 3-7 YEARS SKATING & HOCKEY SCHOOLS

ON-ICE PRACTICES 1 PER WEEK

BEGINNER

START



### INSPIRING TO PLAY

"GET EXCITED IN GOOD ATMOSPHERE"

- DIRECTING TO PHYSICAL LIFE
- HEALTHY SELF-ESTEEM
- BUILDING PASSION TOWARDS PLAYING



- GIRLS AND BOYS FOLLOW THE SAME GROWTH SCALE
- NO GENDER DIFFERENCES UNTIL THE PUBERTY
- PUBERTY STARTS APPROXIMATELY AT AGE 10 GIRLS, INDIVIDUALLY



- FUNDAMENTAL MOVEMENT SKILLS: OBJECT MANIPULATION, DIFFERENT WAYS OF MOVEMENT ETC.
- ACTIVE LIFESTYLE, ACTIVE DAILY, SEVERAL SPORTS
- FUN & VERSATILE! ENCOURAGE THEM TO DO THEIR BEST.

- ACCORDING TO LTAD: 75 % NON-STRUCTURED LED BY CHILDREN, 25 STRUCTURED LED BY ADULT



- HAVING MULTIPLE SPORTS AND ACTIVITIES BUILDS THE BASE FOR FUTURE'S SPORTS SPECIFIC SKILLS
- INTRODUCTION TO SKATING, STICK HANDLING, AND OTHER BASIC HOCKEY SKILLS

- LEARN BY PLAYS AND GAMES
- HAVING FUN IS THE MOST IMPORTANT

GIRLS' HOCKEY DAY   GIRLS' GLOBAL GAME   PELITÄLLIT-GAMES   U10 & U12 MINI AURORA CUP

3

HOCKEY  
FOR LIFE



## AT THE AGE OF ~ 3-7 YEARS SKATING & HOCKEY SCHOOLS

ON-ICE PRACTICES 1 PER WEEK  
ENCOURAGE THEM TO DO PHYSICAL ACTIVITY DAILY

### COACH

- MAKE IT POSSIBLE TO HAVE MANY GOOD EXPERIENCES ON THE ICE
- MAKE IT FUN!
- NOT TOO STRICT RULES, OR INSTRUCTIONS
  - MAKE IT EASY FOR CHILDREN TO UNDERSTAND
- THE PRACTICES CAN GO DIFFERENTLY THAN PLANNED
  - BE ABLE TO MODIFY TO DIFFERENT SKILLED PLAYERS
  - REMEMBER THAT THESE "PLAYERS" ARE CHILDREN
- ENSURE THE ACTIVE TIME ON THE ICE DURING THE PRACTICE
  - LOTS OF MOVEMENT, NOT STANDING IN LINES
- FOCUS ON A FEW THINGS
  - NOTE THAT AT THIS AGE THE CONCENTRATION ABILITY IS SHORT

### CLUB

- PROVIDE QUALITY CONTENT TO MAKE THE FIRST EXPERIENCE WITH THE CLUB AS GOOD AS POSSIBLE TO MAKE THEM STAY WITH HOCKEY
- RECRUITING & MARKETING ARE AN IMPORTANT ROLE TO MAKE GIRL'S HOCKEY MORE VISIBLE
  - TO SHOW THAT GIRLS CAN PLAY
  - TO HAVE MORE PLAYERS
- POSSIBLE COOPERATION WITH OTHER SPORTS CLUBS TO HAVE VARIOUS TRAINING DAYS
  - MAKE IT POSSIBLE TO PARTICIPATE IN MANY SPORTS
- SUPPORT AND EDUCATE THE COACHES
- MAKE SURE THAT THERE IS A CONTACT PERSON FOR GIRL'S HOCKEY
  - THIS IS ALSO SUGGESTED BY FINNISH ICE HOCKEY ASSOCIATION

