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Speed, Agility & Quickness Training for Middle Childhood Footballers

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<p>The subject of this thesis was speed, agility and quickness training for middle childhood footballers. The commissioner for this thesis work was Idrettsklubben Start (IK Start). The purpose of this thesis was to provide information for coaches at IK Start by developing a handbook that could be distributed by them.</p> <p>When people think of football they usually combine it with successful players such as Lionel Messi and Cristiano Ronaldo. Another thing they might think of is the huge expenditure of money connected to football all around the world. A thing that a lot of spectators might not necessarily think of is the hard and challenging road which lies ahead of millions of youngsters whom look up to their idols and want to be like them. Mostly these challenges are related against mental and physical attributes of the players.</p> <p>The handbook includes theoretical information regarding speed, agility and quickness training. It also includes useful exercises which can be used by the reader to develop these three aspects further on to athletes.</p> <p>It has been said that versatility is a key factor in a youngster's physical activity. It does not necessarily mean that a youngster has to take part in many different kinds of sport. It can be related to the versatility of different physical attributes within a specified sport. Versatile skill acquisition for a child or a youngster aiming to becoming an athlete is crucial no matter what kind of sport they are practicing.</p>	
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PREFACE

“Success is no accident. It is hard work, perseverance, learning, studying, sacrifice and most of all, love of what you are doing or learning to do.” -Pele-

CONTENTS

1 INTRODUCTION	1
2 FOOTBALL	2
2.1 Physical Demands	3
2.1.1 Overview	5
2.2 Technical Skills	5
2.3 Football Awareness	5
2.4 Mentality	6
2.5 Injury Prevention	6
2.6 Nutrition	7
3 SPEED, AGILITY & QUICKNESS	8
3.1 Speed	8
3.1.1 Influential Factors	9
3.1.2 Speed Training	9
3.2 Agility	11
3.2.1 Agility Training	11
3.3 Quickness	12
3.3.1 Quickness Training	13
3.3.2 Reaction Time	13
4 MIDDLE CHILDHOOD	14
4.1 Physical Development	14
4.2 Mental Development	15
4.3 Critical Period	16
4.4 Long Term Athlete Development	16
5 TESTING PHYSICAL QUALITIES	18
6 RESEARCH TASK	20
7 PRODUCT DEVELOPMENT	21
7.1 IK Start the Commissioner	21
7.2 Process	21

8 PRODUCT EVALUATION	23
9 DISCUSSION	24
9.1 Ethicality & Reliability	24
9.2 Thesis Evaluation	25
9.3 Professional Development	25
9.4 Future development	26
10 SOURCES	27
11 APPENDIX	30

1 INTRODUCTION

In every sport versatility can be considered as one of the most important parts of a young or a professional athletes training. Versatility helps the athlete maintain the motivation for training every day, weeks, months or even years. The versatile skill acquisition is extremely important for all children or youngsters who aim to become a professional athlete, regardless of the main sport that they practice. For children the physiological development is swift and linear as long as they practice and stay physically active. (Finni & Mäenpää 2013.) It has been proven that speed, agility and quickness training enhances the athletic ability of athletes in a variety of sports, therefore this thesis is focusing towards these three areas of development aimed towards young athletes (Brown & Miller 2005).

According to Sharkey & Gaskill (2006) the most efficient way for an athlete to develop their muscular and energy fitness in a specified sport is to practice activities within that sport or closely related to it.

The purpose of this thesis is to create a handbook for IK Start. The aim of the thesis is to provide the club's coaches and workers theoretical information and exercises regarding speed, agility and quickness training for young footballers in the age group explained as middle childhood. The aim from the student's point of view is to receive deeper knowledge into the field of speed, agility and quickness training and specifically how to adapt it together with football. Another aim from the student's point of view is to receive more knowledge in coaching.

The plan is to gather theoretical information about speed, agility and quickness which will support the foundations of the handbook for IK Start, which is the most successful club in Kristiansand and its surroundings. The handbook itself can be later on used by the coaches or others taking part in the club for gathering theoretical knowledge about speed, agility, quickness and to teach practical exercises which can be implemented for the young players.

The key in this work will be to develop professional skills in coaching towards young players, in this case not the tactical and technical matters but the physiological part. Hopefully this work will help me understanding this sort of training matters when it comes to young footballers.

2 FOOTBALL

Even though there are scientific evidence showing that different types of ball games has been played some centuries BC, the football as we know it today has its origins from the late 18th century in England. At the same time first Football Association (FA) was established. Before the rules of modern day football was established the game was considerably more violent and fierce. There were no restrictions regarding the number of players and the games could even include more tackling and kicking of the opposition players rather than the ball (Federation Internationale de Football Association, (FIFA).

As football started expanding first from England to across Britain and later on to the rest of the world, the first FIFA World Cup was held in 1930 and was hosted by Uruguay. Since then the World Cup has been arranged 16 times and is globally one of the biggest events with an audience of billions of people worldwide. For most footballers winning the world cup can be defined as the biggest and most desirable achievement (FIFA).

As the growth of football as a sport and entertainment has developed further the focus has been gradually been more and more aimed towards the youngsters. This has led to an increase in professionalism of the youth coaches and coaching methods. The training methods have become more structured covering certain needs according to the age of the young players. (Stratton, Reilly, Williams & Richardson. 2004).

According to Mjelde (2013) the most important factors in football is the ability to run, each individuals technical skills with the ball, football perception and the ability to cope with different in game situations that occurs.

Football as a whole picture is a rich sport, not just because there is a lot of money connected to it but globally it is the sport that attracts the most spectators and has the highest amounts of participants. What also make football such a fantastic sport are the demands of it, as it is both physically and mentally one of the most demanding sports in the world. Physically it challenges the players in so many different ways, in the sense of endurance, strength, mobility and coordination. Mentally football challenges each individual in the sense of understanding and to be able to cope with different situation both on and off the field. Football creates a whole different atmosphere around the players as they are dependant of each other, rather than individual (Mjelde 2013).

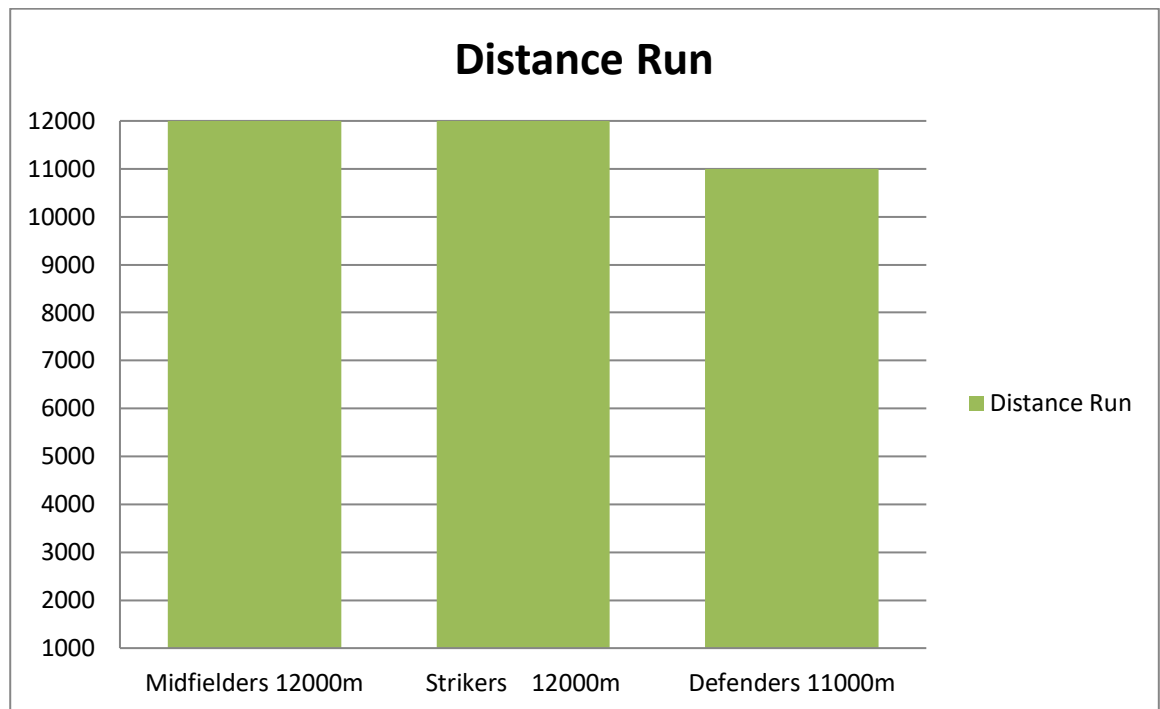
2.1 Physical Demands

Like in most physical activities the movements in football are carried out by the musculoskeletal system. The skeletal muscle controls the body's movements in sequences of contractions and relaxations. Even though the musculoskeletal system controls these movements, it is the nervous system that systematically co-ordinate them (Reilly 2007).

