Difference between U-19 and U-16 football players in Breidablik in 30-meter sprint

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Abstract

The purpose of this study was to measure the speed of the players in the U-19 and U-16 in Breidablik over 30 meters. This research was carried out because speed is a big aspect of the game of football, so by preparing the younger generation with proper training and techniques would give the individuals a better chance of succeeding in senior football when the time comes. There were two groups that took part in this research with ages ranging from 15-19 years old. The younger group were 15-16 years old and the older group were between 16-19. There were twenty players that took part in the research, ten players in each group. The results of the research indicated that there was a significant difference between the groups with the older group running faster. Further research into testing in football should be carried out on this subject in Iceland. By finding out what would be the best methods for speed improvement and putting speed training into practice from an early age. The tests need to be more sports specific and be individualised. Testing after what position a player plays could save time in picking players for positions at a young age. Testing is going to give coaches a platform to work from with regards to speed.

Acknowledgements

I chose this topic involving the 30 meters' sprint for a number of reasons. For me as a coach I feel this aspect in football training in Iceland is overlooked. Many coaches like myself do not have the statistics of these times. How do we know that the training sessions that we are preparing are beneficial? Are the goals we are setting for the training sessions and the season being reached. By having the results from this research is going to give me the opportunity to get a more personal feel for the players. The more information I have on individuals will benefit me and the players. I feel that this research is going to answer a lot of questions and help prepare players better for the future with regards to speed, strength and agility.

I would like to thank all the players at Breidablik for taking part in this project. The coaches at Breidablik were very helpful in giving me their training time to carry out the tests. I would also like to thank Breidablik football club for the use of the facilities at Fifan. Without the use of the artificial pitch it would not have been possible to carry out the tests in a controlled environment. I would also like thank the parents of the children who took part. I am very appreciative. Without their permission I would not have been able to carry out the research. Last but not least the staff at Reykjavik University for their support in my idea.

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Introduction

Speed is king. The way football is played today speed is a very important aspect (Bangsbo & Andersen, 2013). Not only attacking but also defending. It is very important for players to be quick over the first few meters. Being able to unlock a defence with speed is very important or to stop a goal attempt on your goal. I am going to be testing the speed of players at Breidablik football club in the 30-meter sprint. The age groups I have decided to look at are fifteen to sixteen and sixteen to nineteen years old. The players between sixteen and nineteen have all been involved in training with the senior team, and some have international experience at youth level. I would like to see the difference in speed between the two age groups. I feel that it is very important to know if the training methods with regards to speed are working at the club. It would be pointless keeping the same training regime if the results aren't good. Speed of players is also important with regards to formation. If we can develop a squad of quick individuals, it would be very beneficial for the progress of the club. Being able to change formation and adapt to fast flowing football would improve the standard of the club and the players as individuals. Breidablik Football Club has a reputation of selling players at a young age to professional clubs in Europe. These players who have been sold have improved the revenue at the club. So for us as coaches at the club to improve the next generation of players physically and mentally could earn the club a lot of money. So the outcome of this research is essential for the future, not only for Breidablik as a club but the Icelandic national teams at youth and senior level. If the players who were sold had reached a high standard at a young age, who knows what we can achieve with the next generation.This is why this research means so much to me. I want to see improvements; I want players to be better all-round athletes. I would like to see training programs that are very well organized with an emphasis on speed, strength and agility which every young athlete needs. So the outcome of this research is imperative for program design.

Literature review

Demands in football

Football is the world's most popular sport with approximately two hundred and sixty five million players and five million referees and officials are actively involved (Haugen & Seile, 2015). The game is becoming faster and putting a lot of pressure on individuals mentally and physically. Teams from the best leagues in Europe have tight game schedules, long seasons and relatively short pre seasons which are limiting the possibilities for long term physical conditioning. Players are placed under a lot of pressure to perform game after game at a very high standard. This pressure puts a lot of pressure on the individuals. If they fail to deliver the desired performance, they run the risk of being dropped from the squad, to the bench or even left out of the group. The worst case scenario is the player is sold or released from the club (Haugen & Seile, 2015). Academies and reserve teams have a big responsibility to prepare players for the future. They would be developing soccer specific motor skills and physiological capacity to be a top athlete. Players must have physical and physiological capabilities both aerobic and anaerobic. They need to meet the criteria which is needed for the modern game. Being able to cover long distances during ninety plus minutes of the game without reaching fatigue is very important (Bangsbo, 2006). Being able to change direction at high speed and for some players taking over forty-seven sprints in a game. Many physical tests have been implemented in clubs and academies over the years to evaluate repeated sprint ability, vo2 max test and yoyo intermitted tests (Haugen & Seile, 2015).