4

HOCKEY  
FOR LIFE



**AT THE AGE OF ~ 8-14 YEARS**  
**GIRLS HOCKEY**  
**PLAYING IN BOYS' TEAMS**

ON-ICE PRACTICES 2 PER WEEK, 1 OFF-ICE  
 SMALL AREA GAMES IN TOURNAMENTS TWICE A MONTH  
 ENCOURAGED TO MULTIPLE SPORTS

INTERMEDIATE  
STAY

LEIKKI/OPPILAS

**PREPATORY PHASE**  
*"PLAYING IN A GOOD ATMOSPHERE"*

- TEACHING THE GAME
- GROWING TO BE A PLAYER

GIRL AS AN ATHLETE

- HORMONAL CHANGES, PUBERTY & GROWTH SPURT STARTS
  - GENDER DIFFERENCES BEGIN TO SHOW
- EVERYONE DEVELOPS AT THEIR OWN PACE!

- CHANGES IN BODY;
  - PUBERTY CAN CAUSE STEPBCKS IN DEVELOPMENT

PHYSICAL

- ALONG THE FUNDAMENTAL SPORTS BECOMES SPORT-SPECIFIC SKILLS
- IMPORTANCE OF DAILY ACTIVITY, HAVING MANY SPORTS -> AVOID BOREDOM TO HOCKEY
- LEARNING TO SPORTY LIFESTYLE: TRAIN, NUTRITION, RECOVERY

- RESPECT PUBERTY WHILE TRAINING, ADAPT TRAINING
- STRENGTH, SPEED, AEROBIC CAPACITY

SPORT SPECIFIC

- TIME FOR MORE INDIVIDUAL DEVELOPMENT
- CONTINUE FOCUSING ON THE BASIC HOCKEY SKILLS
- FROM BASIC HOCKEY SKILLS TO MORE SPECIFIC GAME-RELATED SKILLS

- GAME SITUATION ROLES AND BASICS OF TURNOVER PLAY INTRODUCED
- IN GAMES AND PRACTICES: NO PERMANENT POSITIONS

GIRLS' HOCKEY DAY

GIRLS' GLOBAL GAME

PELITÄLLIT-GAMES

U10 & U12 MINI AURORA CUP -TOURNAMENT

POHJOLA PRE CAMP

HOCKEY FOR LIFE



**AT THE AGE OF ~ 8-14 YEARS**  
**GIRLS HOCKEY**  
**PLAYING IN BOYS' TEAMS**

ON ICE PRACTICES 2 PER WEEK, 1 OFF-ICE  
 SMALL AREA GAMES IN TOURNAMENTS TWICE A MONTH  
 ENCOURAGED TO MULTIPLE SPORTS

**COACH**

- EVEN THOUGH THE GAMES COME INTO THE PICTURE AT THIS POINT
  - KEEP IT STILL FUN
  - GAME RESULTS DO NOT MATTER
- FOR MANY, HOCKEY IS NOT ONLY SPORT
  - THIS CAN BE SEEN IN PARTICIPATION IN TRAINING
- AT THIS PHASE, MANY NEW PLAYERS ARE STILL JOINING
- DIFFERENT SKILL AND AGE LEVELS INSIDE ONE TEAM
- ADJUST TRAINING:
  - SMALL TRAINING GROUPS, STATION-BASED TRAINING
- REMEMBER TO MAINTAIN AND DEVELOP BASIC HOCKEY SKILLS
  - ALONG-SIDE: LEARNING TO PLAY WITH SMALL STEPS
- ENCOURAGE AND SUPPORT PLAYERS TO A SPORTY LIFESTYLE

**CLUB**

- RECRUITING & MARKETING STILL AN IMPORTANT ROLE
  - REMEMBER THAT MANY GIRLS ENTER AT THIS PHASE
- HELP TO FIND MOST SUITABLE GROUP FOR GIRL
- FIND THE MOST SUITABLE SERIES FOR GIRLS' TEAM
- HELP TO ORGANIZE GAMES FOR GIRLS (PELITÄLLIT)
- SUPPORT AND EDUCATE THE COACHES
- MAKE SURE THAT THERE IS A CONTACT PERSON FOR GIRL'S HOCKEY
  - THIS IS ALSO SUGGESTED BY FINNISH ICE HOCKEY ASSOCIATION
- ORGANIZE PARENT MEETINGS
  - TO SHOW THE GIRL PLAYER'S POSSIBILITIES, THE PLAYER PATHWAY
  - TO RECRUIT THE PARENTS TO HOCKEY OPERATIONS