In comparison to other sports the physical demands of football can be more demanding. The football players need to have a good foundation of aerobic and anaerobic endurance because a usual game of football consists of both short and longer bursts of activities. These attributes can even vary depending on the role each player has on the field, for example a midfielder requires a far greater amount of endurance capacity than a goalkeeper since they are an essential part of the play both defensively and offensively. (Hawkings 2004.) Professional football players usually cover a distance of 8-13km during a 90- minute match with an average of about 70-80% of VO₂ max, even though there are some changes according to which position the players are playing (Stratton et al. 2004).

The ability to run can be defined as one of the most important skills that a football player must master. When we are talking about the ability to run it is not just about the amount of running each player can manage during a game (even though that is essential as well), it is more about having the right technique and strides in the running motion. The players also need to be able to turn quickly and run while being pressurized by an opponent (Mjelde 2013).

Table 1. Approximate distance covered in average according to positional role for the players of IK Start in a 90 minute competitive match.



The data in the fitness report of an elite league game between IK Start and Vålerenga in April, 2013 shows that most of the actions made by the players of IK Start are in a jogging motion (2-4m/s) 57%. In addition to that the rest of the actions are walking (0,2-2m/s) 34%, running (4-5,5m/s) 21%, high speed 5,5-7m/s) 6% and sprinting (>7m/s) 1,7% (InStat 2013).

Skills, technique, motivation and genetics are usually the factors which determine each individual's total football skills, fitness can be defined just as big part of development. Through fitness training all of these other factors can be influenced. The total fitness level is usually recognized as the four S's: speed, strength, stamina (cardiovascular endurance) and suppleness (flexibility) (Hawkings 2004).

Fitness is a field where an individual never can achieve the highest level. It is rather a task of sacrificing to improve and for football players to push themselves to reach higher standards gradually. As fitness is a major part of the demands for a football player besides skills, technique and tactical awareness it can be seen as the foundation of enhancing these abilities and improve strength (Reilly 2007).

2.1.1 Overview

In football strength, speed, flexibility, aerobic and anaerobic capacity is regarded as the most important parts of fitness. (Hawkings 2004.) An individual can never achieve the highest level of fitness, but with proper training routines and the ability to push themselves the individuals can increase the fitness capabilities. (Reilly 2007.) Even though this thesis will focus on the abilities of speed, agility and quickness they are useful methods that can be used for enhancing the specific fitness related needs for football when trained and executed properly (Brown & Miller 2005).

2.2 Technical Skills

An essential skill that football players must have is technical skills. Technical skills are the skills the players can execute while they are controlling, passing or shooting the ball. Controlling the ball requires good coordination, agility and quickness. The player needs to be able to control the ball in various situations and at different speeds. Connected to the controlling of the ball is the capability of dribbling with the ball which is a skill, used often for getting past an opponent. Being capable of either passing or shooting the ball requires well trained technical skills too. The player needs to master different types of passes and shots, and to be able to control the speed of the ball suitable for each specific situation (Mjelde 2013).

2.3 Football Awareness

Football awareness is about the player's ability to understand the game, both physically and tactically. In the physical aspect the player has to know what football requires physically whether it is for example contact situations with an opponent or the capability to jump for an header or sprint across the field. Tactically the player needs to be aware of football as a team sport, where the team's effort is measured through the whole combined skills and capabilities of playing together as a whole unit. In addition it is important for a player to be able to recognize situations that occur during an in game situation, and quickly adapt to them. It is essential for the player to make changes to a play without needing the assistance from the coach or some other person (Mjelde 2013).

2.4 Mentality

For football players, mentality is the perpetrator that differentiates the good players from the top level players. No matter how much talent or skills a player possesses, they will never be able to get out that full potential without a proper mentality. This mentality is about the willingness to train to become better, set your own goals which you strive forth and to be able to cope with both downhill and uphill during your career. A player who is not fully committed to football mentally, has a much tougher way to go compared to those who are mentally strong (Mjelde 2013).

2.5 Injury Prevention

As the modern football has developed further and becomes more and more demanding for the players physically due to the tempo of the game injury prevention has become one of the largest focus areas in top clubs around the world. With the physical demands increasing the body of a football player is challenged even more than earlier which might result in the player becoming more and more injury prone. Like in every sport, either it is an individual or team sport the athlete cannot become better or maintain good physical levels or acquire new skills by not training. Injury prevention based training helps the football players to maintain good or even increased physical levels in an alternative training method. The main goals of the injury prevention training are flexibility and core strength-based training (Mjelde 2013).

To prevent injuries from occurring it is important to avoid overtraining. The risk of getting injured is significantly higher if the player's do not receive adequate amount of rest. If an athlete exploits themselves to too much training without resting, the muscles in work will be fatigued from the previous workouts which might lead to an injury (Mackenzie 1997).

In addition to overtraining there are several other factors which might affect to injuries. Even psychological factors such as aggressiveness which increases tension in the body and muscles might lead to injuries. Weak muscles that are not able to support the bones, ligaments and tendons might lead to injuries if they are not able to cope with the demands of certain type of training. Muscle imbalance and stiffness is also issues connected to injuries in athletes (Mackenzie 1997).

For a young player a serious injury of any kind which might prevent training for some weeks or even months, might even be the critical factor that determines whether the player will get its full potential out or not. A substantial sprain in a muscle is a set back as the sprained muscle will not be as strong as it used to be, which again might make the player lose important physical levels needed in football. In the case of a broken the player will not be able to participate in training for a long time. Even though the broken bone usually grows strong again it takes a lot of time and the time lost can be crucial for a young player especially if it is during a critical period where the acquiring of new skills and physical abilities it at its highest (Mjelde 2013).

2.6 Nutrition

In order for a football player to perform at a consistent level and withstand high intensity training periods a sufficient amount of energy is required. A well planned diet with appropriate types of food and nutrients helps the player to remain fit and prepared. By eating proper amounts of food we provide the body essential energy, help the body to grow and repair it and to maintain general body functions. For footballers it is important to receive a balanced amount of all the nutrients: carbohydrates, proteins, fats, vitamins, minerals, fibre and water. For athletes the recommendations show that a slightly higher intake of carbohydrate is essential. (Hawkings 2004.) For youngsters especially it is important to consume a wide range of foods to enhance their health and have a solid intake of fluids in order to prevent hydration (Stratton et al. 2004).

3 SPEED, AGILITY & QUICKNESS

The training to become a good football player has a lot of factors that must be taken in to matter. Speed, agility and quickness are just three out of many factors which must be taken in to consideration, which this thesis takes its focus against.

3.1 Speed

For football players, speed is probably the most important physical aspect to master. It is the ability to get from point “A” to point “B” as quickly as possible. In order for that to happen, the athlete needs efficient stride frequency, together with enhanced stride length and strength in order to create a powerful force during each take-off. In speed training the body strength and flexibility are an essential ground stone for increased frequency and the production of force. (Gatz 2009, 6.) Lentz & Hardyk (2005) mentioned that research done estates that the stride length of an athlete running at their top speed is usually 2,3 to 2,5 times their own length.

As strength training is designed to increase the load on the muscles in action by adding extra resistance, the speed training is seen as a support option for the strength training. Speed training still adds extra stress for the muscles in action, but instead of the added resistance the training consists of using the individuals own body weight. Especially for children this is a good way of training safely and helps them learn the fundamentals of strength training before applying resistance based training to the training regime at a later stage of growth. (Reilly 2007.) As strength is determined by the individual’s muscular system, the speed is predicted by the nervous system (Stein 1998).

