Lacrosse

- The development of Lacrosse in Sweden and the Netherlands -

- A trainers guide way -

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Summary

Lacrosse is a developing sport in Sweden and the Netherlands at the moment. Both countries have their initiatives and are playing the game for approximately 12 to 15 years. They are competing at World- and European tournaments and trying their best to professionalize their leagues. Nevertheless, there is still a long way to go for both countries before they can measure themselves with the top Lacrosse countries Canada and the USA. In these countries Lacrosse is played for many years, the level of professionalization and trainings methods are more developed and thereby maybe helpful to develop the level in Europe as well.

Aim

During this research a comparison is made between the (different) approaches in the sport of Lacrosse, by the four ‘investigated countries’. Where does opportunities occur for developing Lacrosse in Sweden and the Netherlands? Main aim of this research is to find out where the possibilities are for the development of Lacrosse. Both Sweden and the Netherlands want to compete on a higher level of Lacrosse, but at the moment the knowledge about the sport is not sufficient enough.

Method

During this research several sources are consulted for getting information. Seven semi-structured interviews were being held among Swedish and Dutch Lacrosse trainers. Besides these interviews the Canadian Lacrosse Federation was contacted by mail, and the Strategic Plan 2008 – 2012 was examined. Third source of collection information was by searching online databases for evidence-based researches.

Results

The outcomes showed that there are many opportunities to start with the development of Lacrosse. Position specific Lacrosse training could provide more structured training design and thereby increasing the level of Lacrosse players. Coaches should be trained, and the federations should start professionalizing as well. Besides these results trainers spoke about the importance of starting a youth Lacrosse initiative.

Conclusion

If the approach in Sweden and the Netherlands is compared to the level of Lacrosse in Canada both countries need to start putting actions into efforts. Both federations have good intentions but they both are unsure about how to start the development of Lacrosse.
1.1 Introduction

The enormous growth Lacrosse experiences in Europe, at this moment, stands in a great contrast with the amount of research that has been performed this far. ‘Unfortunately, applied research and training theory for Lacrosse has not had the same level of growth’ (Pistilli et al, 2008, p. 31). The number of Lacrosse participants, the growth of the sport, and the research that has been performed about Lacrosse is not sufficient. Troy (2006, p. 20) writes in his research about ‘a Preseason resistance training program for men’s Lacrosse’ about an increase of Lacrosse participants of 250% (youth, High school and regular men- and women teams) since 1999. Troy (2006, p. 20-27) confirms the outcomes from his research to the outcomes of Pistilli’s et al (2008, p. 31-38) research ‘Sport specific strength training exercises for the sport of Lacrosse’. Taking a closer look at the game of Lacrosse and its demands for both players and coaches’ shows that, especially in Europe, a shortage of knowledge occurs about Lacrosse related subjects. These subjects include; training design and research about Lacrosse training and player development.

Lacrosse is considered to be ‘the fastest game on two feet’ and it demands great devotion and many hours of exercise of the athlete who participates in the sport. ‘Lacrosse is a physically demanding sport that requires athletes to sprint repeatedly and change directions quickly, all while manipulating the ball with the lacrosse stick’ (Pistilli et al, 2008, p. 31). Although the game of Lacrosse is played the same way worldwide (rules and duration of the game) a big dissimilarity can be seen between ‘developing’ Lacrosse countries (the Netherlands and Sweden) and the ‘leading’ Lacrosse countries (USA and Canada). A difference in approach, professionalism and financially is noticed. Maybe the same dedication and believe in the sport can be seen by the different countries but the way of practicing and participating in the sport, shows great differences. Therefore this study is being performed among ‘developing’ Lacrosse countries; to provide a support for their search of success and professionalization in the sport.

During this research the focus is on field Lacrosse, a game played outside on a field (grass or turf) sized 100 x 50 meters. Players are allowed to wear protective gear; this includes a helmet, shoulder- and arm protection and gloves. A rubber ball is transferred up and down the field while using a ‘crosse’. This ‘crosse’ is an aluminum or titanium stick with a ‘pocket’ attached to it for catching and throwing the ball. The formation that is played in Lacrosse is
worldwide restricted to a 10 against 10 game, having 1 goalie, 3 defensive players, 3 midfield players and 3 offensive players. A regular Lacrosse game is divided in 4 quarters from 20 minutes each. By a draw the game is extended with 5 minutes ‘overtime-play’ with the ‘golden goal’ rule.

Lacrosse is a ‘full-contact’ sport, which means that players are allowed to perform ‘body checks’ and hit each other with their ‘crosse’. Hitting each other with the ‘crosse’ must be done on a legal way and only if possession of the ball can be obtained. 4 referees supervise the legal way of hitting and body checking each other.

1.2 Background

Important information about Lacrosse, for understanding the game and its needs (for example training design), is presented in the paragraphs below.

1.2.1 The history and development of Lacrosse 1636 – 1928

Lacrosse is considered ‘one of the oldest known organized games in the word’ (Fisher, D., 2002, p. 31), the first captured descriptions of a ‘Lacrosse game’ are going back to 1636, and were written down by Jean de Brebeuf (a French Jesuit Missionary). Brebeuf witnessed a play of the Hurons at a southern part of Georgian Bay (Ontario, Canada) and noticed a similarity with a game played in France called ‘Crosse’. Brebeuf also noticed the resemblance of the stick the Indians used and the ‘crosse’ of the French Bishop, this is probably why the game later got known as Lacrosse. Two years later a French Father, named Le Jeune, witnessed a game of the Hurons (a Native American tribe) as well and noticed the ‘religion aspects’ that the game had for the Indians. ‘The game played among the Hurons is to influence the weather and favorable weather depended upon the spirit with which the game was played’ (Fisher, D., 2002, p. 33).

Besides these religious aspects of the game, the North American Indian game of Bagattaway is considered as a forerunner of the Canadian sport of Lacrosse and is described as; ‘the oldest known athletic contest played on the North American Continent’ (Fisher, D., 2002, p. 32). The game of Bagattaway had several meanings for the (probably over) forty-eight North American Tribes who were competing in this game. The most accepted theories for competing in this
sport were; the developing of the body, preparing the youth for close combat, fun and as medicinal or (as already mentioned) religious rites (Fisher, D., 2002, p. 33).

Besides these meanings the game was used to train and strengthen warriors or to settle major conflicts between different tribes. While playing these ‘games’ the competing area could reach sizes over 1 or 2 miles and included sometimes over a thousand competitors. Most of the times an old Medicine Men was considered to be the ‘referee’. The game could last for days and was started (most of the times) by throwing a ball in to the air while the competing tribes would battle for possession. The game at that time was rougher and more exhaustive then the game of Lacrosse is known today.

The development of Lacrosse also contributes to the history of Canada. On June the 4th, 1763 two Indian tribes (Ojibway and Sac Indians) celebrated the birthday of King George III (England) by playing a game of Bagattaway outside the fort walls. Inside the fort where English soldiers together with the ‘squaws’ of the Indians. Alexander Henry, a fur trader, described the game and what happened afterwards as follows (Fisher, D., 2002, p. 34):

‘After the ball had been tossed over the wall, the Indians ran after it and seized tomahawks that had been hidden under the blankets of their squaws. The English were defeated and ‘the score of that game was an officer, twenty-four enlisted men and one civilian trader killed’, with the remainder of the soldiers being taken prisoner’.

Around 1790 the game became recreational, thereby losing its religious and combative values. The rules changed, the amount of players was reduced to sixty at each side, and the field was seized-down to hundred-fifty meter with goals of just of nine meters wide, in it. By adjusting the game the risk of rough play decreased and the skills of the players that were needed to be successful, increased. Eventually in 1842 the first ‘white men’ started playing the game, at this time the game got its name Lacrosse. In 1856 the first Lacrosse club was founded in Montreal, after this first club many would follow in the Quebec and Ontario area. Matches were played between white men and Native Americans, which still showed the supremacy of the Native American. It was in this period that dr. William George Beers received his ‘title’ as the father of Lacrosse thanks to his great contributions and effort he put in to the development of to the game (Fisher, D., 2002, p. 34-35).
On September 26, 1867 the Canadian Lacrosse Association was founded new rules were applied to the game, rules that were quickly accepted by the Native Americans. Hereby ensuring their supremacy in the game of Lacrosse. The first championships appeared, still dominated by the Native Americans; The Cornwall Island Indians won this championship twenty times in a row, showing their supremacy (Fisher, D., 2002, p. 38).

As time elapsed and development continued money became more and more important. After a couple of years clubs began their struggle for existence. This resulted in a ‘split up’ within the Lacrosse Association, which led to a National Amateur Lacrosse Association where no senior clubs competed anymore. Despite the problems, such as gambling, Lacrosse never lost its popularity in the late 1800’s and the beginning of the 1900’s. Even though the reasons of playing Lacrosse can be named doubtful; ethnic and religious reasons made the game popular among people who wanted to show their contribution to their believes (Fisher, D., 2002, p. 40).

The development continued, players were given numbers and the playing time was again reduced to two-times forty-five minutes. A new rule was submitted, no body checking on the goalkeeper. From this time the goals were equipped with nets and there came restrictions to the ‘pocket’ of the ‘crosse’. During the First World War army teams took the game overseas and start playing Lacrosse in Europe. However the first ‘European’ Lacrosse match was played in 1867, an exhibition game belonging to a tour through Ireland, Scotland and England. These games ensured that the enthusiasm for Lacrosse started to grow in England as well. The same year an English Lacrosse Association was formed. Whenever a game was played where a Canadian team competed against a ‘foreign team’ the Canadians showed their supremacy. In 1904 and 1908 the Canadians showed their domination of Lacrosse worldwide by winning the Olympic gold medal on both events. The Olympic Games from Amsterdam, in 1928, gave the world a new Olympic Champion; the USA would beat the Canadians in the finals of this event. After these Olympic Games the popularity of Lacrosse decreased due to the growing popularity of other sports such as football, baseball and soccer (Fisher, D., 2002, p. 42-44).
1.2.2 The history and development of Lacrosse 1928 – now

After the First World War the development of Lacrosse had two different outcomes. In Canada a ‘fall’ of their ‘mighty national game’ was noticed while in the USA the sport of Lacrosse started expanding more and more. Even after the economic collapse in 1929 the Americans took over ‘world leadership’ in Lacrosse (Fisher, D., 2002, p. 120). In Canada Ice hockey became more popular, the Lacrosse Federation decided to form a new kind of Lacrosse; Box Lacrosse. A game more similar to ice hockey, hoping hockey-fans would like this ‘summer variant’ of hockey.