Technical demands in football

Players in the modern game are running faster and covering more kilometers during games and training, this is very important to record the data. GPS has been introduced to the top clubs in Europe (Haugen & Seile, 2015). This system allows the coaches and the sport scientist at the clubs to keep recorded details of every movement the players makes, whether they are on the training ground or taking part

in games. This technology allows assessments of physical, technical and tactical performance parameters during training and games. This technology is very important for clubs and players to progress. The data can be stored and retrieved and viewed at any time, in some cases the coach can have the information within seconds. The coach can track every sprint which would tell him what speed the player is reaching and the distance of the sprint, even the changes of direction in the session can be seen which is useful for program design. For normal people this information is not useful but for the coaches and sport scientist at the club would be the foundation of building training sessions.

Physical demands in football

Football is about eleven players on the pitch at one time but these eleven individuals have different needs with regards to fitness. An external midfield player could take forty high speed sprints in one game while a holding midfield player might only manage twelve high speed sprints in a game. The coach and the sport scientists can design the training sessions to improve the overall fitness of players by position fitness where players train movements similar to game situations. One size does not fit all so it is important to find the right load with regards to intensity, frequency and volume. The coach always needs to play his best team so all the information with regards to load may help with injury prevention. By using the GPS technology, the coach can see how far players are running during training sessions and by using the heart rate monitors that are linked to the GPS can see if an individual is over training. This also includes games, if individuals have worked very hard or covered more kilometres than others in the team the coach can change the individuals recovery session so he or she would recover using the right load which would reduce the chance of injury especially with youth players (Haugen & Seile, 2015). It has been shown that during the first fifteen minutes of a game players can cover seven hundred meters of high speed running, these statistics are not all players some only manage two hundred meters. External midfield players can take as many as forty-seven sprints in a game with distances ranging from twenty to forty-five meters with speeds up to thirty kilometres per hour. Holding midfield players have shown that they can make eleven sprints in a game which only last up to sixteen

meters but speed never reached thirty kilometres per hour. Sprints have different classifications. Fast sprints come under the title of explosive movements which last up to zero point five seconds. Leading sprints are gradual and go from slow to fast. Players in different positions use different sprints (Bangsbo, 2013).

Tactical demands in football

Tactics which coaches choose to use have an influence on the running distances; these distances are different between countries. Playing styles and game intensity differ between countries (Bradley et al., 2013). Systems are not the same and range from 4-4-2, 4-3-3 and 4-5-1. Players who played in a formation of four five one performed less high speed sprints when their team were with the ball, but more sprints took place when they lost possession. Forward players playing in the four, three, three formations would perform thirty percent high level than forward players playing in the four, four, two formations. So from these readings the coach needs to have players who can physically perform at the desired level required (Bangsbo & Mohr, 2014).

Speed training in football

Relationship between basic muscle strength and sprint performance is important. Speed is a very important aspect of football, but anticipation and reading the game is also very important. Being able to read situations at a split second can save a player time in reaction speed. Player's height and weight and ability to coordinate play a big part in speed. Being able to run a thirty meters sprint needs muscle power and muscle strength (Bradley et al., 2009). It has been shown there is a strong case between muscle power and speed. Basic muscle power is the group of muscles that are involved in a movement. Transfer power is the coordination between different operating at the same time. Timing is the key to gain speed, all the above needs to be taken into consideration in training to promote the sprinting action and coordinate the muscle contractions. Building up a good strong program that will

give the player the opportunity to use his or her strength is my main task. First there needs to be basic core strength when building a program.