As speed executions usually exists of maximum capacity bursts of 6-11 seconds it is entirely an anaerobic effort. An effective speed performance is entirely dependent on the release of adenosine triphosphate (ATP) to the working muscle cell(s). (Stein 1998.)

3.1.1 Influential Factors

Speed training is often determined by developmental factors especially during growth. As fast-twitch fibres and good reactive speed is the main characteristics of speed the growth plays an important role in the trainability of these abilities hence to the critical periods. Between the ages of 10-12 years there is a high formability of the central nervous system which optimizes the trainability of reactive speed. Fast-twitch fibres are not fully developed until at the end of puberty, which makes puberty a critical period of fast-twitch fibre development due to the rapid growth of muscle mass which leads way for enhanced strength training. (Stein 1998, 295.)

In order for the active muscles and muscle groups to be effective during action, a good inter-muscular coordination is required. The spinal motor reflexes which coordinates the actions in a muscle in action, are a vital perpetrator for the intermuscular coordination. (Stein 1998, 296.)

The recruitment and firing rate of motor units during action determines the strength in speed action and is defined as the intramuscular coordination. If the recruitment of motor units at the beginning of an action is as quick as possible the force produced is higher. A higher firing frequency increases the contraction speed of the muscle. (Stein 1998, 296-297.)

In addition to the, inter and intramuscular coordination the muscle-tendons are just as important for the speed development. The muscle fibres are essential for the production of force in the muscles, whereas the fast twitch fibres are the most important fibres for speed-strength. Elasticity and reactive tension of the muscle-tendon influences the movement speed of the stretch-shortening cycle. (Stein 1998, 297-298.)

It is believed that genetics might have an influence on an individual's development of speed. This though does not mean that each individual cannot improve their speed skills with proper training. (Sharkey & Gaskill 2006, 111.)

3.1.2 Speed Training

In order to include speed specific training to an athlete's training program the exercises must be determined by tempo and rhythm which supports the running technique. Proper strides

during a running sequence will help to emphasize the speed in addition. For football players the speed training can be designed in an overall picture, or even by having specific types of speed related exercises determined by each individual's position on the field. (Gatz 2009.) Speed training for football players should also be developed so that it supports the requirements of the game. (Hawkings 2004.) Speed training can be assisted using different methods or drills for it. Windy weather can be beneficial by having the trainee run with the wind in their back, whereas downhill's can be used for running where the eccentric contractions forces the body to decelerate and maintain balance. Another method used for speed specific training is drills in certain patterns which emphasizes on an increased amount short quick steps or even lifting the legs up and down, combined with quick changes of directions or even stops. For these drills cones, training ladders and hurdles are useful tools (Reilly 2007).

When training for speed it is important to take in consideration some important factors in order to make the training efficient. The body should be fully recovered from any previous training, as otherwise it would just prevent the speed development if the athlete is tired or feels muscle soreness. After each repetition of speed specific training there should follow an adequate rest, since it will have an effect on the short-term energy system and the central nervous system. (Lentz & Hardyk 2005.) As speed is defined as an action of short duration bursts with a high intensity, it should be considered as a part of the anaerobic training program (Reilly 2007).

In order to develop speed effectively, the running technique should be practiced at slow speeds where the emphasis is on doing the movement correctly. Gradually the speed should be increased, where the end result is to run at maximum speed while maintaining the right technique. (Mackenzie 1997.)

As speed is an ability controlled by the brain and the nervous system, it is advised to maintain some sort of speed training regularly so that the muscles and the nervous system does not lose the feeling of moving quickly as well as the brain will remember the correct patterns (Mackenzie 1997).

3.2 Agility

According to Reilly (2007, 89) agility is a function of the nervous system, incorporating proprioception and co-ordination of muscle activity in both lower limbs and in upper body for control of balance. In many sports agility is one of the ground stones due to the fact that movements and runs are made from different body positions. Just like in football, these situations often consist of short bursts of a few meters before a new change of direction is required. Good strength, explosiveness and quickness are a fundamental part of agility. (Graham & Ferrigno 2005.) The ability to react to different situations as quickly as possible in football is the foundations of agility (Gatz 2009). For a football player agility is also essential for maintaining balance during the situation where constant change of direction is required, either when dribbling with the ball or chasing the opponent and keep a track on them (Reilly 2007).

Strength, power, acceleration, deceleration, coordination and balance are some of the components of skills that should be taken in to consideration during agility training. (Graham & Ferrigno 2005.) In the same way as the speed training, agility training can be designed towards football players in different positions on the field. As long as the exercises include short bursts of running, change of direction and reaction, the footballer's agility skills are improved. (Gatz 2009).

Even though there are a variety of components that is connected to agility, it can be said that strength is the most influential perpetrator to it. As the demands of agility are quick acceleration and deceleration a well-developed leg strength is required to make those actions efficient. Hence to this it is important to develop leg strength in parallel with agility training in order to get the most out of it. Some more specific strength abilities related to agility is the concentric and eccentric strength. Concentric strength is the capability of creating enough force to push the body forward from the ground to the wanted direction. Eccentric strength is the capability to quickly stop a motion when coming in contact with the ground (Gambetta 2004).

3.2.1 Agility Training

In agility training, similarly to other types of training multiple factors must be taken in to consideration. Age and physical development are probably the most important ones when the

athletes are still young. Experience is also a factor which plays a big role in agility training. If the athlete is feeling uncomfortable with certain types of exercises, the need of proper teaching must be emphasized. (Graham & Ferrigno 2005.) Equally with speed training, the agility training is a part of the anaerobic training and a good way to train for agility just like speed is by setting up formations of cones or a ladder which emphasizes on certain movement patterns like change of direction, sideways striding and running both forward and backwards (Reilly 2007).

3.3 Quickness

According to Hale (2004) quickness is a rapid reaction and movement time in relation to a given stimulus. For athletes performing different types of sports the ability to react quickly is a vital perpetrator for successful performance. The athletes often must be quick at accelerating and decelerating during performance which defines the quickness of each individual. It can also involve reacting to different situation, for instance runners reacting to the pistol shot when waiting for take-off in a 100m sprint, a Formula-1 driver waiting for the green light in the starting position, or an ice-hockey player waiting for the puck to drop down on the ice during a face off. As speed training is determined by the stride frequency and overall strength of an athlete, quickness is the ability of making those strides as quickly as possible (Vives & Roberts 2005).

When developing quickness it is a lot about performing certain biomotor skills. For every athlete the process of learning a new movement will take some time to improve while the memory processes it. Therefore most new quickness related drills should be trained slowly at first in order for the athlete to learn and memorize the movement patterns before performing it quickly. This way the athlete can even perform highly complex motor skills when attempting to do them for the first time. In order to develop quickness one has to remember that in the end all these biomotor patterns and movements have to be done quickly (Vives & Roberts 2005).

3.3.1 Quickness Training

When training for quickness it is important that skill level and abilities of the athlete is been assessed. If the athlete is inexperienced and at a lower skill level the quickness training should begin with simple drills which can help them learn the complexity involved in quickness training. To enhance quickness, good postural control and centre of gravity is required while training the quickness related drills or patterns. Progression is the true nature of quickness training. When the athlete begins to master the movement patterns, the execution goes from slow to fast meaning as quickly as possible while keeping in mind the control and balance. Different patterns become more complex meaning the athlete must perform at a higher skill level. The training can even be evolved in to a more unpredictable way, which forces the athlete to concentrate even harder on the reactive demands (Vives & Roberts 2005).

3.3.2 Reaction Time

Reaction time is an ability often connected to quickness. It is the amount of time it takes for an individual to react to a stimulus. (Baggett 2004.) As reaction time is the ability to react to a movement, it still does not include the movement itself. Movement time is the amount of time that takes to react to a stimulus. The reaction and movement of an athlete is the total response time, which is the complete action of mental processing speed and the movement time. (Vives & Roberts 2005.) There are several efficient methods and drills that can be used to assess an athlete's total response time. A few common easy methods are; throw a ball at the athlete and see how long it takes for him/her to dodge it, drop a ball from a certain height and see how long it takes for the athlete to catch it, or by using shadowing drills where one person perform a movement and the other person tries to mimic it as quickly as possible (Hale 2004).