HOCKEY FOR LIFE



**APPROX. +15 YEARS  
WOMEN'S TEAM**

**COMPETITIVE TEAM, WOMEN'S MESTIS**  
1 SKILL ICE TOGETHER WITH BOYS, 3 OFF AND ON ICE PRACTICES. GAMES APPR. 1-2 PER WEEK. SUMMER TRAINING TOGETHER 2-3 PER WEEK

ADVANCED  
SUCCEED

ELITE

**POSSIBILITIES FOR PLAYER**

- LIGA
- PLAYING ABROAD I.E. SDHL
- UNIVERSITIES ABROAD



LEARNING/POUR

**TRAINING INTENSIFICATION**  
"QUALITY AND WINNING IN GOOD ATMOSPHERE"

- DIRECT TO A SPORTY LIFESTYLE
- DEVELOP A PLAYER TO BE AS SELF-GUIDED AND VICTORIOUS



ADULTHOOD HIGH PERFORMANCE



GIRL AS AN ATHLETE

- UNDERSTANDING THE POSSIBLE EFFECT OF PERIODS ON PERFORMANCE
  - PHYSICAL AND EMOTIONAL EFFECT, INJURY RISK
  - INDIVIDUAL, WIDELY CHANGING EFFECT
- 50 PERCENT OF FEMALE ATHLETES HAVE MENSTRUAL DISORDERS AT SOME POINT
- BEWARE OF ALSO EATING DISORDERS, IRON DEFICIENCY



PHYSICAL

- OTHER SPORTS DISAPPEARING ALONGSIDE HOCKEY -> LESS VERSATILITY IN OVERALL TRAINING LOAD
- AIM TO BEST PERFORMANCE IN SPORTS AND MAINTAIN A HEALTHY LIFE. THE IMPORTANCE OF RECOVERY
  - STRENGTH, SPEED, AEROBIC, ANAEROBIC, MOBILITY TRAINING (DEPENDING ON THE PHASE OF THE SEASON)
- IMPORTANCE OF STRENGTH TRAINING
  - NOT JUST FOR PERFORMANCE, FOR INJURY PREVENT ALSO



SPORT-SPECIFIC

- HOCKEY SKILLS IN THE GAME ENVIRONMENT
- WORKING TOGETHER AS A TEAM
- SPECIAL TEAMS, RECOGNIZING GAME SITUATIONS, ABLE TO REACT, WIN THE SITUATIONS
- USE SMALL AREA GAMES - BENEFITS!
- DEVELOPING THE INDIVIDUAL
  - ADJUSTING BASED ON NEEDS

POHJOLA PRE CAMP
POHJOLA CAMP
UNDER-16
UNDER-18 NATIONAL TEAM
WOMEN'S NATIONAL TEAM

**HOCKEY FOR LIFE**



**APPROX. +15 YEARS  
WOMEN'S TEAM**

**COMPETITIVE TEAM, WOMEN'S MESTIS**  
1 SKILL ICE TOGETHER WITH BOYS, 3 OFF AND ON ICE PRACTICES. GAMES APPR. 1-2 PER WEEK. SUMMER TRAINING TOGETHER 2-3 PER WEEK