College coaches started to promote Lacrosse in the area around New York, Boston and Baltimore. By recruiting young athletes the game grew quickly. ‘The old Indian game has finally taken tight grip on the Little Quakers and has replaced the national pastime – baseball’ (Fisher, D., 2002, p. 124). Lacrosse players were characterized as ideal athletes, self-sacrificing noble warriors who were fighting for the honor of the university.

In the 1930’s the university Lacrosse teams formed the ‘backbone’ of national Lacrosse in the USA (Fisher, D., 2002, p.131). Again, rules were changed. The duration of the game changed from two times 45 minutes, without time-outs or player replacements, to fifteen-minute quarters with time-outs and unlimited substitutions.

In the early 1930’s the first Women Lacrosse teams were introduced. It was a less rough variant of Lacrosse compared with the male version. The women game lacked boundaries and body contact; only the goaltender was wearing protective gear (Fisher, D., 2002 p. 147). After a first introduction on the 1928 Amsterdam Olympics advocates tried to get Lacrosse to the Olympic Games in 1932 (Los Angeles). Eventually around 75.000 people saw the first match between John Hopkins vs. Canada. At the beginning of the 1940’s the first ‘real money’ was put into Lacrosse, which meant the first steps into ‘professionalization’ (Fisher, D., 2002, p. 185).

After the Second World War numerous officials, coaches, players and supportive journalists tried to maintain some connection with the values of the prewar decades. Between the years 1945 – 1970 Lacrosse unfolded new trends, it became a sport played by not only the ‘upper class’ anymore. New techniques were added to the sport, the development continued (Fisher, D., 2002, p. 190). Lacrosse was played in four countries (USA, Canada, England and Australia) from the beginning of the 1900’s but these countries did not reunite until 1974. The
sport suffered under commercial interests and professional promoters. After the reuniting in 1974, the national teams of the four countries reunited every four years to celebrate their amateur game. Victories by the USA simply confirmed the commanding position of the American game within the larger international Lacrosse community (Fisher, D., 2002, p. 242).

In the 1970 wooden sticks were replaced by synthetic, the ‘old Indian game’ was entering the era of mass culture. In 1976 the game of Lacrosse achieved greater national exposure when the American Broadcasting Company showed the game Cornell – Maryland (Fisher, D., 2002, p. 246).

In the 1980’s the game of Lacrosse was less popular than the ‘Big Three’ (Football, Baseball and Basketball) and it was not the elite ‘gentleman’s game’ of before. In the 1990’s the women’s variant of Lacrosse experienced a big growth, over 5.500 thousand women played Lacrosse during these years (Fisher, D., 2002, p. 249). Next to the four leading Lacrosse countries the International Lacrosse Federation started a ‘second group’ of Lacrosse nations. Representatives were; Czech Republic, Germany, Scotland, Sweden and Wales (Fisher, D., 2002, p. 255). After these countries started to play Lacrosse other countries in Europe started to develop Lacrosse initiatives as well. In the early 2000’s Lacrosse came to the Netherlands. In 2010, during the Lacrosse World Cup in Manchester (England) the Dutch National team finished at the 8th place, while Sweden finished 10th.

1.2.3 Specified (Lacrosse) exercises and training - Periodization

Training can be performed with different methods and designs. There is however one point of view for many trainers and coaches; ‘the major factor influencing athletic performance is still training’ (Rowbottom, D., 2000, p. 499). Coaches and athletes are in a constant search to improve their performance. Innovations within different kind of sports help athletes raise their level of performance. Next to this, nutrition and supplementation can contribute to an increase of performance as well. A more systematic planning of athletic training, now known as ‘periodization’ can help athletes improve their ‘sport capabilities’. Some authors suggest in different studies that a type of periodization goes back as far as the early Greek Olympics (Rowbottom, D., 2000, p. 499). But the current form of systematic planned athletic training is based on findings from Soviet research in the 1960’s. Matveyev (1965, described in Rowbottom’s research) published, as first sports professional, a research about periodization. Different Eastern European scientists developed the outcomes from
Matveyev, which possibly explains the Soviet domination in many kinds of sports during the period 1960’s – 1980’s (Rowbottom, D., 2000, p. 499).

More recent research confirms the findings of scientists about the benefits of structured training programs. ‘The periodization of athletic training is a concept that now forms the basis of most modern coaching theory and practice’ (Rowbottom, D., 2000, p. 499). Periodization is now accepted and often chosen as ‘training design’ in sports such as basketball, rugby and Australian football.

Coaches and athletes can use a periodization plan (see fig. 1). This plan possess performance and development goals which can be set on an annual basis, and the major championship, whether it is national-, world- or Olympic, may be the focus of the training year (Rowbottom, D., 2000, p. 500). Periodization divides a training program (for example for a year of training) in to smaller periods of training. By dividing a longer training period in to smaller parts the athlete and coach provide themselves with manageable ‘blocks’. These blocks are called ‘cycles’ and are divided into three different parts; Micro Cycle (small), Meso Cycle (medium) and Macro Cycle (large). Usually three (or more) Macro Cycles make up the training plan for one year.

![Conceptual Periodized Training Diagram](image)

Fig. 1: Periodization (Rowbottom, D., 2000, p. 501)

The findings from Rowbottom’s (2000, p. 499-512) research are confirmed in the research of David J. Smith (2003, p. 1103-1126). Smith (2003, p. 1103-1126) states in his ‘a framework for understanding the training process leading to elite performance’ about the ‘development
of performance in competition is achieved through a training process that is designed to
induce automation of motor skills and enhance structural and metabolic functions’. By
performing an exercise several times, sports-related movements (such as the pass in Lacrosse)
can become an automatic motion instead of a movement where the athlete has to think all the
time while performing.
Within the search for elite performance two types of athletes can be described, as Smith
(2003, p. 1108-1109) writes in his study about training process leading to elite performance:
1) The genetically talented (the thoroughbred); an athlete whose talent for a certain kind
of sport occurs at the time of birth or a very young age
2) The one with a highly developed work ethic (the work-horse); an athlete with a high
drive to train and be successful in its sport

Sports activities can be described as; ‘a combination of strength, speed and endurance
executed in a coordinated and efficient manner with the development of sport-specific
characteristics’ (Smith, J., 2003, p. 1104). Smith (2003, p. 1103-1126) refers in his study to
short- and long-term planning (periodization). A well-structured training schedule will help an
athlete, and thereby his coach/trainer, not to over train himself. Overtraining is formulated as
follows: ‘Overtraining is long lasting performance incompetence due to an imbalance of
training load, competition, non-training stressors and recovery’ (Smith, J., 2003, p. 1104). If
a closer look is being taken to the description of the different capacities needed in ‘sports
activities’ and Lacrosse, different capacities should be trained for different positions in the
Lacrosse team. For instance; a defensive Lacrosse player benefits more by strength and power
while an offensive Lacrosse player needs to possess a higher capacity of agility, speed and
balance (Krav- och Kapacitets analys in Lacrosse, 2010).

1.2.4 Physical requirements in Lacrosse – how to train
‘Lacrosse requires the power and contact of American Football, the quickness and speed of
Basketball and the endurance of Soccer’ (Morrill, W., 1980, p. 26). In the study of Morrill
(1980, p. 26-28) it is concluded that; ‘weight training in any form has tremendous benefits for
Lacrosse players. Although, total bulk is less important for Lacrosse players then it is for
Football players’. Besides this, it is important to get the greatest strength gains is the shortest
period of time.
By performing a basic strength training it is important to start with a warm-up and stretching. A minimum of 10 minutes (stretching and warm up) is considered enough for stretching all major muscles groups (Morrill, W., 1980, p. 26). During the ‘off-season’ a 3-days/week routine is sufficient. This should be reduced to 2-days/week during the ‘on-season’. Morrill (1980, p. 26-28) states in his article about ‘weight training for Lacrosse’ that during the ‘off-season’, the focus must be on stick work-skills, speed, quickness and endurance as well. Lacrosse specific strength training can be performed as shown in fig. 6 on page 31. Lacrosse related movements (shot/pass and ‘stepping out’ in order to release a good shot or pass) could be performed while keeping a good balance at the same time.

Devoe (2006, p. 60-61) states in his article; ‘Five drills to improve your speed and agility for Lacrosse’ that Lacrosse always has been a game of speed and agility. In order to be an effective Lacrosse player, the athlete must be able to transition from straight-ahead speed and small-area quickness quickly. Straight-ahead speed is defined as; starting – speed – acceleration – top speed – and deceleration to a space on the field. In other words, smooth transitions = quicker movements (Devoe, R., 2006, p. 60).

In a complementary study of Devoe ‘A complete Lacrosse training practice in less then 10 minutes’ from 2007 (p. 53), Devoe states that it is important for both coach and player to know how important speed and agility training is. Devoe talks about ‘the Big-5’, several drills to improve speed and agility (Devoe, R., 2007, p. 53). This ‘circuit-training’ allows an athlete to adapt to the intensity of the training.

In the research ‘A preseason resistance training program for men’s Lacrosse’ is stated that there has been a lack of specific training programs for the sport. ‘Despite the popularity and growth of Lacrosse, training programs for the sport are limited’ (Burger, T., 2006, p. 20). It is important for strength and conditioning coaches to implement sport-specific training programs to increase Lacrosse player performance and reduce injury risk (Pistilli et al, 2008, p. 31).

Burger (2006, p. 20-27) also confirms Morrills’s (1980, p. 26-28) theory that Lacrosse combines elements of basketball, soccer and hockey. Lacrosse might be compared to basketball and soccer, but strength and conditioning professionals need to examine the sport and design programs intended specifically for Lacrosse. The specific metabolic demands of
Lacrosse positions should be more closely analyzed, including time-motion studies to substantiate the training recommendations (Burger, T., 2006, p. 26).

In the study of Burger (2006, p. 20-27) about ‘a preseason resistance training program for men’s Lacrosse’ is also mentioned that specific training programs for Lacrosse players are needed. The goalie training programs is more focused on heavy-resistance training and plyometrics. In contrary, the training program for offensive- and defensive Lacrosse players has a focus on the ability of sprinting, jumping, balance training and changing direction. The offensive- and defensive players rely more on their glycolytic system than goalies do, because of the interrupted sprinting performed as demand of their positions (Burger, T., 2006, p. 23).

As mentioned above, balance training is important for the several positions in Lacrosse. A defensive player needs to stand ground against incoming attacks. A midfield player needs to keep his balance during the whole game while he is changing direction and avoiding opponent’s impact. Offensive players need balance to keep their position while battling defenders. ‘The Athletic Ready Position will give Lacrosse athletes the ability to check, pass, catch, scoop, and move quickly and efficiently in all directions. These are all the movements necessary to stay in front of your check, get to a loose ball and move the ball down the floor for a scoring opportunity’ (Neuman, J., 2010 p. 15).