4 MIDDLE CHILDHOOD

When children reach the age of 5-12 years the period is called *middle childhood*. (Cole & Cole 2001.) During this stage the child continues to grow and develops all sorts of new physical and mental abilities, even though some might progress at different levels and have diverse interests. (The Growing Child 2013.) For coaches it is important to know that there is a difference in growth and maturity between the young players and adults which means that the training has to be adapted according to the young player's age and skills (Hawkings 2004).

A child should be introduced and encouraged to take part in different types of sports during their childhood, not only a certain sport. By participating in different types of sports, both individual and team based sports the child will acquire a wide range of skills and abilities that they might have not learned by only taking part in one type of sport. Some good examples of sports are gymnastics, skiing and team sports. Gymnastics is an excellent type of training for children to enhance their core strength, coordination and flexibility. Skiing on the other hand is known to be a very demanding sport both physically and mentally, which can help the children to learn the ability to endure tough physical training. Team sports helps the children a lot in the social aspect where they need to include everyone in it, and to work and be together as a common unit. Versatility in training might also help to keep up the level of interest in the children since they are being both mentally and physically challenged in different areas. Versatile training also prevents the risks of overextended training load towards one-sided training methods (Mjelde 2013).

4.1 Physical Development

Similarly to all aspects of development the children's growth is affected by environmental and genetic factors. Nutrition is a key factor to the growth. Children in a lower-class with less access to food and good health care tend to be smaller than children of the same age which are born in well-off families. The growth of a child might even slowdown if it suffers from illness. During this age the children become stronger, more agile and their balance is improved, although slower than in early childhood. As a result of this the children's motor abilities are more efficient than earlier, in addition to learning a lot of new physical skills. In the early stages

of middle childhood boys tend to be slightly advanced in motor abilities that require power and force and on the other hand girls seem to excel in fine motor skills or gross motor skills that combines balance and foot movement. (Cole & Cole 2001.) Since the body is under constant growth, the bones are exposed to increased stress compared to full grown adult's bones. Due to this, young players are prone to injuries and therefore the coaches have to be aware of giving the youngsters enough rest periods and adapt the training methods according to the development (Hawkings 2004).

As a result of the children's rapid growth during middle childhood, the children might lose some of their flexibility. This can occur since the bones might grow faster than the muscles surrounding the bones. Due to this it is critical for children in the age range of middle childhood to maintain flexibility exercises in order to keep some of the flexibility the children had at an earlier stage. Even though everyone can improve their flexibility through training one has to remember that there always might be some limitations to the range of movement which might occur due to anatomical and physiological limitations (Bloomfield & Wilson 1998).

4.2 Mental Development

During the middle childhood the children does not only develop new physical abilities and skills but also their brain is developed. Many believe that this is the stage when the two-sidedness of thinking is developed through increased memory abilities. It allows children to hold several aspects of a problem in mind simultaneously while they are being processed. In an example a young soccer player running with the ball can keep in mind the teammate's position, a learned dribble and plan where to play the ball. (Cole & Cole 2001.) During middle childhood the coaches and parents have a big influence on how the youngster behaves. At this stage it is important for them to be a good role model whom the youngster can learn from. During middle childhood, the thoughts of the children become more logical making them capable of understanding more complex situations in the different situations they are surrounded by (Stratton et al. 2004).

4.3 Critical Period

Gordon (2004) emphasizes that there exists critical periods during a child's development where some type of training effect can be maximized. During these critical periods the children are more exposed to some specific type of training, especially in the periods where the children's growth is rapid. For children in aged in middle childhood the building of overall motor skills and sports skills are an essential part of the training routines. It is essential to emphasize the importance of specific development stages during a child's stage of growth in order for the abilities to be optimized and enhance the progress of reaching full potential (Balyi & Hamilton 2003).

At a young age the training should focus on neural-based exercises which enhance balance, movement skills, agility and reactivity of each individual. All these abilities can be efficiently trained with the help of specified speed, agility and quickness drills which lay down good foundations for demands towards a given sport (Anderson & Twist 2005).

Mjelde (2013) described the age range of 8-12 years as the golden age for motor behaviour, which makes it critical in the sense of coordination, core stability and movement in the form of agility and quickness. A combined and well enhanced amount of coordination together with improved agility and quickness might even be the decisive factor that determines future skills and development of each individual. In addition good core stability is essential as it helps controlling the body and supports it. The core muscles have a role to play in almost every given range of movement in a human body. Core stability is also influential to the posture of a person (Mjelde 2013).

4.4 Long Term Athlete Development

The Long Term Athlete Development (LTAD) focuses a lot on the critical periods, where the idea is to find the optimal training methods and focus areas connected to the growth, physical and psychological development of youngsters in different stages according to their age. (Gordon 2004.) According to the LTAD the main objective for middle childhood is to learn all the fundamental sports skills. During this period the goal should be to develop the already known movement skills, but also introduce the children to a lot of new areas such as flexibility

exercises, overall sports skills and knowledge related to physical activity. In addition middle childhood is a good stage to further develop strength through plyometric exercises that focuses on using own body weight. Speed, agility and quickness are also skills that should be developed frequently during middle childhood (Mackenzie 2006).

5 TESTING PHYSICAL QUALITIES

The goal behind testing the athlete's physical qualities is to provide information for the coach and the athlete itself regarding the current levels of fitness, which can be evaluated in order to enhance the performance levels (Sharkey & Gaskill 2006, 61).

When a coach is designing a test for the athlete it is important to remember to only test and measure relevant factors. (Mackenzie 1997.) There are several factors which influences on whether a test is relevant or not. In order for the test to be efficient it has to be sport specific so that it measures the qualities relevant to the sport. It has to be valid meaning that the qualities measured really are the qualities that you want to measure. The test needs to be reliable meaning that if retesting is done at a later stage, the results will be similar to the tests done earlier. It is also important to make sure the test is appropriate according to gender, maturity and that the test is simple enough for the tester to learn it quickly. The last requirement is that the test must be designed so that it gives results which can be used for monitoring the progress (Sharkey & Gaskill 2006, 61-64).

Testing athletes and getting results has several beneficial factors. The results of a fitness test can be used for predicting future development or performance, it can highlight weaknesses that has to be improved, it can be used for monitoring improvement, to bring forth whether the training program is working or not, it can be used for estimating an appropriate training group for an athlete or it can be even mentally beneficial for an athlete to motivate them (Mackenzie 1997).

As every sport has its own different physiological and psychological requirements, it is important for the coach designing the test to measure those physical qualities and skills related to the specific sport that the subject participates in. This way the tests will give relevant results that can be of use for the athlete (Sharkey & Gaskill 2006, 61).

In order to supervise the test a number of precautions should be considered. If a test consists of more than one type of test it should be considered to start with the ones that require the least recovery and gradually move on to the most demanding ones. Similar to all physical activity, a proper warm up is advised before and test. Clear instructions and demonstrations needs to be provided for the subjects prior to the test so that they are prepared in a best possible way. It has to be made sure that the facilities and equipment used for the tests are

safe and appropriate and that certain safety rules are followed. In addition to these precautions it is important to remember to encourage the subjects during the tests, allow them to receive adequate rest periods and to give them feedback on the performance (Sharkey & Gaskill 2006, 64-65).

6 RESEARCH TASK

The purpose of this thesis is to create a handbook which includes theoretical information and exercises for IK Start. The aim to the thesis is to provide the club's coaches and workers theoretical information and exercises regarding speed, agility and quickness training for middle childhood footballers at IK Start. The main goal of the handbook is to be a supporting tool for coaches regarding the specific training areas and to give theoretical information which takes a deeper look in to why these training methods are important for footballer players. The aim from the student's point of view is to receive deeper knowledge into the field of speed, agility and quickness training and specifically how to adapt it together with football. Another aim from the student's point of view is to receive more knowledge in coaching.

The research tasks:

- Which types of exercises would be the best ones?
- Will the handbook be explicit enough for the user(s)?
- Will it support each field of physical needs: speed, agility and quickness?

7 PRODUCT DEVELOPMENT

The purpose of this thesis is to create a handbook which includes theoretical information and exercises for IK Start. The aim to the thesis is to provide the club's coaches and workers theoretical information and exercises regarding speed, agility and quickness training for middle childhood footballers at IK Start. The main goal of the handbook is to be a supporting tool for coaches regarding the specific training areas and to give theoretical information which takes a deeper look in to why these training methods are important and beneficial for football players.