**COACH**

- APPRECIATE THAT PLAYERS ARE SPENDING THEIR FREE TIME AND MONEY EXACTLY TO THIS SPORT
  - THEY PAY TO BE ABLE TO PLAY AND THEY DON'T GET PAID
  - PLAYERS HAVE TO BALANCE WORK/SCHOOL OR HOCKEY
  - UNDERSTAND THE DIFFERENT LIFE SITUATION
- PLAYERS HAVE DIFFERENT PERSONAL GOALS
  - ONE SETTLES TO THIS MOMENT, SOME HEAD TOWARD BIGGER GAMES AND LEAGUES
- MAKE INDIVIDUAL DEVELOPMENT POSSIBLE
  - BOTH ON ICE AND OFF THE ICE.
- BE OPEN AND OPEN-MINDED WHEN WORKING WITH FEMALES, AND FORGET THE PREJUDICE
  - COMMUNICATE A LOT

**CLUB**

- OFFER THE OPTIONS TO MAKE IT POSSIBLE TO PLAY HOCKEY AT THIS LEVEL
  - LIFE-HOCKEY-COMBINATION
  - FINANCIAL OPTIONS
  - TRAINING OPTIONS
- SUPPORT AND EDUCATE THE COACHES
  - GIVE OPPORTUNITY TO DISCUSS WITH OTHER COACHES AND SHARE EXPERIENCES AND IDEAS
- REMEMBER THIS AS AN EQUAL COMPETITIVE, REPRESENTATIVE TEAM OF THE CLUB
  - MAKE IT VISIBLE, DON'T FOR EXAMPLE HIDE GAMES FOR SMALL RINKS
    - THESE PLAYERS ARE ALSO ROLE MODELS FOR YOUNGER

**HOCKEY FOR LIFE**



APPROX. + 15 YEARS

## HOCKEY AS HOBBY

1-2 ICES PER WEEK, NO GUIDED OFF-ICES  
 1-2 GAMES PER MONTH ON REGIONAL TOURNAMENTS  
 (NOT MANDATORY TO PARTICIPATE IN GAMES)

**INSPIRING TO PLAY**  
"GET EXCITED IN GOOD ATMOSPHERE"

**PREPATORY PHASE**  
"PLAYING ON GOOD ATMOSPHERE"

- WIDE RANGE OF PLAYERS OF DIFFERENT AGES, A HUGE AGE GAP
- DIFFERENT STAGES OF LIFE
  - SCHOOL, STUDENT, WORKING, LIVING WITH FAMILY, HAVING FAMILY AND KIDS

- ENCOURAGE TO THE PHYSICAL ACTIVITY
- DIRECTING TO THE HEALTHY EXERCISING
  - TAKING RESPONSIBILITY FOR OWN OFF-ICE TRAINING
- FOCUS ON STRENGTH TRAINING AND INJURY PREVENTION, THE RIGHT TECHNIQUE
  - ESPECIALLY LOWER BODY NEEDS ATTENTION, BECAUSE OF THE BIGGER INJURY RISK

- BASIC HOCKEY SKILLS
  - PASSING, SHOOTING, SKATING, STICK HANDLING
- TAKING INTO CONSIDERATION THE DIFFERENT SKILL LEVELS AND HISTORY WITH HOCKEY
- BASIC PRINCIPLES OF GAME & PLAY
  - POSITIONS, RULES, SPECIAL TEAMS

ADVANCED	ELITE
SUCCEED	
INTERMEDIATE	
STAY	
BEGINNER	
START	

**MANY ROLES IN HOCKEY:**  
 EQUIPMENT MANAGER, COACH, TEAM LEADER, REFEREE, OFFICIANT, SUPPORTER, BUS DRIVER, VOLUNTEER, PLAYER...