![Athletic Ready Position](image1)

A comparison is made to soccer players; their demand on their energy system resembles the demands Lacrosse players have. Lacrosse is shown to place significant demand on the anaerobic energy systems as it comes to midfield players. Midfield players have to cover a
larger part of the field. They have to transport the ball back and forward from defense to offense. Therefore Lacrosse training and participation places a large demand on the oxidative capacity of athletes states Pistilli et al (2008, p. 31-38) in his study.

The potential is for these athletes to tax their glycolytic system even more than the other positions (depending on the time they remain on the field). The training program for midfield players has a focus on speed and agility. Besides these demands, a midfield player needs to possess strength (however less than a defensive player). Face-off specialists (midfield players) need extra strength training. The face-off is a wrestling that requires high levels of slow speed or peak strength (Burger, T., 2006, p. 24).

Pistilli et al (2008, p. 31-38) take a closer look to the physical demands of Lacrosse players. ‘In addition, the blood lactate values obtained at the end of the VO2max test were greater than those noted in distance runners, indicating a well-developed aerobic system in these athletes. Anaerobic performance, which was measured from a maximal 30-second Wingate test, indicated above-average values for maximal power and total work that were similar to those in soccer and rugby athletes. The conclusions of this study were that Lacrosse athletes exhibited above-average aerobic and anaerobic conditioning and these physiological responses were similar to other high-intensity, interval-oriented athletes’ (Pistilli et al, 2008, p. 31).

When a comparison is made to youth Lacrosse in Devoe’s (2009, p. 64-65) study about; ‘Youth movement, how to prepare young players for Lacrosse’s multi – planed challenges’ Devoe explains that it is important to train the body so it can control (specific Lacrosse) movements. As a youth athlete it is not about the weights, bench press, biceps curls or squats. There are many different movements is Lacrosse. Backpedal, backpedal to sprint, drop step to sideways run, sprint to split-dodge to a quick roll dodge to a low-to-high shot, etc. (Devoe, R., 2009, p.64).

Pistilli et al (2008, p. 31-38) confirm in their research the theories of Devoe (2006, p. 60-61) and Burger (2006, p. 20-27) about the different demands a Lacrosse player needs to possess. In the game of Lacrosse the demands on the athlete’s physical capacities is fairly big. The demand of different physical capacities relies on the fact about the great variation each position has in the team (Pistilli et al, 2008, p. 31). Pistilli et al (2008, p. 31-38) explains in
his research about ‘sport specific strength training exercises for the sport of Lacrosse’ as follows: ‘All athletes on the Lacrosse team, regardless of position, can perform the general conditioning exercises. The sport-specific exercises were developed to target specific aspects of the lacrosse swing, and/or specific movement patterns performed by players at each position’ (Pistilli et al, 2008, p. 31).

Pistilli et al (2008, p. 31-38) writes in his study about the importance of off-season training program specific for lacrosse athletes is; ‘weight- lifting and anaerobic conditioning (plyometrics and sprinting drills) compromised the majority of training volume. Compound exercises involving large muscle groups, including cleans, squats, jerks, and presses. The goals of this type of off-season training program are to increase the strength and general conditioning of Lacrosse athletes and prepare them for more formal pre-season training. In the preseason, the focus of training will shift from increasing strength to increasing performance through sport specific exercises’ (Pistilli et al, 2008, p. 31).

In the study of Jackson (1990, p. 114-117), ‘Club Lacrosse: A physiological and injury profile’ is mentioned that midfield players were the fittest athletes on the team. The defensive players seemed to be the least fit players with the highest percentage of body fat (Jackson et al, 1990, p. 114). A flexibility-test performed on Lacrosse players showed that all players (and by that different positions) were fairly similar. Except for defensive players, who had less flexibility in several muscles groups (Jackson et al, 1990, p. 115). The midfield players possessed the highest mean VO2max, and the other athletes also exhibited physical-levels considered above average compared to other kinds of sports. Strength and flexibility testing showed also variability among the Lacrosse team (Jackson et al, 1990, p. 116). These results show that position specific training can lead to advantages for players and performance.

In the study of Steinhagen (1998, p. 226-231) about the ‘physiological profile of college club-sport Lacrosse athletes’ confirms the importance about field- and laboratory testing. These outcomes should be saved in physiological profiles are often provided to coaches and athletes so that they can develop individualized, sport-specific exercise prescriptions based on scientific data (Steinhagen et al, 1998, p.226).
1.3 Description of the study-area

At this moment Lacrosse is a sport that is developing in Europe. Countries such as Sweden and the Netherlands are starting new teams all over the country. The National teams start to compete each other during World- and European Championships. During this research the focus will be on Swedish and Dutch Lacrosse teams who are competing in their leagues. In Sweden there is one league, thereby the ‘elite league’. If this is compared to the Netherlands a difference can be noticed. Currently there are two Leagues (Hoofdklasse and 2\textsuperscript{nd} Division). The Dutch federation is working on a 3\textsuperscript{rd} division. However, both countries/teams are still in a ‘developing phase’, they are trying to ‘close the gap’ with countries such as England, Japan and Australia and in the future maybe even the USA and Canada.

The USA and Canada are far ahead as it comes to professionalization within Lacrosse. They have systemized tests, measure results and have certain ways of training programs. Sweden and the Netherlands start to develop these professional methods but at the moment they are far from reliable on a professional base. This is the main subject of this research. It will contain a comparison between professionalization and training methods with the ‘leading Lacrosse countries’ and ‘the developing Lacrosse countries’. This research can be seen as a ‘trainers guide way’ to professionalization for Lacrosse teams in Europe (focus on Sweden and the Netherlands).

1.4 Existing research

There are a few studies about testing and certain ways of training within Lacrosse. Fact is that these studies are either ‘not up to date’ or far from peer-reviewed. Besides this, a lot of studies are not evidence based.

- Pistilli, E. et al 2008, Sport-specific strength training exercises for the sport of Lacrosse

In Pistilli’s et al study from 2008 the possible, positive influence of specific training for Lacrosse players is examined and explained. Several different strength exercises are being displayed to the reader.


In the research of Steinhagen et al from 1998 is being told about testing in Lacrosse by using a ‘Wingate test’. Different capacities that are needed in the game of Lacrosse are displayed, and different ‘player profiles’ are created showing the different capacities that are needed by the different position of a Lacrosse player. In the study of Jackson & Nyland a similar research is performed with similar results. Lacrosse athletes and the capacities they need to possess are compared.

Rowbottom, D., 2000, *Periodization of training*

Smith, D., 2003, *A framework for understanding the training process leading to elite performance*

Both articles discuss the importance of training and how to divide training into ‘blocks’ to prevent for example overtraining (Rowbottom, D., 2000). Structured training could lead to better performance but the athlete needs to possess ‘the skills and abilities’ for willing to train (Smith, D., 2003).

Devoe, R., 2006, *Five drills to improve your speed and agility for Lacrosse*

Devoe, R., 2007, *A complete Lacrosse training practice in less than 10 minutes*


Morrill, W., 1980, *Weight training for Lacrosse*

Different types of training are being discussed in the articles mentioned above. Weight training could lead to better performance for Lacrosse players by being more resistant for incoming hits and body checks (Morrill, W., 1980). A preseason-training program is described in Burger’s article (2006). Where Devoe provides the reader with several exercises that can improve the skills and capacities of Lacrosse players.
• Devoe, R., 2009, *Youth Movement, how to prepare young players for Lacrosse’s multi-planed challenges*

In this article Devoe writes about the importance of starting on a young age with Lacrosse related movements. Specific training is not needed at a young age, but getting familiar with Lacrosse related movements could be started.

### 1.5 Aim and research questions

The aim of this study is: ‘*To find opportunities (tools), training (training design), to professionalize Lacrosse in ‘developing Lacrosse countries’ such as Sweden and the Netherlands***

a) Which differences can be seen between the American/Canadian versus the Dutch/Swedish approach within Lacrosse?

b) How can position specific training provide extra advantages for different positions in Lacrosse?

Because of the ‘enormous gap’ between performance and approach as it comes to professionalization of Lacrosse is it interesting to find out where the possibilities lie for the ‘developing Lacrosse countries’. Beside this question about the different approach it is interesting to examine the way of training design and the possibilities to perform position-specific training.

### 1.6 Hypothesis

‘How can the Netherlands and Sweden start closing the ‘gap’, between the leading Lacrosse countries USA and Canada’
2. **Method**

The focus during this research lies within several domains. A closer look will be taken to ‘training design’ and development among Lacrosse players, the way of training/practicing within the sport and the approach these ‘developing’ countries have at the moment. All outcomes will be compared to results from the ‘leading’ Lacrosse countries. The method that will be used during this research will be a literature research completed with several interviews in both Sweden and the Netherlands. Beside this method of collection information several professional training exercises will be observed.

2.1 **Characterization of this research/obtaining data**

This research will be performed in cooperation with the Dutch- and Swedish Lacrosse Federations and can be seen as a ‘descriptive research’. The research questions, and additional sub-questions, are characterized as the ‘red-line’ of this research. By choosing for a ‘descriptive research’, quality is more important then quantity.

The opinions from several sources (interviewed persons and evidence-based research) can be seen as the ‘main-source’ providing valuable information. From the perspective of those involved; feelings, knowledge, significant information and experiences will be written down (Baarda, D. 2001, p. 48).

During the writing of this study a combination of ‘desk- and field-research’ is being made. Which means, the procedure of collecting valuable information that will contribute to answering of the several questions. Desk-research will be performed by comparing information found in; online databases, books and articles. These outcomes will be compared and additional information from field-research will be added, hereby ensuring the ‘qualitative aspect’ of this study.

Besides the information that is collected throughout the interviews and observations a literature-search will be performed. Online databases were checked for useful and additional information. The online database ‘SportDiscus’ is used for collecting data. Search words as ‘Lacrosse AND Training’ (407 hits – 7 relevant), ‘Lacrosse AND Testing’ (82 hits – 4 relevant), ‘Lacrosse AND Training AND Design’ (23 hits – 5 relevant), ‘Lacrosse AND
Professionalization’ (0 hits – 0 relevant) were used. For a complete ‘overview’ of the search results see appendix 4.

2.2 Selection

A total of 15 Dutch- and Swedish trainers/coaches were contacted from the database of both Lacrosse Federations, ensuring that the trainers/coaches are active in the first or second league from their country. Four Dutch trainers/coaches and three Swedish trainers/coaches replied and were asked for an interview, by phone a location, time and date were discussed. The interviews were performed in the Netherlands and Sweden and were taped (using a iPhone 3) while being performed on a ‘set location’ (6 interviews were held at the Lacrosse club itself, 1 interview was performed at the home of a trainer in the Netherlands). The tapes were listened and translated and the most important quotes were added to the document ‘labeling interviews’. The interviewed trainers/coaches were given a document-number (# …). When a ‘quote’ of a trainer/coach is used in this paper/research a source is made as follows: (interview # …, 2011) and the quote will be written in italics.