Strength training in football

Muscular strength with regards to speed is important for football players. Strength is the ability to exert force against a load. During sprinting in football forces are required to be exerted externally against the ground to propel the body forward. Strength is also required in contact sport to help prevent injuries. By being stronger will help improve performance, to get stronger an individual will have to lift weights. Lifting weights will have a positive effect on the athlete. It will improve neuromuscular efficiency. Football is a multidirectional sport, performance outcomes are the result of multi muscle, multi joint movements with muscles. Coordinating to produce efficient movement, multi planner forces and help have a stable structure to support movements. But the most important task is design a suitable sport specific strength training program that is going to enhance the individual (Suchomel, Nimphius, & Stone, 2016). What are the desired movements for the sport, what joints and muscle groups are going to be important? What order of training these groups is important, how is the individual going to implement the strength training programme into his or her original program (Suchomel et al., 2016). Force is very important in sprinting, force = mass X acceleration. Acceleration is vital in football; speed over the first few meters is the difference between winning and losing. Rate of force development is linked to sprint performance. An elite sprinter has a ground contact time of zero point zero nine seconds which means he is able to exert a lot of force in such a small time frame. Known elite sprinters have a ground contact time of zero point twelve seconds which means contact time is longer and less force is generated. Their aim is to limit contact time yet create as much force as possible to propel them forward. Training sessions can be made to work on force and ground contact time. Stretch shortening is very important; this is a muscle contraction enabling the muscle to reach maximal strength in as little time as possible by stretching the muscle and relying on its elastic properties (Brewer, 2008a).

Muscle contraction and muscle fibres

What type of contraction are the coaches working towards and what muscle groups are going to be important? There are three types of contractions available when building a program. Eccentric contraction is a muscle group where the player would be contracting during landing. Isometric contraction is used when a player would be stopping. And finally concentric contraction is where the player would be straightening his or her body. Concentric contraction is where the muscle produces force whilst being shortened, eccentric contraction the muscle produces force whilst getting longer (Bangsbo & Andersen, 2013). Finally, isometric contraction there is no movement, the limb is still and the power is at the joint (Brewer, 2008a). For a player to play at a high standard the player has to be well trained and have good muscular balance in the body. For example, the quadriceps and hamstrings are important in football, there has to be the right strength ratio between the muscle groups so it would not lead to injury due to an imbalance. Rate of force development is very important. This is where we can see how much force a muscle group can produce in a movement. The most force comes from an eccentric contraction. The next strongest contraction is the isometric contraction followed by the concentric contraction. For a muscle to contract there needs to be a signal to the muscle fibres as each muscle in the body contains muscle fibres. Muscle fibres are made up of epimysium. This surrounds the entire muscle and its main function is to hold the muscle together. Under the epimysium you would find bundles of small fibres wrapped in a connective tissue which is called perimysium. If you cut into the perimysium and look at the fibre closely with a microscope you could see the individual muscle fibre ("Physiology of Sport and Exercise, Fifth Edition," 2011). Muscle fibres are very small and impossible to see with the naked eye ("Physiology of Sport and Exercise, Fifth Edition," 2011). Type one fibres are known as slow twitch and they are red. Type two is white and known as fast twitch. Types one is slow to contract but can work for a long time without fatigue. Type two is quick to contract and have less endurance than type one. There is one more fibre which is called two X, this fibre has very little endurance but can create power very quickly. Although type two is quick it is not as quick as type two X at contracting, but has more benefits because of its endurance capabilities. The average human has around