HOCKEY FOR LIFE



APPROX. + 15 YEARS

## HOCKEY AS HOBBY

1-2 ICES PER WEEK, NO GUIDED OFF-ICES  
 1-2 GAMES PER MONTH ON REGIONAL TOURNAMENTS  
 (NOT MANDATORY TO PARTICIPATE IN GAMES)

### COACH

- MAKE IT FUN
  - AT THIS PHASE, THERE'S NO NEED TO BE TOO SERIOUS, JUST ENJOY HOCKEY
- MAKE IT SIMPLE
  - THE GROUP CAN HAVE MANY AGED PLAYERS
  - PLAYERS HAVE DIFFERENT SKILL LEVELS
  - MAKE DRILLS THAT EVERYONE CAN UNDERSTAND AND DO
- MAKE IT POSSIBLE TO PARTICIPATE IN TRAINING
  - MANY DIFFERENT LIFE SITUATIONS AFFECT PARTICIPATION
- ENCOURAGE THE OTHER PHYSICAL ACTIVITY
  - IF NEEDED ASSIST WITH WARM-UPS & COOL DOWNS, GIVE IDEAS
  - INJURY RISK PREVENTION

### CLUB

- RECOGNIZE THIS MOMENT IMPORTANT AS LIFE-LONG HOCKEY -PHASE
- MAKING THIS OPTION VISIBLE ALONG OTHER TEAMS' SELECTION
- SEE THIS AS AN EQUAL OPTION FOR THOSE WHO DO NOT WANT TO PLAY COMPETITIVE TEAMS
  - DIRECTING PLAYERS TO THIS TEAM, TO ENSURE CONTINUE PLAYING

MANY IMPORTANT ROLES IN HOCKEY ARE NECESSARY FOR THE CLUB:

EQUIPMENT MANAGER, COACH, TEAM LEADER, REFEREE, OFFICIANT, SUPPORTER, BUS DRIVER, VOLUNTEER, PLAYER...

ENCOURAGE AND GET MORE FEMALES TO JOIN THE HOCKEY CLUB

**MANY ROLES IN HOCKEY:**  
 EQUIPMENT MANAGER, COACH, TEAM LEADER, REFEREE, OFFICIANT, SUPPORTER, BUS DRIVER, VOLUNTEER, PLAYER...

HOCKEY FOR LIFE



SPECIAL  
CHARACTERS OF

# COACHING

FEMALE  
PLAYERS

- THE FEELING OF BEING PART OF THE TEAM &
- ATHLETE-ATHLETE AND COACH-ATHLETE RELATIONSHIPS ARE ESPECIALLY IMPORTANT FOR FEMALE PLAYERS
  - CRUCIAL TO KEEP FEMALES IN SPORTS
  - FEELING EQUAL
- SEEING THE PLAYER AS A PERSON, NOT JUST A PLAYER
  - BUILD A GOOD CONNECTION WITH HER
    - NOT JUST IN HOCKEY PERSPECTIVE
- COMMUNICATION
  - WITH A POSITIVE TONE, EQUAL TO EVERYONE
  - FEMALE TENDS TO BE MORE SENSITIVE AND NOTICE THE DIFFERENT TONES
- INCLUDE THE PLAYERS IN TO PROCESS
  - ALLOW THEM TO GIVE FEEDBACK
  - THAT ALSO HELPS PLAYERS TO LEARN BETTER AND UNDERSTAND
- FEMALES TEND TO DO EXERCISES PRECISELY, JUST LIKE YOU EXPLAIN, AND DRAW ON BOARD
  - BE READY FOR THE 'WHY' QUESTION
  - FEMALES TEND TO ASK WHY SOMETHING IS DONE, BECAUSE THEY WANT TO UNDERSTAND
- FEEDBACK
  - GIVE IT MORE AS AN ENCOURAGEMENT THAN A DIRECT FEEDBACK
- ARGUING, TOO VICTORY ORIENTED ATMOSPHERE CAN MORE EASILY CAUSE STRESS SITUATION FOR FEMALES
  - THAT LEADS FEMALES TO AVOID THOSE SITUATIONS
- FOR FEMALE ROLE MODELS ARE EVEN MORE IMPORTANT
  - IN MASCULINE SPORTS WHERE THERE ARE FEWER FEMALES, ROLE MODELS ARE IMPORTANT
  - FEMALE ROLE MODELS (COACHES, OLDER PLAYERS) ADD A FEELING OF BELONGING TO HOCKEY
  - FEMALE ROLE MODELS BREAK STEREOTYPES

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