2.3 Procedure

During this study, field-research is being performed, by doing interviews and observations (observation of 1 training in the Netherlands and 1 training in Sweden). By using ‘semi-structured interviews’ seven trainers/coaches were questioned, thereby ensuring that the same questions were being asked to both Swedish (3) and Dutch (4) Lacrosse coaches/trainers. Therefore a ‘standardized interview format’ is made (see appendix 2). Outcomes from the various interviews will be ‘labeled’ to compare the different point of views from the different interviewed persons (see appendix 3). Making sure that the answers from the interviews are correct, a summary of the interviews was sent to each interviewed person.

Besides the format for the ‘semi-structured interviews’ an observation-format is made. This format is used for writing down outcomes from two (2) training-observations that were performed. 1 training in the Netherlands (Nijmegen) and 1 training in Sweden (Stockholm) were being visited. During these visits, the design of the training and the way of performing the training were observed. Results were saved in the document ‘observation-format’.
The Lacrosse federations of the USA and Canada were contacted by e-mail. The contact details came from the federations’ websites. In this e-mail was asked about the development of Lacrosse in both countries. Both federations replied on the e-mail but only the Canadian Lacrosse Federations could provide documents that contributed to this research. In a Skype conversation the ‘aim’ of this study was provided to the Canadian Lacrosse Federation. By mail the document ‘Strategic Plan 2008-2012’ was received from the Canadian Lacrosse Federation. This document was used in the ‘result part’ to explain to current approach of the Canadian Lacrosse Federation.

2.4 Pilot study
Before the actual interviews were performed a ‘pilot interview’ was being held in the Netherlands. Using the same interview format the questions were asked to a Lacrosse player from the Nijmegen team. The interview was supervised by a third, independent person, who gave feedback after the interview. This person provided tips and gave comments about how the interview could be more structured.

2.5 Reliability
While performing this research, the author made sure, that all questions that were asked were the same (semi-structured interview). The outcomes however can change if this research will be performed in a later stadium. Both countries are in a ‘developing-phase’, which means that the current status can be different from the status of Lacrosse in a future prospective. The interviews were all performed at approximately the same time, after 19.00 during weekdays. The location varied, not once was an interview held at the same location.

The interviews in Sweden were performed in English, which could lead to misunderstanding or incomplete answering of the research questions. Interviews that were being held in the Netherlands were performed in Dutch, and later translated to English. By doing this outcomes could be interpreted differently.

If the online databases will be consulted again, for a follow-up research, outcomes can vary as well. With the current development, which can be seen in Lacrosse, it is not unlikely that more research about the sport will be performed. This could lead to more information about
the aim of this study. The way of collecting information throughout online databases is reproducible.

2.6 Validity

By making a ‘search-plan’, for this research about the development of Lacrosse, a well-structured method is ensured. It is important to separate useful and non-usable information; this will provide a certain ‘structure’ while writing this study. In this ‘search-plan’ several preconditions will be made, by ensuring this, the validity will be increased (Baarda, D., 2001, p. ..). See appendix 1 for the complete ‘search-plan’.

When questions were answered with; ‘I don’t know’ the question was formulated differently trying to get a better answer on the question. During the interviews ‘socially accepted’ answers are avoided. The interviewed persons were all interviewed in a ‘save and familiar place’ ensuring the wellbeing of the person. By performing the interviews only with the author and the interviewed person the anonymity is ensured. The anonymity in this research is ensured by creating a ‘source’ in an identical manner; (interview … #, 2011).
3. **Results**

Results are collected from interviews performed in Sweden and the Netherlands. They will be compared with outcomes from information that was collected from the American/Canadian Lacrosse federations. For each interviewed person a ‘labeling’ from the most important and valuable information is made. These ‘labeled-documents’ are provided with a number (#), by ensuring this, statements that were made during the interview by the different coaches/trainers can be ‘checked’ in the appendix 3.

3.1 **Possibilities and opportunities to professionalize Lacrosse**

When a closer look is being taken to how Lacrosse can develop in the Netherlands and Sweden a few statements were made by interviewed trainers/coaches in both countries:

- There has to come more ‘awareness about Lacrosse, more trainers and people involved in the sport should ‘understand’ the sport (interview #1 + #6, 2011)
- The Dutch Lacrosse Federation can get great benefits by becoming a member of the NOC*NSF (the Dutch Olympic Sports Association). This will bring more money into the sport and more publicity (interview #1, 2011)
- Promoting Lacrosse! No players = no sport (interview #2 + #6, 2011)
- Professionalization of the Lacrosse board (in both countries). At this moment the board is formed by people who do not get paid and doing this work beside their regular job/study (interview #1, 2011)
- Start development at an early age (10, 11 or 12) before children have reached the ‘older-teenagers age’. Start youth teams/initiatives, not to form senior players/clubs later on, but to let children get used to playing Lacrosse at a young age’ (interview #3 + #6, 2011)
- Development with neighboring countries (Sweden Lacrosse) to form development and new teams (interview #3, 2011)
- Development of the level of coaching (interview #5, 2011)

As shown in the results quoted by the Swedish- and Dutch Lacrosse coaches is it important to become more structured and more professional. Lacrosse clubs should focus on spreading ‘the passion’ for the sport. ‘At the moment most clubs, in the Netherlands, are university teams
and it takes time for people/clubs to spin-off from university teams to ‘regular-civilian teams’. It is important for these civilian teams to attract passionate trainers and an increase in the number of players/members’ (interview #1, 2011). By attracting well-trained coaches, it might be an idea to get coaches from ‘overseas’. American, Canadian or English coaches should train Dutch and Swedish coaches to prepare them for their job as a Lacrosse coach. Talking with, and train new coaches in the Netherlands or Sweden would help to develop the level of Lacrosse in both countries (interview #2, 2011). ‘When the number of members and coaches increase in both countries it will be harder for the sport ‘to die out’’ (interview #2, 2011).

Once there are over 30 clubs it might be an idea to start with youth Lacrosse. The view on the future of Lacrosse is that the sport will rise or fall with the creation (or not creation) of a youth league. ‘It is of vital importance that the youth (<10 years) will be made aware about Lacrosse and made enthusiastic about the sport as well. If this does not happen, the pool of players will remain at the same level but a subsequent decrease will be inevitable in the future’ (interview #4, 2011).

By starting a youth program, young athletes can adopt on a younger age to Lacrosse related movements (Interview #1, 2011) (important as stated in Devoe’s study).

In Sweden, one team started to work with a ‘developing plan’ for individual players. At the start of the season a ‘career-development plan’ is made together with the head coach and individual athletes of the team (interview #3, 2011).

Another opportunity for the development of Lacrosse in Sweden is that the Swedish Lacrosse Federation should focus on whole of Sweden instead of having a focus on (only) two teams in Stockholm. Besides having the focus on only Sweden and the major cities, an option for the development in Sweden is to cooperate with the other ‘Nordic Countries’ (Denmark, Norway, Finland). By creating a league, and maybe a federation with these countries, the development in ‘Scandinavia’ can go faster (interview #3, 2011).

3.2 Differences between Swedish/Dutch- and Canadian/American Lacrosse AND perfect picture (future)

One of the main aims for this research is to compare the level of Lacrosse in Canada/the USA with the level (and development opportunities) in the Netherlands/Sweden. To make a good
comparison both the American and Canadian Lacrosse Associations were contacted. The Canadian Lacrosse Association provided their ‘Strategic Plan 2008-2012’ (Canadian Lacrosse Association, Ross Ste-Croix). The American Lacrosse Associations did not provide any statistics and/or information about their approach in Lacrosse.

3.2.1 Dutch/Swedish approach in Lacrosse

At this moment the training design in the Netherlands is based on what the trainer/coach thinks what the players are able to perform. ‘It depends largely on what the strength and weaknesses or the team are’ (interview #1, 2011). Sometimes the training is even based on the number of players that are available. However, training should not depend on the number of players. A trainer/coach has to rely on the fact that the number of Lacrosse players is sufficient for a decent Lacrosse training/practice (interview #1 + #2, 2011).

Besides this, there is an enormous difference between the Dutch/Swedish- and the Canadian/American approach; Money (interview #1, 2011). The sport is broadcasted in Canada and America and athletes compete in a professional league, and the number of players competing in Lacrosse is multiple the times of the players in Europe (interview #1, 2011). This is stated by a Swedish Lacrosse coach; ‘They can get players from a country with over 400 million inhabitants’ (interview #3, 2011). Even children can get a full scholarship when they are outstanding (Lacrosse) athletes.

The school system in the US is much more focused on ‘excellence’ since the student/athlete otherwise does not get a place in a team. This means that the competition is much harder, which could lead to a higher level of player performance, the level of coaching will be higher too and subsequently this will raise the level of the sport (interview #4, 2011). Also, children can start playing Lacrosse at a young age. It is easier for them to make ‘the step’ to professional/adult Lacrosse (interview #2, 2011) because they know the ‘basics’ of the sport and how to perform different routines of the sport.

Next to this, the ‘competitive culture’ in the USA is higher than the ‘competitive culture’ in Europe (interview #1, 2011). As mentioned above ‘the competitive culture’ stimulates students to perform on a high level of both sports and education.

Another difference in the development of Lacrosse is noticed by a Swedish trainer (interview #3, 2011): ‘a big difference is that in the USA and Canada one language is spoken.’
Everybody understands each other and knows/sees what they are doing. In Europe the language can provide difficulties, countries look at each other how to develop Lacrosse in their own country. But when there is looked to ‘neighbor countries’ misunderstandings can occur, which can lead to stagnation of development’ (interview #3, 2011).

If a future prospective is made by coaches in the Netherlands they agree on the fact that the Dutch Lacrosse Federation should join the NOC*NSF (Dutch Olympic Committee). By joining this ‘sports federation’ more money will be available. Hereby ensuring the NLB (Dutch Lacrosse Federation) can start projects in the Netherlands to start new clubs. ‘There are people interested, but they cannot do it all alone, the NLB needs to help them’ (interview #1, 2011).

It would be great if the number of players in the Netherlands could be tripled and the number of teams could be doubled. Besides this professional ‘coaching learning projects’ should be developed in the Netherlands and Sweden. Next to above-mentioned future prospects, it would be a great opportunity to start 6 youth-Lacrosse teams. By creating youth Lacrosse teams, the step from not practicing Lacrosse into ‘professional’ Lacrosse will be decreased (interview #2, 2011).

3.2.2 Canadian approach in Lacrosse

In the ‘Strategic Plan 2008-2012’ are the ‘main objectives/values’ written down by the Canadian Lacrosse Association. These objectives/values are: Findings about the current approach in Lacrosse in Canada were collected from this document.