fifty percent of type one fibres, twenty-five percent of type two and the rest is made up of two X. This is not an exact percentage and can differ between athletes. We can also see there is a difference between sports. If we looked at the gastrocnemius muscle in sprinters, there is around twenty-four percent type one fibres and seventy-six percent type two. If we compared this to distance runners we can see that distance runners have seventy-nine percent type one and twenty-one percent type two, this example is only in men. the best marathon runners in the world are believed to have ninety-three to ninety-nine percent type one fibres in the gastrocnemius muscle. Each muscle fibre contains hundreds to several thousand myofibrils. These are very small but they are very important in the process of muscle contraction. A sarcomere is a function of the myofibril and the basic contractile unit of a muscle. Within each fibre there are two types of protein filaments which begin the process of contraction. The thin filament is called actin and the thicker is called myosin. Around two thirds of skeleton muscle is made up of myosin. This is a thick head made up of two protein strands which help interact in the muscle contraction. The thin filament is called actin and made up of three protein molecules called tropomyosin, tropomin and nebulin. For a contract to take place the myosin with the big head has to be dragged over the thin filament called actin. The muscle needs energy to be able to contract. ATP which is adenosine triphosphate supplies energy for a contraction. ATP is stored in the head of the myosin and splits to make ADP adenosine diphosphate. To get the dragging effect from myosin over actin is from the breakdown of ATP. The contraction is only as long as the availability of calcium. Even at rest the muscle needs ATP. For a contract to take place there needs to be a signal from the neural system. A nerve cell has a nerve body which has branches through which impulses can be transmitted. One of the fibres is called an axon. The purpose of the axon is to transmit impulses from the cell body to the cell end. At the end of the branches are neurotransmitters junctions (“Physiology of Sport and Exercise, Fifth Edition,” 2011). Our body has two types of nervous systems, the CNS central nervous system and the PNS which is the peripheral system. The CNS central nervous system uses the brain, brain stem and spinal cord. The PNS peripheral system is where movement occurs motor and sensory neurons need to be activated. Information is sent from the muscles and the organs to the CNS which is located in the spine. This controls the ability to move the body with fine and gross movements. Information

is received through muscle fibres which reach the motor unit. The motor units are not all the same size, the smaller motor units which are dealing with fine movements like eyes. The motor units with many fibres and using gross movements and high power movements like the quadriceps. There is an all or nothing response with motor units, either all of them contract or none of them contract (Bangsbo, 2013).

Intensity levels in football training

High intensity training is very important in football, training in the right heart rate zone in training, timing of rest periods is very important (Bangsbo & Mohr, 2014). During short sprints lasting one to five seconds energy is produced by breaking down of phosphates (Bangsbo, Mohr, & Krustrup, 2006). On average in football matches sprints during games last around three seconds (Bangsbo & Mohr, 2014). Energy systems in football are very important, and the time spent in each system is equally important. Too much time spent in the wrong zone is not going to improve anaerobic capacity. Quality of sprint training with the right recovery is the key (Brewer, 2008b). Training fitness for football is very important to train with the ball, while using a ball specific muscle groups would be used like in competitive games. Players also find running with the ball fun, so the benefits would be greater because of enjoyment. Technical abilities would improve and with progression the drills with the ball could be more demanding. Small sided games 4 v 4 with one floating player lasting four minutes keeps intensity levels high and promotes game like situations. Game like situations are very important because it puts pressure on the individuals to create space in tight areas. Trying to lose players and defending are situations that arise in football all the time so this gives the coach to access fitness levels, movement with and without the ball and quality to work under pressure (“Sports Med 2004; 34 (3): 165-180 - Endurance_strength_training.pdf,” n.d.).

Transition period between youth and adults

It is very important for youth players who are in the transition period between youth football and senior football to meet the required level. When they take the step to senior they will be training with experienced players who have longer training backgrounds and would be more physically mature. The step up to senior football would put a lot of stress on their young limbs. There would be added stress to the nervous system, muscles, bones and tendons (Lloyd & Oliver, 2013). There is a link between speed and experience, plus the Ability to maintain power over time is linked to age and fitness levels (Reilly, Williams, Nevill, & Franks, 2000). Size and muscle size plus genetics and hormones play a big part. Of course as young players mature adaptability will improve as will fitness levels (Unnithan, White, Georgiou, Iga, & Drust, 2012). Sprint tests with youth players would help keep a database on progression of the individuals. Of course older players who are competing at a higher level and have better physical attributes are more likely to score higher than youth players, but testing would be a good tool for the coach to monitor and implement training programs (Abrantes, Maçãs, & Sampaio, 2004). It is very important when working with youth players that we understand the difference between chronological age and skeletal age plus the amount of training sessions and games throughout the year, and the effects on the body with regards to injury. Keeping data of injuries could be beneficial with regards to training history. Injuries could be recurring due to age and physical growth. It is important that coaches use adaption in training methods. Young athletes need to train in a manner that is appropriate for that age group. It could be an idea to group the players by skeleton age rather than chronological age. It has been shown that many injuries occur during games, so the coaches should be aware of not playing too many games. Size of the players and muscular strength can be a problem for a coach. What player's position on the pitch due to strength, speed and ability to adapt to physical confrontation should be assed? It is not a good idea to keep players under the age of fourteen in one position due to development and challenges. This is why testing is very important for the players and the coaching staff. Not just running without the ball, but using one against one battle to see speed, acceleration and body strength with the ball. How players recover during defending and break into attack. Does the player fatigue more with the ball or without the ball could be something that the

coach may need to address? Does the player have the ability to stop and change direction under pressure in a split second? These tests should be more football like involving game like situations. Fitness testing in football in football can be used to determine what programs individuals should be using (Johnson, Doherty, & Freemont, 2009).