7.1 IK Start the Commissioner

In Kristiansand and the region around the city IK Start is the most successful club, with a first team that plays in Tippeligaen which is the highest football league in Norway. During the past year the club has set clear aims regarding future participation in the highest division as well as a successful junior development by having the best possible coaches available for the teams. In addition the club has three full time employed player developers who are responsible of monitoring the own clubs junior players as well as the potential players in the region. Even though the club itself has a lot of information and knowledge available for different coaching methods regarding skills, technique and fitness development the handbook will has its main goal as a supportive option for the coaches who might be less experienced. IK Start were interested in this handbook as well as it could a useful tool for them as well as they would get a deeper perspective in to the subject of fitness training for a specific age group. IK Start has agreed to participate in the possible expenses that might occur during the product development process. The copyright of the product will belong to the author.

7.2 Process

The thesis is a theory based product development process and the final output of it will be a handbook which includes theoretical information and exercises related to speed, agility and quickness training. According to the BusinessDictionary (2013) product development is the

process of creating a new or modified product which offers certain benefits for the customers. It might be a rework of some old product, or even a completely new product that suits a new customer need or market. There are several characteristics that define a good or successful product. Is the quality of the product good enough so that it satisfies the customer and environmental needs? How high are the manufacturing and developmental costs of the product? How much time does it take to develop the product? What is the profitability of the product when it is put for sale in the market? Is the product something that can be further developed or used as a connection for another product in the future (Ulrich & Eppinger 2003, 2-3)?

The whole idea of the process is to gather the theory and knowledge first, and then to apply it to the end product itself. A lot of the research done in advance is based on using the same types of training methods and drills as a part of the seasonal plan for the junior players, to see what sort of impact it has on their physical development in the aspects of speed, agility and quickness.

The product was created by using Microsoft Office Word 2010 and Paint program. The pictures drawn to the product was compiled in the Paint program from where they were applied to the Word document together with the rest of the text. For the product design I choose to keep it simple by not adding too much colours and details as it would have just been too time consuming. The text has just a regular black colour and Calibria style with a font size 11. The font size of the headings is 13 and 14, where the main headings are font size 14 and the sub-headings are font size 13.

8 PRODUCT EVALUATION

The process of this product development consisted of several stepping stones which had to be processed step by step in order to finalize the outcome of it.

At first which was required, was to compile all the necessary theory related to the subject of matter. When the theoretical part for the thesis was compiled and laid the foundations of required information, it was time to make use of this in the handbook itself together with the chosen exercises. This part was quite challenging, considering that most of the theory had to be translated into Norwegian. Additionally, the provided information had to be precise and understandable for the coaches and staff related to the club. Considering that the majority of these coaches are either parents, whose children play in the team, or other volunteers, they would not necessarily possess the same professional understanding of the subject of matter.

As the author the goal was to focus on the provided information on the handbook, rather than the outlook of it. The pictures of the exercises and the additional text related information on how to execute them in practice had to be simple and understandable. Even though the design of the handbook could have been visually more intriguing, as the author I am satisfied with it.

The commissioner itself is satisfied with the final product, as it is approachable for everyone interested in a deeper understanding of the subject of matter. They also believe that the provided exercises will lay down good foundations for implementing speed, agility and quickness training for junior players in a broad perspective.

9 DISCUSSION

In this section of the thesis I have taken the time to write about the ethicality and reliability, as well as other matters such as to ponder my own professional development throughout the process.

9.1 Ethicality & Reliability

Ethicality is the matters of what is good and bad and what is right and wrong. Knowledge about the principles and how to cope with them is every researchers own responsibility. For a research to be ethically successful, it requires good scientifically praxis. Ethicality in research is about honesty, being cautious, being accurate and avoiding plagiarism (Hirsjärvi, Remes & Sajavaara 1997).

The ethical matters were considered constantly during the thesis process through responsibility, honesty and commitment to timetables. Yet, such factor of importance as commitment to timetables are, it was difficult to stick to the agreed timetables which was made at the beginning of the process. The copyright of the product is owned by the author.

The reliability of a research designates the repeatability of the results. It is the ability of a research to bring forth non-coincidental results. Validity in a research is the ability of a measurement or research to measure exactly what it is meant to measure. (Hirsjärvi, Remes & Sajavaara 1997.) The reliability of a thesis process is about using reliable sources to support the theoretical background and to describe the factors which the research or a product takes its matters at. It is essential that a product-based thesis process is suitable for the customer or reader (Eskola & Suoranta 1998).

Just like the ethicality of the thesis, the reliability of it was considered during the whole process. All the sources and literature used for the theoretical part was read in detail, including both scientific articles and books. The main goal was to try and use as much international theory as possible and stick to English written works. When the details of the sources were known, I made a clear decision of which sources I would prefer and which I would not. This explains to some extent why some of the sources in the text are seen over and over again. I am well

aware of that the text is lacking source synthesis in some areas, but that is mainly since I made the decision of using sources that in my opinion is highly reliable.

9.2 Thesis Evaluation

Looking at the whole process now it has really been a bumpy road. Especially during the beginning phases of the planning it was difficult to choose from where to start the process. When that part was sorted out the gathering and compiling of the theoretical part was quite efficient and I was able to cope with it decently. As the process went on the thoughts of the product began to build up. The initial idea was to create a training video, from where it went on to become a handbook with real pictures showing the exercises and then to finally be drawn pictures instead.

When I started creating the product itself I had a clear vision of how it would look like. A challenging part in the product writing was to keep the language simple enough so that every reader would understand the text and to draw suitable and understandable pictures. The whole process has been very time consuming and a stress factor. Especially during the product creation phase the programs used for creating it caused quite an amount of worries due to all the strange features in them. The most positive factor in my opinion during this whole process has been the ability to test and apply these similar types of exercises which are in the product to the real life, when I was coaching footballers. The final outcome of the product is satisfying, especially the theory it contains, though the amount of exercises initially was planned to be more of.

9.3 Professional Development

The thesis process has been challenging but it has been a great learning experience on how to critically evaluate own learning and academic work. As the author it has challenged me to specialize in the subject of matter and to compile a lot of information in co-operation with the commissioner.

At the same time, it has been a special experience to do such background work like the theory part in this thesis process. I also feel privileged to have been given the opportunity to create

such a product for IK Start where I have done both of my practical training periods. To work amongst people who has a lot of professional knowledge in the field of football has been deeply rewarding for me personally.

If there is something to be the most critical at in my own professional development, it is the lack of being able to cope with the timetables, as I ended up having several perpetrators that made schedules and timetables to stretch longer than intended.

This whole thesis process together with the added practical training has really broadened my knowledge in the field of football. Not only have I gained invaluable experience of coaching, but also about all the physical attributes that must be taken in to consideration during development of young players. Especially the amount of knowledge gained regarding age specific development of speed, agility and quickness training must be highlighted. All this has also provided more insight on how a Norwegian top club is ran on administrative and sport related level. All the way from the youngest players up to the professionals playing for the first team.

The outcome of this thesis I hope will help coaches and other people working with young athlete's (especially football) to give some knowledge on the factors it explains. Mostly it is aimed at those who might be a little inexperienced and are interested in gaining new information and knowledge. Finally, the aim of it is to support the training of athlete's in the defined age group.

9.4 Future development

The gained experience and competence gained throughout this whole process has for me personally shown the direction, which I want to follow professionally. Even though football as a sport has always been intriguing for me personally, has this laid the foundations from where to develop further in the future. It will be interesting to see, whether I will be working as a junior level coach, who dwells more in to the matters of coaching football in the tactical and technical matter, or as a physics related coach amongst specific age groups.

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11 APPENDIX

Idrettsklubben Start

Øvelsesbank

Fart, Hurtighet & Smigidhet

Sampsa Lohiniva

2013



Introduksjon

Fotballen som vi kjenner til den dag i dag, har blitt mer og mer krevende for spillerne fysisk. I løpet av de forrige tiårene har tempoet i spillet økt betraktelig, noe som utsetter utøvernes fysiske kvaliteter og nivåer for nye utfordringer hele tiden. Det er ikke bare ved hjelp av øynene våre vi kan si at fotballen har blitt slik den er. Forskjellige tester som blir gjort av klubbene og forskerne rundt omkring i verden viser at tilfellet er slik. Testene beviser at spillerne hele tiden får økte resultater i styrketester, utholdenhet, balanse og fleksibilitet. Men hva er det som gjør at disse såkalte "komplette" spillerne blir til det de er i dag?