- **Vision:** Lacrosse is nationally recognized as a thriving sport whose athletes are the best in the world
- **Mission:** To promote, develop and preserve the sport of lacrosse and its heritage, as Canada’s national summer sport, by working with our partners, to ensure that opportunities exist for individuals to participate and achieve excellence

The most important long-term objectives of the Canadian Lacrosse Association (CLA) are (for the entire CLA Strategic Plan 2008-2012 the author can be contacted).
• Represent Canadian Lacrosse internationally
• Provide a Long-Term Athlete Development (LTAD) model for lacrosse in Canada
• Facilitate communications and relationships building among Member Associations (MAs)/Associate Member Association (AMAs)
• Develop player, coach, official and volunteer programs for implementation by MAs/AMAs
• Develop, regulate and review playing rules, equipment standards and codes of ethics
• Sanction and provide national competitions
• Monitor and abide/hold on to policies and financial requirements of federal institutions
• Provide exposure and resources to the growth and development of the sport nation wide

Besides the above-mentioned vision and mission the Canadian Lacrosse Association (CLA) respects they also have created the CLA-value ‘Heart’, which stands for:

• Health & Wellness
• Excellence
• Accountability
• Respect
• Teamwork

A strength- and weakness report is created by the CLA. In this part of the ‘Strategic Plan 2008-2012’ the opportunities and are compared with the strengths and weaknesses of the organization (fig. 3).

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
<th>Opportunities</th>
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<tbody>
<tr>
<td>Financial stability &amp; management</td>
<td>Website management</td>
<td>Inclusion of aboriginal children</td>
</tr>
<tr>
<td>Elite athlete &amp; national program development</td>
<td>Following policies &amp; procedures</td>
<td>Grass roots development</td>
</tr>
<tr>
<td>Communication &amp; discussion amongst members</td>
<td>Grass roots development (more support)</td>
<td>Development, growth &amp; promotion of the sport</td>
</tr>
<tr>
<td>Development of coaching &amp; technical materials</td>
<td>Improve communication internally &amp; with community</td>
<td>Stable financial base</td>
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<tr>
<td></td>
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<td>Recruitments &amp; retention of volunteers</td>
</tr>
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</table>
The CLA is responsible for the development of Lacrosse in Canada and is subscribed to the national Canadian sports federation ‘Sports Canada’. Together with ‘Sports Canada’ the CLA has a focus on four ‘domains’, where possibilities occur for the development of Lacrosse. The first domain is ‘the economic-domain’. This domain includes all costs that are made for Lacrosse related programs and development. The 2nd domain, ‘technological’ and has a focus on online- and DVD Lacrosse education. By making use of these educational Lacrosse methods people get used to the rules and participating in Lacrosse. They learn the values of Lacrosse in an inexpensive way. The focus in the 3rd domain is on the ‘social aspect’. How to attract new players, in the busy ‘professional’ live of parents from potential Lacrosse players? The 4th domain, political, focuses on funds for the development of Lacrosse as well as the infrastructure for Canadian people so they can get easily to a Lacrosse club in their neighborhood (Strategic Plan 2008-2012).

### 3.3 Advantages of positions-specific training

Practices are designed according to a standard framework. It is important to have a structured plan, and know what players are capable of performing during training. But the progress of players actually depends for a large extent on their own motivation and input that they are willing to sacrifice for the sport (interview #1, 2011).

It is important to perform position-specific training because each player should understand what he/she should do at his/her position. *'If there is always the focus on training together with the entire team, where everybody has to fill all spots on the field, you’ll never be specialized in one thing’* (interview #2, 2011).

Position-specific training is a good idea and is (partly) performed by the Dutch trainers. However it is not possible all the time to perform position-specific training because the team is not big enough, and there are not enough trainers.

The different exercises are based on what the trainer think the player should be able to perform/understand at the end of the season (interview #1, 2011).
It would be good to separate the team into a defense- and an offence group during practice and provide them different exercises. Then come together again and play against each other (interview #2, 2011).

In Sweden, by a team in Stockholm, position-specific training is partly performed. ‘After the warm-up, which is a few laps around the field follow by stretching and line-drills, the team is divided in an ‘offense-group’ and a ‘defense-group’. Both groups perform exercises that are position-related. At the end of the training/practice the two groups play a ‘scrimmage’ (friendly match) where the different practiced exercises are performed in ‘competitive related situations’ (interview #3, 2011).

3.3.1 Opportunities for position specific-training

In Canada teams develop the skills/capacities of their players by using different exercises. Movements in these exercises are all Lacrosse related which provide advantages for the athlete over ‘regular training methods’. The exercise showed in fig. 4 has the most benefits for offensive Lacrosse players who want to increase their ‘power’ in a shot on goal.

![Walking lunge exercise with weighted hammer](image)

A Lacrosse specific training exercise, with a focus on strength is the walking lunge. By holding a heavy sledge hammer (fig. 4) Lacrosse related movements are trained. This exercise is used to train the ‘shooting/passing motion’. In addition, the heavy hammer is alternately lifted over each shoulder ( fase A, B and C) while maintaining the position used when holding
the Lacrosse stick. In this way, the lower body can be trained while, at the same time, athletes can build strength in the shoulder and torso muscles required for efficient throwing. A training progression has been devised that consists of multiple sets of lunges between 10 – 15 yards carrying heavy hammers of varying weights (2 – 4.5 Kg) (Pistilli et al, 2008, p. 34).

Another of Pistilli’s (2008, p. 31-38) Lacrosse specific training exercises is ‘the inclined hitting wall’. The athlete swings a sledge hammer (fig. 5) and attempt to hit the painted spots on the face of the hitting surface, while paying close attention to the mechanics of the Lacrosse swing. The objective of this exercise is to use the weighted hammer to provide additional resistance during the lacrosse swing, while maintaining as closely as possible the natural mechanics of the swing. This motion should include maintaining control of the weighted hammer during the deceleration phase of the swing (just before hitting the wall). In addition, heavier hammers can be used to strengthen muscles while lighter hammers can be used to increase power and velocity in the motion. During a typical training session, athletes swing hammers from 2 – 4.5 Kg for multiple sets of 15–20 repetitions (Pistilli et al, 2008, p. 36).

Both exercises, explained above (fig. 4 + fig. 5), are exercises that have benefits for all Lacrosse players, but for offensive Lacrosse players in particular. The exercises focus of the pass or a shot. Pistilli (2008, p. 31-38) has several other Lacrosse specific exercises (Sport specific strength training exercises for the sport of Lacrosse).
The Canadian Lacrosse Federation provided an ‘overview’ for position-specific training. The CLA created a Long Term Athlete Development-plan for Lacrosse and Lacrosse athletes. This structured training design divides training into three separate parts. An offensive-, defensive- and goaltender part provide specific training methods for specific positions in a Lacrosse team.

Fig. 6: Position specific training (CLA, 2011)

The training design that is shown in fig. 6 is a well structured training design wherein clearly is showed on which ‘specific part’ can be trained (CLA, 2011). Besides this ‘overview’ there are several studies/articles about ‘Lacrosse specific training methods’. In the study of Morrill (1980, p. 26-28) ‘weight training for Lacrosse’ is explained what kind/type of strength training can be performed in which period/time of the season. In both the Netherlands and Sweden strength training is performed by the athletes themselves, not by structured training designs.

Agility and speed training is sometimes performed during training in the Netherlands. Showed during the observations, a team in the Netherlands performed one speed/agility related exercise. By using a ‘ladder’ offensive- and defensive footwork was trained. When a closer look is being taken to the studies of Devoe (2006, p. 60-61 & 2007, p. 53) several
speed- and agility exercises are explained. The exercises are related to different positions in the team, both defensive- as offensive exercises can be performed, where in the Netherlands only one exercise was performed together with the whole team (not positions specific) (Devoe, 2006, p. 60-61).

‘We believe that in Lacrosse and Hockey, our two National Games, we have the best moral, physical and mental developers of any games known to the athletic world’

A.E.H. Coo, President 1st Canadian Amateur Lacrosse Association April 12, 1926
4 Discussion

The aim of this study is: ‘To find opportunities (tools), training (physical- and training design), to professionalize Lacrosse in ‘developing Lacrosse countries’ such as Sweden and the Netherlands.

Next to the aim of this research, two research questions were added:

a) Which differences can be seen between the American/Canadian versus the Dutch/Swedish approach within Lacrosse?

b) How can position specific training provide extra advantages for different positions in Lacrosse?

4.1 Possibilities and opportunities to professionalize Lacrosse

There are a lot of opportunities and possibilities to start professionalizing Lacrosse in both Sweden and the Netherlands. Some of the ‘steps that should be taken’ are already taken by the Dutch Lacrosse Federation; they joined the NOC*NSF (which was mentioned as opportunity in interview #1, 2011). This will provide the sport of Lacrosse several, serious opportunities to professionalize the sport and thereby take a step towards closing the ‘gap’ with Canada and the USA.

Besides extra money, there will come more awareness about the sport (Interview #1 + #2 + #5, 2011). By getting more ‘awareness’ players, coaches and trainers are given the opportunity to compete Lacrosse of a higher level. Coaches and trainers can be educated and thereby the level of Lacrosse players is the Netherlands could rise (interview #2 + #5, 2011).

Unfortunately, the Swedish Lacrosse Federation is still ‘struggling’ (interview #3 + #6, 2011). As written in the study of Pistilli (2008, p. 31-38) coaches could start with structured, position specific Lacrosse training. These methods could lead to better performance of Lacrosse athletes in Sweden and the Netherlands. A more detailed description is given in paragraph 4.3 at page 36/37.

However, every good idea was mentioned by one of the Swedish Lacrosse coaches during an interview. A joint effort of the Nordic countries could help by de development of Lacrosse in Scandinavia (interview #3, 2011). At the moment there is only a ‘focus’ on a few clubs in Sweden and not on the whole country. It would be interesting to perform a research in the
other ‘Nordic countries’ to examine the possibilities of this joint effort (interview #3 + #6, 2011). A similar idea was performed in the Netherlands in 2007 when the Belgian Lacrosse Federation one year played in the Dutch competition and thereby ‘learned by joining’ another federation.

Besides the ideas about starting a Nordic Federation both countries agree on the fact that Lacrosse has to become a ‘youth sport’ as well (interview #1 - #7, 2011). In both Sweden and the Netherlands people can start playing Lacrosse on the age of 16. When these athletes start playing Lacrosse, they directly play against players from an older age and a different level/experience within the sport. It is hard to fulfill full training for youngsters while they play against players who are much stronger, faster and more secure with the stick handling. By training Lacrosse related movements, and start competing against other youth initiatives young Lacrosse players can get used more easily to the sport. These ideas are supported by Devoe (2009, p. 64).