Materials and Methods

The aim of this research is to measure two sets of players in the thirty meters' sprint. I decided to measure these groups in the first week of April. This was because the players were ending their pre-season and should be in top physical condition. It would not have been possible to take the test any later because both groups were starting to play more games and with lack of rest the preparation time would not have been ideal. The coaches were concerned that players could be injured because these sprints are one hundred percent. I had to measure the groups on separate occasions because of the lack of space, and the U-19 had to play a game on the original day the test was going to be carried out. I made sure that both groups took the test at the same time of day which was 17:00. This was a time that players would normally train so this would not interrupt any preparation that the players would do for a normal day. Both groups took the test under the same conditions. Fifan was used which is the regular training venue for both groups. The lighting was the same as training days. Both groups took part in a structured dynamic warm up as they would do on a normal day. This is important for the player's routine. I wanted the atmosphere to be the same as a normal day without the players be stressed about the test. After the warm up the players took six fifty meter strides which is normal after a warm up. The players would then go through their dynamic stretching routine. I then proceeded to explain to the players the rules and my expectations. For me to have the correct data the players needed to give their all. Each player would take five sprints and the best time would be used. There would be one and a half minutes between sprints. All players that took part were in football boots, so this would be as game like as possible. The 30-meter run was set up and in place. There were two reading stations, one at the start and one at the finish line. There

was a cone one meter from the start. The players would start at the cone with one foot in front. The players decided which foot would be in front. All tests can be retaken any time of the year because the conditions would not change.

Equipment

A Komelon 30 meter NEO 330 Fiberglass tape measure was used to measure the length of the run. To measure the time, I used a micro gate polifemo light radio type rac 201 which is from Bolzano in Italy. The tripods were set at the height of one meter. The grass was standard artificial 3G, and all of the players were in standard training clothes which consisted of socks, shorts and T-shirt. The lighting was on training mode and it was thirteen degrees in the house. Players used their normal football boots.

Ethical

All the players under eighteen received a letter of consent which had to be given to their parents. This was just to inform the parents that their child would be taking part in this research. It they did not want their child to participate they could have contact with me, my phone number and email was in this letter.

Participants

There were twenty players that took part in this project. The players ages ranged from fifteen to nineteen. The players were all boys, and all of the players were training football at Breidablik football club. The players in the U-19 were players from the A team. These players at this stage of their careers are presumed to be the best players in their age group at the club with the exception to one or two who did not take part due to injury. The players in the U-16 were selected by their own coach. Most of the twenty players have been training football at Breidablik since the age of six with the exception of three players who began training at other clubs

before moving to Breidablik. None of the players had taken the thirty meters' sprint test before, so it was a first time experience for all of them. All of the twenty participants train four times a week. Players in the U-19 are also given a strength program which would be carried out in the players own time. The players would be expected to use this program twice a week. The players in the U-16 were not with a structured strength lifting program, but some of the players are thought to be showing interest. Both sets of players would follow a core program. This program is compulsory and carried out twice a week before training starts. The players are expected to be at training thirty minutes before training starts and would carry out the core program. On the other two training days both groups would take part in agility and footwork training for fifteen minutes. Again the players are expected to report early for training because of lack of time during the main training session. These agility sessions would consist of changing direction, small jumps and five till ten meter sprints.

Results

In table one you have a list of players numbered from one to twenty. Numbers one to ten are players from the U-19 and eleven to twenty are from the U-16.

Here you can see the best times of the players, the height, weight and age.