I dagens fotball har det blitt mer og mer fokus på helheten i selve sporten. Den helheten i dette tilfellet omhandler om de fysiske kravene fotballen stiller til spillerne. Klubber og trenere blir mer og mer opptatt av og utvikle disse kravene på best mulig måte. Selvom mange eksperter og fagfolk har sine egne meninger om hva som er de beste metodene, finnes det også metoder og fokusområder som tydelig må legges fokus i.

Mange mener at det å drive med allsidig fysisk aktivitet i ung alder er et av de fundamentale kvalitetene for en fotballspiller. Ved å ta del i forskjellige fysiske aktiviteter kan man utvikle og finpusse forskjellige kvaliteter som man muligens ikke kan oppnå ved å bare drive ensidig trening. Turn for eksempel er en ypperlig metode for unge til å utvikle god koordinasjon og kroppskontroll. Langrenn som er en individuell sport som stiller høye fysiske og mentale krav kan være en fantastisk måte for unge til å lære seg hvordan det er å måtte trene hardt og ha tydelige målsetninger. I tillegg finnes det utallig mange forskjellige aktiviteter man kan drive med. Allsidig trening gir ikke bare gode fundament for fysiske kvaliteter, men det fungerer også som et motiverende middel for unge utøvere. For å opprettholde interessen er det viktig at unge utøvere blir hele tiden utfordret på nye områder både fysisk og mentalt, noe de kan bli ved å drive med allsidig fysisk aktivitet og ikke bare forholde seg til en type aktivitet.

Det er også viktig å vite at allsidighet ikke gjelder bare å drive med forskjellige typer sport eller aktiviteter, men også allsidighet innen en spesifikk sport. Fotballen handler om så mye mer enn bare å spille fotball. Det handler om å kunne være best mulig skolert i forhold til "definerte" krav innen fotball. I denne håndboken tar man en nærmere titt på disse kravene, i tillegg til en dypere innblikk innen fart, hurtighet og smidighet.

Fotball

Om man skulle spør trenere og eksperter til å forklare hva fotball er, ville nok mange vært enige om at fotball er en rik sport hvor spillerne er de ultimate utøverne. Fotballspillere har ved flere anledninger blitt gjenkjent som de ultimate utøverne på grunnlag av alle de forskjellige kvalitetene en fotballspiller skal kunne mestre. I dette kapittelet tar man en nærmere titt på hva disse kvalitetene er.

Fysiske Kvaliteter

I sammenligning med andre sporter er nok fotball kanskje den mest komplekse og krevende. En fotballspiller må ha både god aerobisk og anaerobisk utholdenhet siden situasjonene som oppstår under en fotballkamp kan bestå av både korte og lange sekvenser. Om det da enten er snakk om en kort spurt sekvens eller å jogge/løpe en lengre distanse. Det er blitt gjort undersøkelser som viser at spillerne har forskjellig utholdenhet utifra hvilken posisjon på banen de spiller. Som oftest løper en fotballspiller i gjennomsnitt mellom 8-13 kilometer i løpet av en 90' minutters kamp, med en gjennomsnitt på 70-80% av maksimalt oksygenopptak. I dette tilfellet er det også noen forskjeller utifra hvilken posisjon man spiller.

Det å kunne løpe kan bli definert som den viktigste egenskapen for en fotballspiller. Når man snakker om å kunne løpe handler det ikke bare om utholdenheten, det handler om å ha riktig teknikk og steg i bevegelsen. I tillegg må spilleren kunne gjøre raske vendinger mens man løper og kunne løpe mens man kontrollerer ballen eller blir presset av motstanderen.

En fotballspiller må være fysisk sterk for å kunne ha gode forutsetninger. Styrke er et av fundamentene for å kunne være rask. Når muskulaturen i beina er sterke genererer man mer kraft i steget når man skal løpe, noe som øker spillerens helhetlige fart. Fysisk styrke gir også spillerne en fordel i dueller som oppstår under kampsituasjoner. Musklene i kroppen er også med å beskytte skjelettet og andre indre organer som kan bli utsatt for kontakt i kamp.

Det sies at man kan aldri nå det høyeste nivået av fysiske kvaliteter. Istedenfor kan man alltid lete etter nye metoder til å utvikle dem for å kunne bli enda bedre fotballspillere.

Teknikk

Teknikk er en kvalitet som fotballspillere må være gode på. Det er også den kvaliteten hvor det er størst individuelle forskjeller på. Tekniske ferdigheter handler om egenskapene til å kunne kontrollere ballen, sentre ballen og skyte ballen. En fotballspiller må kunne kontrollere ballen samtidig som de løper i forskjellige hastigheter og drible med ballen. Pasninger og skudd krever gode tekniske ferdigheter også, og det å mestre forskjellige teknikker er viktig. I tillegg er det viktig å kunne regulere hastigheten på ballen når man sender i vei en pasning eller et skudd tilpasset til situasjonen.

Fotball Forståelse

Fotball forståelse handler om spillernes kunnskaper til å forstå fotballen. En spiller må ha både fysiske og taktiske kunnskaper om fotball. Fysisk kunnskap handler om å vite hva kravene i fotball er når det gjelder den fysiske delen, om det da er snakk om dueller i kamp, å hoppe for å heade en ball eller å spurte over banen. Taktisk må spillerne være klare over at fotball er en lag sport. Resultatet eller utfallet av en kamp er ikke basert på individuelle faktorer, men hele lagets sammenlagte innsats gjennom sammensatte egenskaper og samarbeid. Det å være taktisk god, handler også om å kunne lese spillet. Å gjenkjenne situasjoner og forstå hva som skjer fra tid til annen hjelper spillerne til å etablere seg bedre i spillet. Dette påvirker også spillernes egenskaper til å ta de riktige avgjørelsene på egenhånd uten å måtte trenge hjelp fra noen andre.

Mentalitet

Mentaliteten er kanskje den hovedsaklige grunnen som skiller gode spillere fra de beste. Det skal mer til enn bare talent og ferdigheter, skal en spiller kunne få utnyttet sitt fulle potensiale. Mentaliteten til å virkelig ville trenge og bli bedre, ha sine egne klare målsetninger og være flink til å håndtere nedture og oppturer er nødvendig. Om man ikke er dedikert til fotballen mentalt, har man en mye vanskeligere vei og gå i forhold til å bli en toppspiller.

Unge Utøvere

Når en er trener for barn og unge er det viktig og huske på at det kan være store skillnader i forhold til modenhet og vekst. På grunn av dette er det viktig å kunne skille treningen til barna og unge fra treningen til de voksne ettersom de ikke har de samme egenskapene enda. Trening bør dermed bli best mulig tilpasset slik at den passer barna og unges alder og egenskaper.

For unge utøvere er det spesielt viktig at trenere og foreldre tilbyr dem en passende mengde støtte og er motiverende. Dette kan være med på å utløse en større positiv energi hos dem unge, som gir dem mer motivasjon til å fortsette å drive med fysisk aktivitet, hvilket kan gi gode grunnlag for fremtiden.

Et sunt og riktig kosthold er et av nøkkelene under veksten. Ettersom barn og unge stadig vokser er det viktig at de får nok næring hvilket holder kroppen og mennesket i gang. Et sunt og riktig kosthold hjelper dem også til å forbli friske, slik at utviklingen kan gå sin gang uten avbrytelser. En lengre sykdom eller stadige små sykdommer kan i verste fall til og med påvirke veksten, som igjen kan bringe fram uforvillige utfordringer i fremtiden.

På grunn av barn og unges kvikke vekstperioder er det naturlig at bevegligheten minsker. Dette er et resultat av at skelettet kan vokse fortere enn musklene som er rundt dem. Derfor er det anbefalt for barn og unge og drive med bevegighetstrening slik at man på best mulig måte kan opprettholde bevegligheten man hadde tidligere.

Eksperter mener at under veksten oppstår det såkalte kritiske perioder der barnet er mer utsatt for en spesiell type trening. I disse periodene er det viktig å kunne utnytte dette, ved å inkludere mest mulig passende type trening innen fysisk aktivitet. I midten av barndommen (8-12 år) burde en utvikling av generelle motoriske egenskaper være prioritert. Ved å utnytte disse kritiske periodene og fokusere på riktige aktiviteter kan man framheve muligheten til å nå det fulle potensialet.