Last, but certainly not least. The level of coaching must rise in both countries. Trainers and coaches now collect their knowledge about the game throughout Internet and books. But the knowledge of the coach/trainer affects the level of the athletes (Rowbottom, D., 2000, p. 499). Rowbottom (2000, p. 499-512) writes in his article; ‘Periodization of training’ about the influence a trainer/coach has on the development of athletes. Smith (2003, p. 1103-1126) confirms these theories in his research about training process that leads to elite performance. There are no known initiatives about coaching educations in Sweden and the Netherlands. As mentioned in the first phrase, a certain kind of ‘coaching development plan’ should be created. Coaches from the USA and Canada, as well as coaches from England, could fulfill an important role in this search for development. The Canadian Lacrosse Federation uses the LTAD-model (Strategic Plan 2008-2012) to develop the skills and abilities from players, coaches and referees. By using a structured ‘guide way’ trainers and coaches could get an education-plan to develop their level/skills in giving Lacrosse training.
4.2 Differences between Swedish/Dutch- and Canadian/American Lacrosse AND perfect picture (future)

When a closer look is being taken to the Canadian and American approach (Strategic Plan 2008 – 2012) in Lacrosse it shows that Sweden and the Netherlands still have a long way to go. The intentions in both countries, for developing the sport are present, but how to develop the sport is yet ‘unknown’ and/or unsure for both federations (interview #1 + #4, 2011). There are a few good ideas and initiatives among the coaches and trainers in the Netherlands and Sweden but for this moment it stays by ‘future prospective’. The knowledge in both countries, how to successful start professionalizing the sport is not yet ‘known’ by the persons who are responsible for this procedure. When a comparison is made for both countries (Sweden and the Netherlands), the outcomes from the interviews show that the Netherlands are ‘ahead’ in their search for professionalization. The first step, from having the intention to develop, is made. Sweden is still in this phase and has to start ‘putting ideas into action’.

The Dutch Lacrosse Federation is recently subscribed to the NOC*NSF (Dutch Olympic Sports Federation). Some of the coaches mentioned in the interviews that it was important for the development of Lacrosse to join this organization, to get professional aids and help (interview #1, 2011). Around the 20th of November 2011 the Dutch Lacrosse Federation was submitted to the NOC*NSF (www.nocnsf.nl) which provide the Lacrosse Federation serious opportunities to develop there sport in the near future. More publicity and money for the sport Lacrosse are some of these possibilities; maybe even a youth initiative (Devoe, 2009, p. 64-65) can be realized or the federation (interview #1 + #2 + #5, 2011), can start with training- and education programs for coaches on a professional level (interview #2 + #5, 2011).

When the current development in the Netherlands is compared to the status of Lacrosse in Sweden a difference can be noticed. In Sweden the focus of the Sports Federation is not on the entire country but on several teams/clubs. ‘In our country we really need to communicate better among the clubs. If a joint effort is made, instead of many small ones and these efforts would be executed at the same time, would this contribute to the development of Lacrosse in Sweden’ (interview #3 + #6, 2011). As long as there is no ‘coherence’ it will be hard for Sweden to develop Lacrosse in to a better-structured sport.

The results from the interviews showed ideas for creating a ‘Nordic Lacrosse Federation’ instead of three separate federations (Denmark, Norway and Sweden). By combining their
knowledge and efforts a better-structured development plan could be realized (interview #3, 2011). By starting a ‘joint effort’ a ‘stronger’ federation could be developed. A stronger federation could lead to better-structured guidance for new or existing Lacrosse teams which in that case could lead to better structured teams with better ways of developing Lacrosse training and know-how.

Another difference that is mentioned several times by the coaches is about money, and the ‘pool’ of players which can be chosen from. When Lacrosse in Sweden/the Netherlands is compared to Lacrosse in the USA/Canada a huge difference in the amount of money available (Strategic Plan 2008 – 2012). In the USA/Canada Lacrosse athletes either get a scholarship (free studies) or get paid for playing Lacrosse in a professional league. The approach in the structured way of training is a difference between the ‘developing-‘ and de ‘leading’ Lacrosse countries as well (CLA, 2011). The club or Federation covers Jerseys, protection and costs for traveling to game days/matches. In contrary, Lacrosse athletes in Sweden and the Netherlands have to pay for playing Lacrosse and are not provided with team-equipment, neither the costs are covered for traveling to league matches.

Besides the lack of money in both countries, the ‘pool’ of Lacrosse athletes is not (yet) sufficient. Where in the USA and Canada young children are getting ‘familiar’ with playing Lacrosse (Devoe, R., 2009, p. 64-65) and start with practicing Lacrosse related movements the youngsters in Sweden and the Netherlands have no option to play Lacrosse at a young age. Both Federations allow children to start playing Lacrosse at the age of 16. In the document ‘Strategic Plan 2008 - 2012’, provided by the Canadian Lacrosse Federation, the importance of start playing Lacrosse on a young age is mentioned. The Long Term Athlete Development-Plan is mentioned. Children start to get familiar with playing sports (in this case Lacrosse) around the age of 4. By following this ‘path’ a big advantage over other countries is created.

4.3 Advantages of positions-specific training

When training designs (observation of several Lacrosse training) and position specific training are being examined (Pistilli et al, 2008, p. 31-38) and compared, another difference occurs. In both Sweden and the Netherlands the intention for position specific training is noticed, but trainers/coaches do not precisely know how to perform these kind of training.
The trainers do not have the knowledge about which exercise could provide benefits for a specific position. The importance of the influence of trainers/coaches is mentioned in the studies of Rowbottom (2000, p. 499 – 510) and Smith et al (2003, p. 1103 – 1122). The training methods from Pistilli et al (2008, p. 31-38) that were provided by the Canadian Lacrosse Federation are not known in both Countries. Besides the lack of knowledge about position specific training, the trainers/coaches in Sweden and the Netherlands are depending on the number of players. Position specific training cannot be performed because if the insufficient number of players (interview #1, 2011). Hereby the conclusion can be made that in Sweden and the Netherlands the trainer/coach are depending on the number of players’ participating at a Lacrosse practice. In the USA and Canada the players depend more on the trainer/coach and the position specific exercise, because of the sufficient number of players participating during a Lacrosse practice.

Burger (2006, p. 20-27) states in his article ‘A preseason resistance training program for men’s Lacrosse’ that there has been a lack of specific training programs for the sport. Clearly is shown that this is still the case in both the Netherlands and Sweden, as was shown in the interviews that were being held. However there are opportunities to start with position specific training programs, the theory exists, but is not yet known by trainers and coaches in Sweden and the Netherlands. These specific training methods are provided in several studies that were examined during this research. The studies of Rowbottom (2000, p. 499 – 510), Smith et al (2003, p. 1103 – 1122), Morrill (1980, p. 26-28) and the studies from Devoe (2006, p. 60-61 & 2007, p. 53) provide serious opportunities to start with Lacrosse specific training methods.

4.4 Conclusion & reflection on hypothesis

When a reflection is made to all three main subjects/research questions a conclusion can be made; the will to professionalize is present by both countries/federations but these plans should be concretized.

Other, more structured ways of training design, such as position specific training, could lead to an increase of the level of Lacrosse. And thereby maybe decreasing the ‘gap’ between the level of Lacrosse in the ‘leading’ Lacrosse countries.
4.5 Generalizability

In this research the population of interviewed people might not be sufficient. During the interviews 3 Swedish- and 4 Dutch coaches were asked about their opinion about developing the level of Lacrosse in both countries. The answers that were provided by the interview persons are however useful because it is the opinion from people involved in the development of Lacrosse that were given. In the Netherlands there are almost 20 teams, which normally indicates that there will be at least 20 trainers. In Sweden (approximately) 10 teams are being active on the highest Lacrosse level. This means the in total at least 30 coaches/trainers could be asked about their thoughts about the development of Lacrosse.

Besides the number of interviewed trainers/coaches the part about the approach in Lacrosse in the USA and Canada is written from a ‘wrong’ prospective. The prospective that is used is the prospective about how Sweden and the Netherlands ‘see’ the American/Canadian approach. Besides the information from the Strategic Plan 2008-2012 no data was collected/provided by the involved Lacrosse federations.

4.6 Follow-up research

In future or follow-up research a more precise analysis should be made about the Lacrosse Federations of Sweden and the Netherlands. Because of the constant changes in both countries it is hard to form a ‘steady starting point’ where a reliable research can be written for. Next to these constant changes/moving (and maybe development) the research about Lacrosse specific training is not sufficient for the number of participants in the sport. Although the sport is one of the oldest in the world, the ‘lack’ of research still is a problem for the development of the sport.
References


Appendix
Appendix 1: Structured search plan

<table>
<thead>
<tr>
<th>Main aim of the research</th>
<th>Professionalization, development, Lacrosse, comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relevant terms</td>
<td>Developing, training design, possibilities, professionalization</td>
</tr>
<tr>
<td>For writing this research is xx – hours counted</td>
<td>25 to 30 hours a week during the research period</td>
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<tr>
<td>For writing this research is xx- hours counted</td>
<td>25 to 30 hours a week during the analyze period</td>
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<tr>
<td>For making costs related to copies, traveling, etc. is xx- budget given</td>
<td>There is no given budget</td>
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<tr>
<td>Information that is used during this research is not older then</td>
<td>Not before 1960</td>
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<tr>
<td>Characteristics of this research are</td>
<td>Relevant, reliable, validity</td>
</tr>
</tbody>
</table>
| Relevant used books are | Basisboek kwalitatief onderzoek (Baarda, de Goede & Teunissen)  
Het ontwerpen van een onderzoek (Verschuren & Doorewaard)  
A History in Lacrosse (Fisher) |
| Relevant websites that were used are | www.sportdiscus.com, www.gih.se/bibliotek  
www.scholar.google.nl, www.books.google.nl |
| Relevant experts and institutes are | Hogeschool Arnhem en Nijmegen  
Gymnastik och Idrotthögskolan |
| Relevant libraries are | Gymnastik och Idrotthögskolans Bibliotek |
| Relevant documents are | Strategic Plan 2008 - 2012 |
| Most important writers during this research | D. Fisher, G. Rowbottow, D. Smith, Pistrilli et al, D.B Baarda, M.P.M. de Goede. |
Appendix 2: Standardized Interview Format

<table>
<thead>
<tr>
<th>Introduction of subject</th>
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<tbody>
<tr>
<td>• Introduction of myself and the to be written thesis</td>
</tr>
<tr>
<td>• Interview about the development of Lacrosse in Holland and Sweden</td>
</tr>
<tr>
<td>• ‘Status’ of Lacrosse in Holland and Sweden (developing Lacrosse countries)</td>
</tr>
<tr>
<td>• ‘Status’ of Lacrosse in Canada and USA (leading Lacrosse countries)</td>
</tr>
<tr>
<td>• Different ‘needs’ (professionalization) in Lacrosse (Sweden/Holland)</td>
</tr>
<tr>
<td>• Introduction of research subject and research questions</td>
</tr>
</tbody>
</table>

‘To find possibilities and opportunities (tools), for example testing and training (physical- and training design), to professionalize Lacrosse in ‘developing Lacrosse countries’ such as Sweden and Holland’

Which differences can be seen between the American/Canadian versus the Dutch/Swedish approach within Lacrosse?