Table 1

Players	Height	Weight	Age	Best time
1	180	84	17	4,26
2	187	77,3	16	4,32
3	188	89	17	3,98
4	173	73	16	4,13
5	180	71	17	4,14
6	175	68	16	4,20
7	180	75,5	18	3,88
8	189	77	17	4,07
9	182	71	19	3,80
10	172	69	19	3,91
11	164,5	50	16	4,07
12	183,5	75	15	4,23
13	177	60	16	4,32
14	191	77	15	4,20
15	174,5	54	15	4,32
16	180	64	16	4,44
17	170,5	65	15	4,10
18	178	59	16	4,12
19	176	68	16	4,10
20	175,5	60	15	4,36

In table two we have a better break down of the information using SPSS. Here we can compare the average height, weight, age and best times of all the players.

Table 2

Groups	N	Mean	Std. deviation	Best time (sec)	Worst time (sec)
Height (cm)					
U-19	10	180,6	6,7		
U-16	10	177,0	7,21		
Weight (kg)					
U-19	10	75,48	6,71		
U-16	10	61,40	7,86		
Age (years)					
U-19	10	17,2	1,13		
U-16	10	15,0	0,52		
Time (sec)					
U-19	10	4,07	0,17	**3,80**	**4,47**
U-16	10	4,24	0,14	**4,07**	**4,53**

By looking at table 2 you can see comparisons on height, weight and age of the players. It is also possible to see the fastest times from both groups and the slowest times from both the groups. Speed and fastest times are my main priorities in this research but I think it is important to gain the full picture of the difference between the two groups because of the difference in age and weight. As you can see there was no significant difference in height ($t(17,49)=1.206, p > 0.05$). But when we weighed the players there was a significant difference ($t(17,56)=4,307$, $p < 0.05$) with the U19 players being heavier. Because I was measuring players from the U-16 and the U-19 I knew that there would be a difference in age but I needed to know exactly what the difference was. There was a significant difference($t(12,70)= 4,295$, $p < 0.05$). The Main point of this research was to determine speed of the players in the U-16 group and the U-19 group. Was there a significant difference between the two groups. The answer was yes there is a significant difference($t(17,58)=-2.37$, $p < 0.05$).

T-test was used to see if there was a significant difference between the two groups. There was a significant difference in all the measurements except in height, there was not a significant difference between the players.

Discussion

This research has answered my question. The main question for me as a coach was: are the players in the U-19 group quicker than the players in the U-16 group? Well the fact of the matter is that the older boys are quicker and four of the players from U-19 managed to run under four seconds, all of the players who took part were very competitive which helped me very much to get the best readings. But the readings were very interesting because there was a significant difference in all of the readings except in their height. Does this raise the question are the younger boys above average for their age in height? This could create another possibility for research with regards to height and speed. I guessed the older boys would be heavier because they are more developed and have been training longer. Because there is a significant difference in age the final results should not come as a shock, the older players are training at a higher intensity and the volume is more. This outcome is very positive because in the elite world of sport these players who achieved running

under four seconds are classed as excellent (Bangsbo & Mohr, 2012). But for me as a coach is this excellent? I have to look at myself and my fellow coaches, should we be content with four players out of ten running under for seconds? What is the history of the players we tested? Have they been working on a structured strength and conditioning program with the main goal improving speed? Are the players running under four seconds more mature than their counterparts Or is this just luck or natural talent? Well we know from the data that there is no significant difference in height. We can see that the players in the U-19 are heavier than the younger boys but that is to be expected because they are older. I can say that I was really disappointed that none of the younger boys managed to run under four seconds but is that just me with too high expectations? But this is why this research interested me so much. I was lucky enough to know the participants in the older group, and know how their training program has been over the last year. But if you would have asked me before the test who would run under four seconds I would have only been able to name one of the four who ran under four seconds. For me as a coach having this kind of information in my hand is very important for progression. All of the players had been using a strength and conditioning program for a year. But has the strength program been beneficial for all the players? Only four of the players have managed to run under four seconds. This is something that needs to be addressed. So it should not surprise me that they managed to run under four seconds. When looking back I know that in most cases those who are stronger are quicker, but of course this is not in all cases. These players are talented, but how do we identify raw talent? I said earlier that I would have not been able to identify players who would run under four seconds. So it could mean that we have players at the club that we do not see their full potential because we have never tested them. Well the answer must be testing more. Keeping a profile of every player at the club with times, weight and height. People will say that is going to take time and cost money. But as I said earlier in the thesis Breidablik is a selling club. Should we not be looking for ways to improve our methods of coaching with the introduction of more tests? How young should we go with strength programs? We should start from day one. It would be best to start with the basic fundamentals, once young people have good habits and good technique the window of improvement is open. When the season starts the whole club should be tested. If the players in the U-19 can run under four seconds without any proper technical advice on running technique and