Fart, Hurtighet & Smidighet

Når man trener til å bli en god fotballspiller er det mange forskjellige faktorer som må tas i betraktning. Fart, hurtighet og smidighet som man har et dypere perspektiv på i denne "manualen" er kun tre av mange andre faktorer som også må tas hensyn til.

Fart

Fart er nok en av de viktigste fysiske egenskapene en fotballspiller må kunne mestre. Det er evnen til å kunne komme seg fra et sted til et annet fortest mulig. For at dette skal kunne skje, trenger utøveren en effektiv frekvens i steget i samhandling med forbedret lengde i steget og styrke for å kunne skape nok kraft ved hvert steg. Kroppens styrke og fleksibilitet er fundamentene i fartstrening for å kunne oppnå bedre frekvens og kraftproduksjon. Forskning viser at en utøver som løper i sin toppfart har som oftest en lengde i steget som tilsvarer 2,3 til 2,5 ganger deres egen høyde.

Ettersom styrketrening oftest er designet til å øke belastningen til musklene som er i aksjon ved hjelp av vekter, blir fartstrening mer sett på som en støttespiller for styrketreningen. Fartstrening pålegger også musklene ekstra stress, men istedenfor økt belastning består treningen av å bruke utøverens egen kroppsvekt. Spesielt for barn og unge er dette en ypperlig metode til å trene trygt og hjelper dem å lære fundamentene av styrketrening før belastningsbaserte elementer blir lagt til i treningsrutinene.

Fartstreningen er ofte bestemt av utviklingsmessige faktorer spesielt under veksten. Derfor er det viktig å kunne vite noe om de kritiske periodene i veksten. Foreksempel i 10-12 års alderen oppstår det en høy formbarhet av det sentrale nervesystemet som optimiserer utviklingen av reaktiv fart. Det har blitt også ofte nevnt at genene kan ha en innflytelse på en individs utvikling av fart. Når det er sagt betyr det ikke at enhver individ ikke kan forbedre ens fart ved hjelp av riktig trening.

For å inkludere fartsrelatert trening i en utøvers treningsprogram må øvelsene være bestemt av tempo og rytme som støtter løpsteknikken. Riktige steg under en sekvens med løping hjelper å vektlegge farten i tillegg. For fotballspillere kan fartstreningen bli designet i samhandling med alt annet trening, eller ved å ha spesifikke fartsrelaterte øvelser utifra hvilken posisjon enhver spiller har på banen. Fartstreningen for fotballspillere burde også blir designet slik at den støtter spillets krav.

Det finnes mange forskjellige metoder og øvelser man kan bruke til fartstrening. Øvelser med forskjellige mønstre som har fokus på et økt antall korte, kjappe steg eller løfting av ben opp og ned, kombinert med kjappe retningsendringer eller stopp er ypperlige øvelser som hjelper å utvikle fart. Kjegler, stiger og hekker er fine redskaper man kan bruke til slik trening.

Når man driver med fartsrelatert trening er det viktig å ta hensyn til noen viktige faktorer for å gjøre treningen mest mulig effektiv. Kroppen burde være uthvilt fra all tidligere trening, ettersom dette bare vil hindre utviklingen av fart om utøveren er sliten eller har muskelsmerter. Ettersom fartsrelatert trening består av korte sekvenser med høy intensitet er det viktig med tilstrekkelige pauser innimellom øvelsene.

For å utvikle fart effektivt, burde man først øve på løpsteknikken sakte hvor man har mer fokus på å ha riktig teknikk. Gradvis burde farten bli økt, med et sluttresultat der man gjør øvelsene eller løpingen fortest mulig mens man samtidig beholder den riktige teknikken. Ettersom fart er en evne kontrollert av hjernen og nervesystemet, er et råd å drive med noe slags fartsrelatert trening regelmessig slik at ikke musklene og nervesystemet mister følelsen av å bevege seg fort og at hjernen husker de riktige mønstrene.

Hurtighet

Når man nevner ordet hurtighet i noe sammenheng, ville nok de fleste ha tenkt på det som det samme som fart. Hurtighet er allikevel mer relatert til reaksjon, altså en utøvers egenskaper til å reagere hurtig i situasjoner. En utøver må ofte være kjappe til å akselerere og bremse under ytelse som igjen definerer hver individs hurtighet. Det kan også involvere reagering til forskjellige situasjoner, foreksempel en forsvarspillers evne til å reagere til fintene eller bevegelsene spissen til motstanderen gjør i en mot en situasjoner eller en keepers evne til å kjapt reagere til et skudd. Begge disse handlingene krever kjappe reaksjoner i forhold til å ta de riktige avgjørelsene. Ettersom fart er bestemt utifra frekvensen i steget og generell styrke, er hurtighet evnen til å ta de stegene kjappest mulig.

Akkurat som i fartstrening kan hurtighetstrening være komplekse øvelser som krever visse motoriske egenskaper. Derfor burde også disse øvelsene bli først øvd på sakte, slik at utøveren kan lære og huske bevegelsene før man utfører dem hurtig. På denne måten kan utøveren til og med utføre komplekse motoriske ferdigheter på første forsøk. For å kunne utvikle hurtighet må man huske på at til slutt må man gjøre alle disse øvelsene hurtig.

Når man driver med hurtighetstrening er det viktig vurdere utøverens nivå og egenskaper. Hvis utøveren er uerfaren og på et lavere nivå burde hurtighetstreningen starte med enkle øvelser som hjelper utøveren til å lære kompleksene involvert i hurtighetstreningen. For å styrke hurtighet, krever det en god kroppskontroll og tyngdepunkt når man driver med hurtighetsrelaterte øvelser. Progresjon hurtighetstreningens sanne natur. Etterhvert når utøveren begynner å mestre bevegelsene og øvelsene, skal øvelsene gjøres raskest mulig men allikevel huske kontroll og balanse. I tillegg burde øvelsene gradvis bli mer komplekse som krever mer av utøveren. Treningen kan til og med gjøres noe mer uforutsigbar noe som tvinger utøveren til å konsentrere seg enda hardere.

Smidighet

Smidighet er en funksjon av nervesystemet som kontrollerer muskel aktivitetene i nedre og øvre delen av kroppen for balanse. I mange sporter er smidighet noe av de mest grunnleggende funksjonene fordi mye av bevegelsene og løpene er utført i forskjellige kroppsposisjoner. Akkurat som i fotball, består disse situasjonene ofte av korte spurter på noen få meter før det kreves en ny endring av retning. God styrke, eksplosivitet og hurtighet er fundamentene bak smidighet. For fotballspillere er smidighet viktig for å kunne opprettholde balansen i situasjoner hvor konstant endring av retning kreves, om det da skulle være at spilleren selv dribbler med ballen eller å jage motstanderen og holde følge med dem.

Stryke, kraft, akselerasjon, bremsing, koordinasjon og balanse er noen av komponentene av ferdigheter som burde tas i betraktning når man driver med smidighetstrening. I likhet med fart og hurtighet, kan smidighetstrening bli designet til generelle fotball ferdigheter eller utifra posisjoner. Så lenge øvelsene inkluderer korte løps-sekvenser, endring av retning og reaksjon, utvikles fotballspillerens smidighet.

Selvom det er mange forskjellige ferdigheter som er linket til smidighet, er det styrke som er den mest innflytelsesrike ferdigheten. Kravene til smidighet er hurtig akselerasjon og bremsing må en god benstyrke til for å gjøre disse handlingene effektive. Derfor er det viktig å utvikle benstyrke parallelt med smidighetstrening for å få mest mulig ut av det. Noe mer spesifikke styrke egenskaper relatert til smidighet er konsentrisk og eksentrisk styrke. Konsentrisk styrke er evnen til å skape nok kraft til å dytte kroppen framover fra bakken mot ønsket retning. Eksentrisk styrke er evnen til å hurtig stoppe en bevegelse når man kommer i kontrakt med bakken.

Når man driver med smidighetstrening burde man i likhet med all annen trening ta i betraktning alder og fysisk utvikling. Erfaring er også noe som spiller en rolle i smidighetstrening. Om en utøver skulle være ukomfortabel med ulike typer øvelser, må ordentlig undervisning til. Ettersom smidighet kan også minne en del om fart kan like øvelser med kjepler, stiger og hekker brukes som i fartstreningen.