Does position related training provide extra advantage for different positions in Lacrosse?

<table>
<thead>
<tr>
<th>1. Can you describe how a standard training looks like?</th>
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<tr>
<th>2. Where do you base your training on?</th>
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<tr>
<th>3. How do you make sure that there is ‘development/progress’ among your players in your training?</th>
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<tr>
<th>4. What do you think about ‘position related training’? And do you use it?</th>
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<th>5. What kind of training designs do you use to train your team (structured training designs)?</th>
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<tr>
<th>6. What do you think, is most important, to develop Lacrosse in Holland/Sweden?</th>
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<tr>
<th>7. Where do you think, lay possibilities for more structured and professional approach within Lacrosse in Holland/Sweden?</th>
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<tr>
<th>8. What is the biggest reason, do you think, why USA/Canada are so far ‘ahead’ when it comes to the professionalization of Lacrosse?</th>
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<tr>
<th>9. Describe your ‘perfect picture’ about the development of Lacrosse in the upcoming 5 years</th>
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</table>
Appendix 3: Labeling of the interviews

<table>
<thead>
<tr>
<th>Possibilities and opportunities to professionalize Lacrosse</th>
<th>Differences between Swedish/Dutch- and Canadian/American Lacrosse AND perfect picture (future)</th>
<th>Advantages of positions-specific training</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘More trainers, people that really understand the sport’</td>
<td>‘We base our training on what we as trainers think our members have to be able to do/understand at the end of the year. What is done in training depends largely on what the strengths and weaknesses of our team are’</td>
<td>‘I make my training schedules according to a standard frame-work’</td>
</tr>
<tr>
<td>‘More awareness about Lacrosse’</td>
<td>‘Sometimes we base it on the amount of players we have available, because the turn-up is sometimes pretty bad’</td>
<td>‘By having a big plan of what they should be able to do and making sure people actually come to training’</td>
</tr>
<tr>
<td>‘Our stupid NLB has to become a member of the NOC*NSF. Every sport should try to join a large organization. This will bring money and credibility to the sport’</td>
<td>‘One word: MONEY’</td>
<td>‘Whether they actually progress depends on the time they put in the sport. We teach them everything they need to know’</td>
</tr>
<tr>
<td>‘Clubs should not focus on winning and being very strict on members. There is no money in the sport, no reason to win anything (I mean, who cares if you’re first in a league of just 6 teams, right?). Instead clubs should focus on their members and make sure people WANT to be a member of a lacrosse club. Have fun and attract members. Create a sort of family-culture in the club’</td>
<td>‘People watch the sport there. There’s money in it. So naturally there will be a professional league’</td>
<td>‘It’s a good idea and in some drills we certainly do that. Like for attackers and close defenders. However it’s not possible to divide the team up and train with specific groups because the team is not big enough and we don’t have enough trainers’</td>
</tr>
<tr>
<td>‘1. The NLB becoming a member of the NOC*NSF 2. The NLB board should be paid professionals, not students 3. The NLB should invest in the sport’</td>
<td>‘In Europe there is not as much money in sports as in the US, so you can’t compare the two. In the US kids can get full ride scholarships when they are good at sports. So it’s not just a recreational activity for these kids. Their future can depend on it. In the US they have a much more competitive culture. We don’t have it here. People play sports for fun’</td>
<td>‘We base our training on what we as trainers think our members have to be able to do/understand at the end of the year. What is done in training depends largely on what the strengths and weaknesses of our team are’</td>
</tr>
<tr>
<td>This is the only way of becoming more structured and professional. Clubs should not focus on being professional. They should focus on spreading the passion for the sport and making sure their members have fun. I think all the other measures are short-term solutions. Now most of the clubs are university teams. It takes time</td>
<td>‘The only sport that has any money in it is football and naturally it’s the biggest sport here’</td>
<td>‘Sometimes we base it on the amount of players we have available, because the turn-up is sometimes pretty bad’</td>
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<tr>
<td>‘Spin off members from university teams start regular clubs’</td>
<td>‘Spin off members from university teams start regular clubs’</td>
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</tbody>
</table>
to have people spin off from these clubs and start regular ‘civilian’- lacrosse clubs. Then these clubs need to attract passionate trainers and grow in members. Once we have more then 30 clubs and Lacrosse as a broad base in the Netherlands, we could start by forming youth-teams. But this is now impossible and the sport/clubs doesn’t have responsible adults that will be able to handle little kids yet’

Labeling Interview #2: Dutch Lacrosse coach

<table>
<thead>
<tr>
<th>Possibilities and opportunities to professionalize Lacrosse</th>
<th>Differences between Swedish/Dutch- and Canadian/American Lacrosse AND perfect picture (future)</th>
<th>Advantages of positions-specific training</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Experience during the years and practices with the Orange Wave (project team of the Netherlands) and the try-outs of the Dutch National Team’</td>
<td>‘The number of players they’ve got’</td>
<td>‘By making the exercises tougher than the last training. Being strict on already know techniques. If anyone makes mistakes concerning basics of stuff I thought them the previous trainings, I’ll stop the exercise, make a comment about it, let the training continue and if the pick up my comment, no problem. Otherwise I’ll stop the exercise and go back with explaining their ‘mistakes’. If only one or two people can’t keep up with the drill, I’ll explain them what to do in private and let the exercise continue’</td>
</tr>
<tr>
<td>‘Promoting for lacrosse! No players = no sport’</td>
<td>‘Also being able to play lacrosse at a young age is a great way to become so far ahead. But do realize the USA en Canada practice lacrosse for over at least 40 years, while lacrosse in Holland exists for only 10 years’</td>
<td>‘I think it’s important, the fact that you need to know everything about your own position. If you always practice stuff with the entire team, where everybody has to fill all spots on the field, you’ll never be specialized in one thing. My trainings are more focused on defense, for I’m a defender myself and know most about that in’</td>
</tr>
<tr>
<td>‘If you got enough players, you should make a board to control/help the upcoming teams in the entire country. The board needs to be up for the task for at least 3 years; this way there’s a solid base for the sport to develop on its own, in several cities’</td>
<td>‘Tripling the number of players. Doubling the number of teams. Having great coaches or learning-projects for coaches. Having 6 youth-lacrosse clubs’</td>
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<tr>
<td>‘Developing lacrosse further in Holland, we should keep the focus on promoting the sport, getting more players to join and extend lacrosse to more cities and getting more teams in cities’</td>
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<tr>
<td>‘Once you’ve got 1000 people who play lacrosse, it’s hard for the sport to ‘die’. There will always be volunteers for a new board, a new club or a new team’</td>
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<tr>
<td>‘Try getting a national team and some great trainers from</td>
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</table>

By making the exercises tougher than the last training. Being strict on already know techniques. If anyone makes mistakes concerning basics of stuff I thought them the previous trainings, I’ll stop the exercise, make a comment about it, let the training continue and if the pick up my comment, no problem. Otherwise I’ll stop the exercise and go back with explaining their ‘mistakes’. If only one or two people can’t keep up with the drill, I’ll explain them what to do in private and let the exercise continue’
the US, Canada or Great-Britain, this way lacrosse is sure to develop for a few decades’
‘After 10 years you should give some attention to the youth who would like to play lacrosse as well, and try to start some youth-lacrosse clubs’

‘More coaches. From the US, Canada and Great Britain, but also train coaches in Holland. If there are a lot of great coaches, letting them discuss with each other will result in more structured and professional approach within lacrosse’

comparison with Hans, who focuses on offence (we switch trainings every week). In exercises I’ll explain the importance of defense and what you should look at during the exercise’
‘I would like to be able to split defense en offence during the training, give them separate exercises and in the end let them join and train against each other’

Labeling Interview #3: Swedish Lacrosse coach

<table>
<thead>
<tr>
<th>Possibilities and opportunities to professionalize Lacrosse</th>
<th>Differences between Swedish/Dutch- and Canadian/American Lacrosse AND perfect picture (future)</th>
<th>Advantages of positions-specific training</th>
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<tbody>
<tr>
<td>‘The head coach has started a 15 min. career- and development time for each player. I’d like to start the same before summer break next year’ ‘Start development at an early age before older-teenagers (10, 11 or 12). Build youth teams on their own needs not to form senior players/clubs’ ‘Start and recruit every year in the same club and new clubs. At least 3 years of recruiting will make a huge difference’ ‘The national association needs to reflect all of Sweden and deselect the two clubs running the association at the moment into running just national team and Swedish Championship with a different address then Gubbängen; Stockholm’ ‘Development with</td>
<td>‘If the national team and development of new teams and new varieties of lacrosse develop that will lead to a wider picture of clubs, lacrosse played in new ways and by new people’ ‘The National associations can't run it all. It must divide the work with the clubs, organizations and individuals that are able to do it but in the same time monitor and audit everyone with a public responsibility regardless of position or persons’ ‘Time and the amount of people as base with the same language English. Europe is like a quilt and patched and influence by each country, it's culture and people’ ‘Money; the clubs excite and work with 400 million inhabitants as a base in a free market’ ‘Start of a new club in a town each year or each two years. Form and develop youth teams in Gothenburg, Stockholm and a third town both girls and boys’</td>
<td>‘Warm up, a few laps around the field followed by stretch- and line drills. After line drills divide into offence and defense. Fast break, clear and ride. 6 vs. 6 or 5 vs. 5’ ‘Attack: man up and defense: man down’ ‘Game, scrimmage and practice game if there are enough players’ ‘Experience and history with the same parts as trained before but with new ideas like; how to shoot, techniques, how to cradle, fake, and how to play man-man defense’</td>
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</table>
neighboring countries to form development and new teams next to Oslo/Karlstad. Try to establish lacrosse in Uppsala, Gävle Umeå, Falun, Östersund’