strength programs now, how would it be in ten years? Could we have a group of players where over sixty percent are running under four seconds? In the modern game speed is king. Everywhere we look players are running faster and covering more distance. The only way for Iceland to keep up producing more great players is by covering all aspects. We need to look to build an all-round athlete. Players who can run at top speeds and cover long distances during games. But then will come the argument about technique with the ball. Surely if players have better strength and coordination plus the ability to move lateral and vertical without thinking about it would help the athlete with the ball because they would be more confident within themselves. I enjoyed doing the thirty meter test but is this giving me information that I need? Yes, and no. Yes, it tells me that with good coaching a player can be trained to run in a straight line. But football is not played in straight lines. I would like to see more tests that are more specific for the sport of football. When running in straight lines players do not have to think about stride pattern because they are running from A to B, but during football games stride pattern varies and movements needs to be automatic. Tests that involve acceleration, deceleration, jumping and turning. If we look back at the thirty meters' test the younger players did not do so well with comparison to the older players. The older players are stronger and have been training longer than the younger players and have more muscle. It would be great to compare the groups if a course was designed on agility. For example, twisting and turning, acceleration and deceleration. I would say that some of the older, bigger and heavier players would have some problems. A test like the 505 test would be my next step. Turning technique is very important. How many coaches can teach turning techniques or the biggest question should be how many players practice turning with and without the ball. In professional football players can turn up to 50 times which needs a lot of strength and coordination ("Sports Med 2005; 35 (6): 501-536 - Physiology of the football.pdf," n.d.). In the thirty-meter test we gave the players the option of starting with one foot in front of the other. It would be interesting to research what foot they used and why. Did they use their strongest foot at the front? We could say that about jumping, would a player always use his preferred foot to jump? All these factors would save time in a split second. If we are talking about players turning, do they use their stronger foot if so are they losing time and speed and of course balance. These are all aspects that us as coaches need to address. If we start with the youngest players

with strength and condition programs with agility, we would be helping the players in the long run. Being able to conserve strength and power for the right movements and the right time we will improve the athleticism of the individuals. One size does not fit all. If we have big players who are classed as defenders, do they need to be agile? The answer is yes. Defenders are usually playing against quick and mobile players, so they need to be able to match them in these departments. How would we help that individual, we would not put him in the same program as an external midfield player who would make around forty sprints in a game. Stride pattern training and agility training should be used. As you can see in the research I have done, players come in all different shapes and sizes. Some players are already physically developed and some are not developed, but with time and the right training the under developed players will improve. We have to tailor programs for individuals. Reaction time, how players react to situations. Football is an unpredictable game. We can create game like situations but this is not going make players read the game, this comes with experience. But we can work on reaction time and reflex. Programs can be made were players have to react to situations which the players can't control. Motor learning Training methods should be used where players are not in their comfort zone. Rhythmical training like dancing would improve movement and flexibility. We need to think outside the box and look at different sports to get ideas on movement. Gymnastics, basketball and judo for example. Jumping, landing and falling are a part of the game of football and people in these sports I have mentioned do this well. We need to spot talent and nurture it. Everyone has something to offer we just need to give them the tools. Of course I could have done more tests and made it more complicated research but I wanted to know about the speed. It would have been better maybe to have more participants, but what I read out of the results surprised me. This is why I chose this topic. This is just the icing on the cake. Now I know what direction the club has to go and I have the facts to back it up.

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Appendix

Letter to parents of the participants

Dear parents

Your child will be taking part in research for my BS thesis that I am doing in HR university. I am studying sports science and for my final project I will trying to see if there is a difference in speed between 2fl and 3fl. For this research to be completed I would like to use your child. Your child will be expected to run five times thirty meters with one and a half minutes' rest between. This is very important for me but also helpful for us as coaches at Breidablik to see the standard of the boys in both groups. This is not compulsory but I would be very appreciative if you would give me permission. The players name would not be used just the results. If you would not like your child to take part, you can call me or send an email.

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Best wishes Dean Martin