Øvelsene

I denne seksjonen kan man finne øvelsene som er blitt valgt til denne håndboken. Mesteparten av øvelsene handler om såkalte "kjappe føtter" øvelser som blir brukt på akademier rundt omkring i verden. Hver øvelse har sitt eget bilde som viser hvordan øvelsen skal gjøres hva som burde være fokuspunkter i enhver øvelse. For disse øvelsene er kjepler og stiger ypperlige redskaper til å utføre de forskjellige bevegelsene.

Hovedmålet med denne håndboken er å gi en liten innblikk på hvordan fart, hurtighet og smidighet kan bli trent og hva som er viktige elementer i det. På grunn av det inneholder boken kun enkle trygge øvelser som kan brukes til å utvikle fundamentene i disse tre ferdighetene, spesielt for barn og unge som enda ikke har de fysiske kvalitetene som skal til for å trene styrke på samme måte som voksne utøvere. Hvis man skal se dypere på disse emnene foreslår jeg personlig at enhver leser ser dypere på disse emnene i andre bøker og litteratur som er publisert.

- Start stående bak stigen og blikket framover
- Annenhver fot i hvert mellomrom i stigen
- Knærne løftes opp skikkelig hver gang
- Løpe på tærne, ikke hele foten ned i bakken
- Finne en fin rytme og tempo
- Jobb først med teknikk og kontroll, før tempo økes



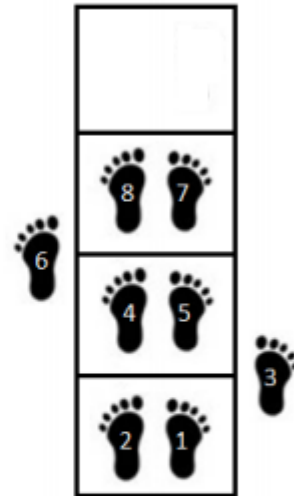
- Start stående bak stigen og blikket framover
- Begge føttene i hvert mellomrom i stigen
- Husk annenhver fot
- Knærne løftes opp skikkelig hver gang
- Løpe på tærne, ikke hele foten ned i bakken
- Finne en fin rytme og tempo
- Jobb først med teknikk og kontroll, før tempo økes



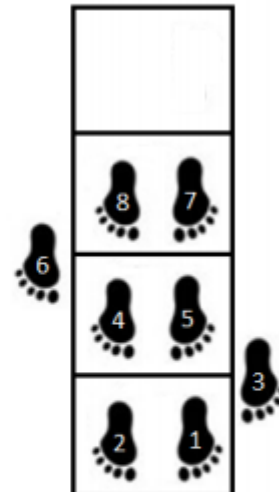
- Start stående i en sideveis posisjon bak stigen
- Begge føttene i hvert mellomrom i stigen sideveis
- Husk annenhver fot, den foten som starter skal alltid først
- Knærne løftes opp skikkelig hver gang
- Løpe på tærne, ikke hele foten ned i bakken
- Finne en fin rytme og tempo
- Kan gjøres fra begge sidene, slik at startende fot endres
- Jobb først med teknikk og kontroll, før tempo økes



- Start bak til siden for stigen og blikket framover
- Ta dermed annenhver skritt inn i stigen slik bildet viser
- På det tredje steget går den ene foten utenfor stigen
- Repeter på samme måte framover
- Knærne løftes opp skikkelig hver gang
- Løpe på tærne, ikke hele foten ned i bakken
- Finne en fin rytme og tempo
- Jobb først med teknikk og kontroll, før tempo økes



- Ellers samme øvelse som forrige, bare at i denne utføres øvelsen baklengs
- Knærne løftes opp skikkelig hver gang
- Løpe på tærne, ikke hele foten ned i bakken
- Finne en fin rytme og tempo
- Jobb først med teknikk og kontroll, før tempo økes



- Start stående bak stigen og blikket framover
- Hopp framover i hvert mellomrom på ett bein
- Sørg for å ha litt bøyd kne for å dempe landingen
- Finne en fin rytme og tempo
- Hoppe på tærne, ikke hele foten ned i bakken
- Ha god kroppskontroll, sørg for at ikke overkroppen svaier for mye
- Jobb først med teknikk og kontroll, før tempo økes
- Gjør øvelsen for begge bein



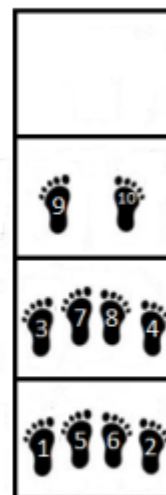
- Start bak til siden for stigen og blikket framover
- Hopp fra side til side samtidig som man hopper framover et hakk
- Sørg for å ha litt bøy i knærne for å dempe landingen
- Ha god kroppskontroll, sørg for at ikke overkroppen svaier for mye
- Finne en fin rytme og tempo
- Jobb først med teknikk og kontroll, før tempo økes



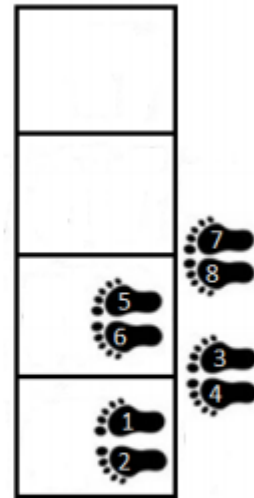
- Starts stående bak stigen og blikket framover
- Hopp samtidig ut til sidene slik bildet viser
- Neste hopp hopper man inn slik at man kun lander på den ene foten
- Repeter øvelsen gjennom stigen slik at man hopper inn med annenhver fot
- Sørg for å ha litt bøy i knærne for å dempe landingen
- Finne en fin rytme og tempo
- Jobb først med teknikk og kontroll, før tempo økes



- Start stående bak stigen og blikket framover
- Først løp framover to hakk slik at begge føttene er i hvert mellomrom
- Så gå tilbake et hakk slik bildet viser, før man igjen løper framover to hakk
- Knærne løftes opp skikkelig hver gang
- Løpe på tærne, ikke hele foten ned i bakken
- Finne en fin rytme og tempo
- Repeter hele veien til enden av stigen
- Jobb først med teknikk og kontroll, før tempo økes



- Start bak til siden for stigen i sideveis posisjon
- Først ta et skritt inn i stigen med høyrefoten og deretter venstrefoten
- Så tar man to skritt ut av stigen før man igjen beveger seg inn
- Løpe på tærne, ikke hele foten ned i bakken
- Finne en fin rytme og tempo
- Jobb først med teknikk og kontroll, før tempo økes
- Husk å gjøre øvelsen fra begge sidene
- Huskeregel for hvilken fot som skal tas første skritt med
alltid: Høyre side -> høyre fot,
Venstre side -> venstre fot



- Start bak til siden for stigen og blikket framover
- Som på bildet beveger venstre foten seg kun framover
- Samtidig er målet å flytte høyrefoten inn og ut av stigen mens man gradvis beveger seg framover
- Finne en fin rytme og tempo
- Jobb først med teknikk og kontroll, før tempo økes
- Husk å gjøre øvelsen fra begge sider



- Start stående bak stigen og blikket framover
- Hopp inn samtidig med begge føttene
- Deretter hopp direkte ut til sidene slik bildet viser
- Repeter dette til enden av stigen
- Sørg for å ha litt bøy i knærne for å dempe landingen
- Finne en fin rytme og tempo
- Jobb først med teknikk og kontroll, før tempo økes



Treningstips

Selvom slike øvelser kanskje ikke er så altfor krevende når man ser på det ifra de fysiske aspektene, vil det nok være best å drive med disse øvelsene som en del av oppvarmingen eller etter det. Hvis man er sliten og tung etter en treningsøkt kan disse øvelsene være litt vanskelige siden man mest sannsynlig har svekket konsentrasjon og kvikkhet. Disse eller andre lignende øvelser burde gjøres 2-3 ganger i uken som en del av en rutine i treningen. En sekvens på 10-15 minutter vil være nok til å kunne gradvis utvikle fart, hurtighet og smidighet hos unge fotballspillere eller andre utøvere.