Labeling Interview #4: Dutch Lacrosse coach

<table>
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<tr>
<th>Possibilities and opportunities to professionalize Lacrosse</th>
<th>Differences between Swedish/Dutch- and Canadian/American Lacrosse AND perfect picture (future)</th>
<th>Advantages of positions-specific training</th>
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<tr>
<td>‘My view on the future is that Lacrosse will rise or fall with the creation (or not creation) of a youth league. It is of vital importance that the youth (&lt;10 years) will be made aware about lacrosse and made enthusiastic. If this does not happen, the pool of players will first remain constant but a subsequent decrease will be inevitable. Hence, if no youth lacrosse league will be founded these could be the golden age and will be followed by a small group of people who will remain playing but without any real future’</td>
<td>‘Lacrosse has been a sport in the US for many more years. However, also in the last decades it has been growing in the US. Canada, when looking at field lacrosse is a bit behind the US but gain a lot of knowledge by students studying in the US. Furthermore, the school system in the US is much more focused on excellence since you otherwise don’t get a place (this is not a hail to the system just an observation). This means that the competition is much harder and this will lead to a higher level of play and of coaching and subsequently of the sport’</td>
<td>‘A typical training will consist of a warming up with subsequent stretching to get the body warmed up. After this start usually line drills or triangle drills are done to practice passing on the run. This is followed by some team play (e.g. defensive sets) and at the end if time permits it a scrimmage can be held’</td>
</tr>
<tr>
<td>‘My opinion is that the national federations should strive for the highest form of professional Lacrosse, however, without resorting to rules that have only a ceremonial meaning (e.g. refs should wear the right pants and hats). It should be important to let this be gradual process over many years, without rushing it. So being lenient with some of the rules is paramount. However, not too lenient but every year a bit more professional’</td>
<td>‘A growth in the number of teams that would make it possible to form 3 leagues. One top league (seeing the level difference in the first league at the moment). A second league for teams that have been playing but aren’t good enough to compete. And a third league for new teams, where they can get experience on their own level. Furthermore, the formation of a youth league, to ensure the continuation of this great sport in our countries’</td>
<td>‘The level of the players that are attending and the points that have been noticed in previous games’</td>
</tr>
<tr>
<td>‘A sport needs to become professional not look professional!’</td>
<td>‘Gradually increasing the difficultness of the different exercises if it is noticed that it is going too fast the level can be adjusted accordingly’</td>
<td>‘I like the idea of this concept, however, everybody should know defense so this is given the most attention. Furthermore, offensive trainings only have a use when the level of players is sufficiently high, thus at the moment only in defense’</td>
</tr>
<tr>
<td>‘Summarizing, the biggest possibility is to promote a more professional atmosphere</td>
<td>‘Gradually increasing the difficultness of the different exercises if it is noticed that it is going too fast the level can be adjusted accordingly’</td>
<td>‘I like the idea of this concept, however, everybody should know defense so this is given the most attention. Furthermore, offensive trainings only have a use when the level of players is sufficiently high, thus at the moment only in defense’</td>
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Without wanting to look professional’

<table>
<thead>
<tr>
<th>Possibilities and opportunities to professionalize Lacrosse</th>
<th>Differences between Swedish/Dutch- and Canadian/American Lacrosse AND perfect picture (future)</th>
<th>Advantages of position-specific training</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘I think there are two opportunities; development of coaching and starting a youth competition’</td>
<td>‘I decide what to do by choosing exercises from the Orange Wave and from other National teams’</td>
<td>‘I work with a structured plan. What do we want to achieve with the team. We discussed this with the team and together with the training staff. Together we made our goals for the upcoming weeks’</td>
</tr>
<tr>
<td>‘Coaches should get a professional status and should be trained as a professional coach by other coaches’</td>
<td>‘I use books from American Lacrosse coaches about tactics and game understanding’</td>
<td>‘For example with defensive training, I like to make progress on several disciplines; who has the ball? Who is the slide? And who is the open-man? Sometimes these exercises are complicated, but it has not be fulfilled at once. If players don’t understand it we start over. It is important that my players learn how to ‘read’ specific moments in a game’</td>
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<tr>
<td>‘Right now it is not allowed for youth players to compete in the competition’</td>
<td>‘There is a great difference in the level of our players. We just started a second team. Both of the trainers did not know exactly what to do. We started training together, but the ‘old’ players did not get better of it. So we split the team’</td>
<td>‘Sometimes I have a lot of exercises in my head, but sometimes they don’t work out during training. Then I stop these specific exercises and try something else. I will come back to it during a later training’</td>
</tr>
<tr>
<td>‘It would be an opportunity to start a youth competition. I don’t know if it is an option right now, but the Lacrosse Federations should work about it’</td>
<td>‘Only the scrimmage is mixed with both teams, so players can learn from each other’</td>
<td>‘I think position specific training is important. Every player has his most favorite positions. But I want all my players to know what to do when they are on a position that is not their own. This means, sometimes a defensive player has to take the place of an offensive player, he/she has to feel comfortable on that position’</td>
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<tr>
<td>‘It is not only important for coaches to provide players with different exercises, but it is also important who to learn the players who to perform an exercise. How can I train my players in the best way so that they all understand what is needed?’</td>
<td></td>
<td>‘Defensive; focus on footwork, without the stick. Focus on how to position your body’</td>
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</table>
Midfield; offensive and defensive training. Focus on sprinting and endurance. The whole team is included in these exercises but they are most important for the midfield players.

‘Offensive; dodges and stick-skills. Besides this how can I create spaces for teammates?"

Labeling Interview #6: Swedish Lacrosse coach

<table>
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<tr>
<th>Possibilities and opportunities to professionalize Lacrosse</th>
<th>Differences between Swedish/Dutch- and Canadian/American Lacrosse AND perfect picture (future)</th>
<th>Advantages of positions-specific training</th>
</tr>
</thead>
</table>
| ‘PR! We need to market our self and really be visible to a big audience. Junior players are really important as well. One of the biggest problems we do have in Sweden is that we don’t have enough leaders that really know the sport. About Holland I don’t know about their situation’ | ‘From time to time I try to look up new drills on the internet, mostly from USA’

‘Last year I really focused on taking some of the drills to a new level by playing them in match tempo and in realistic settings. Because lacrosse is a small sport in Sweden, making sure that people stay fit is difficult. During winters we usually go out running’

‘They have played for such a long time. In Sweden all clubs except Lund are not based in schools. In America they play really hard during high school and college but then they usually stop playing after. Because there aren’t a lot of big cities in Sweden as well we need to develop strongholds in our big cities’

‘As I said earlier I wish for a joint effort. Making it more common in schools and to have the teachers taught how it’s played. Some kinds of good PR making more people realize why they should give lacrosse a chance’ | ‘First we start up with a little bit of light running and then we stretch. After that we start various line drills and warming of our goaltender. Depending on what focus we look for on that particular practice, we do either technique drills or some kind of game tempo drill’

‘Usually before we play 6 vs. 6 we’ll have a short briefing on defending and attacking’

‘Then we play match for an hour or so. Sometimes we do sprint at the end of practice’

‘I try to see individual players and their needs. I also try to play simultaneous drills with different type of players such as midfielders and defenders. From time to time I try to look up new drills on the internet, mostly from USA’

‘I try to look on each individual. A couple of times each year I set up personal meetings with each player and we talk about their progress and role in the team’

‘I use it a lot during practices. Lacrosse is a game with many roles to play. Each position is important to practice’ |
<table>
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<tr>
<th>Posibilities and opportunities to professionalize Lacrosse</th>
<th>Differences between Swedish/Dutch- and Canadian/American Lacrosse AND perfect picture (future)</th>
<th>Advantages of positions-specific training</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘To get in on the junior level to get both children and parents interested and involved in the game’</td>
<td>‘Our situation does not really allow us to make much progress on the player level. We have a constant stream of newcomers and at the same time people leaving’</td>
<td>‘Line drills, breaks as warm up. 1 vs. 1 drills; 1 defending 1 going on offence across the hall/field switching tasks at each turn. Passing and game play drills with the whole team. 1 vs. 1, the 2 race to the ball, the 1 who gets the ball is on offence the other on defense. Scrimmage; often 4v4 5or v5 games w/o goalie, sometimes street-version of game play’</td>
</tr>
<tr>
<td>‘I believe reaching out to schools in larger cities and providing a base for younger players to get the right information concerning the sport and the opportunity to start playing at a beginner level with people their own age’</td>
<td>‘The obvious reason is that people know what the sport is and many high schools have their own lacrosse teams. In Sweden there is no kind of “high school” team in any kind of sport, so the more well known sports can maintain their grip on team based sports’</td>
<td>‘Our team is not that big so we cannot really divide our players in a meaningful way. The only time we do this is when we have defensive and offensive theory and mock 5 vs. 5 play’</td>
</tr>
<tr>
<td>‘The perfect picture would be that we got a big sponsorship from gear producers as brine, warrior and so on, and that we get a couple (10) junior teams with engaged and driven parents who can help managing the teams. This is why all other sports in Sweden is managing to grow, all the parents and involved people who work tirelessly without any pay, in lacrosse we don’t have that resource since more than 50% of the players in Sweden are between 18 and 30 and most are students’</td>
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<td>‘Man man defense on offence we just go through 5v4 theory’</td>
</tr>
</tbody>
</table>
Appendix 4: Overview search results

What?
Which ‘search words’ are used?

<table>
<thead>
<tr>
<th>Search word</th>
<th>Synonym</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lacrosse, training, training design, professionalization, development, physical</td>
<td>Exercise, professionalize, needs, skills, develop, develops</td>
</tr>
</tbody>
</table>

Why?
Why is chosen for these words?
The focus of this research is the professionalization of Lacrosse. Besides professionalization the focus will be on training design and testing. By searching on these related ‘words’ information will be collected.

How?
How are databases being searched?

<table>
<thead>
<tr>
<th>Database</th>
<th>Search words</th>
<th>Hits</th>
<th>Relevant hits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SportDiscus</td>
<td>Lacrosse</td>
<td>7,367</td>
<td></td>
</tr>
<tr>
<td>SportDiscus</td>
<td>Lacrosse AND Training</td>
<td>407</td>
<td>7</td>
</tr>
<tr>
<td>SportDiscus</td>
<td>Lacrosse AND Testing</td>
<td>82</td>
<td>4</td>
</tr>
<tr>
<td>SportDiscus</td>
<td>Lacrosse AND Training AND design</td>
<td>23</td>
<td>5</td>
</tr>
<tr>
<td>SportDiscus</td>
<td>Lacrosse AND Design</td>
<td>113</td>
<td>4</td>
</tr>
<tr>
<td>SportDiscus</td>
<td>Lacrosse AND Exersice</td>
<td>147</td>
<td>11</td>
</tr>
<tr>
<td>SportDiscus</td>
<td>Lacrosse AND Professionalize</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SportDiscus</td>
<td>Lacrosse AND Professionalization</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Comments:
There are over 7,000 articles about Lacrosse but a lot of them do not rely on evidence-based research. When a more ‘specific’ look was being taken on professionalization there were no results founds this far. Several interesting articles about training and training design were found, some of them evidence based.