Fitness Introduction

Resistance to the effects of fatigue can only be accomplished through intensive, vigorous training that overloads the energy production systems. Several methods of training will be discussed in this section. They are: Continuous Running, Circuit Training, Interval Training, Fartlek Training, Acceleration Running, and Strength Training. Each method of training adheres to the basic training principles discussed in the "Training Principles" of the Physiology section. Each method can be used at some time in a training program for soccer. Some methods are designed to induce aerobic adaptations, and others anaerobic adaptations.

The soccer player needs aerobic energy to be able to play a full game and the need anaerobic conditioning for intense sprint work, thus they can benefit from all of the methods described in this section. The player needs to make periodic checks on the intensity they are working at, especially when starting a program, or using training methods which designate specific work intensities. There is a direct relationship between exercise intensity and heart rate, so the intensity of work can be determined by measuring the athlete’s heart rate immediately after exercise.

To check exercise heart rates stop exercising and immediately measure heart rate by counting the heart beats or pulses for 10 to 15 seconds and multiplying by 6 or 4, respectively, to get a value of beats per minute. The pulse can easily be felt by applying slight pressure with the fingertips (not the thumb as it has a pulse of its own) to either side of the voicebox (applying pressure to one side only), slightly to the left of the sternum (breastbone) which is over the heart, or to the palm side of the wrist in line with the base of the thumb.

The player should have run for a few minutes before his heart rate can be checked since it takes a while for the heart rate to reach a steady state. The count must begin as soon as possible after the exercise stops because the heart rate slows down quickly after exercise.
Soccer is a physically demanding high-intensity intermittent sport performed over a prolonged period of time. To avoid the negative effects of fatigue in the latter stages of a game it is important to design and implement soccer-specific conditioning programs based on sound scientific knowledge. For too long coaches have relied on out-dated training ideas based solely on posterity, gut feeling or the “puke index” i.e. run them until they throw up.

The main aim of this series of articles is to discuss the use of heart rate monitors as a device that coaches can utilize to develop and implement meaningful training sessions either with or without a ball.

It has been well documented that as exercise intensity increases so too does heart rate (beats per minute). The intensity at which a player is training can be expressed as a percentage of his/her maximum heart rate (maxHr). For example, a player with a maximum heart rate of 200 beats per minute is training at 160 beats per minute. This would be referred to as 80% of maxHr. Due to this relationship between exercise intensity and heart rate a coach can assign specific heart rate zones depending on the desired outcome of a training session i.e. aerobic low intensity, high intensity, speed endurance etc. It must be noted that maxHr does not change with fitness levels but will decrease with age, however, large variations exist between individuals of similar age therefore it is important to record each individuals maxHr prior to assigning heart rate training zones.

**But how can coaches use this information to their advantage?**

Lets use an example of two players during a 5 V 5 possession game. The coach wants the players to perform at a high intensity for the duration of the game. Both players are performing at 160 beats per minute. Player 1 with a maxHr of 180 is therefore working at approximately 90% of his maximum, which is considered “high intensity” and is meeting the desired performance goals.

Player 2 with a maxHr of 200 is working at only 80% of his maximum, which could be considered relatively low intensity. This scenario underscores the importance of knowing each players maxHr prior to assigning heart rate training zones. Coaches can use this information to motivate players to perform to their given potential as well as to inform players of their “lack of effort.”
Advances in technology have made it possible for players to wear heart rate recording devices without suffering any detrimental effects on performance. The heart monitor consists of a chest strap and a wrist receiver (watch). The signal is sent from the chest strap to the watch where the information is stored for retrieval at a later time.

Graph 1, below, illustrates how the information stored in the watch can then be downloaded for analysis by qualified coaching and medical staff.

The training session illustrated in graph 1 consisted of a pre-season interval workout (no ball). A warm-up was followed by 5 minutes of steady paced running at 70 – 80% maxHr. 5 intervals of 4 minutes in duration were then performed with 2 minutes recovery between intervals. Target heart rate zone for each interval was assigned at 85 – 92% maxHr. The goal of this training session was to both increase the lactate threshold as well as develop greater lactate tolerance and clearance rates. It could therefore be considered a high intensity training session.

As you can see from the graph the target heart rate zones (dotted black lines) were accomplished on all 5 intervals. During intervals 4 and 5 the heart rate slightly exceeded the assigned zone for a period of time. A variance such as this is not to be considered too detrimental since the player was trying to maintain his pace from the first 3 intervals. The cumulative stress of the previous intervals will also cause this slight increase in heart rate during intervals 4 and 5. The recovery heart rates between intervals were fairly consistent throughout the training session (approx. 140) suggesting that a sound level of base conditioning is present.

This is only one sample of how a heart rate monitor can be utilized to give accurate feedback to both players and coaches. Training sessions can be stored for review and comparison at a later date. This allows a coach to compare similar sessions over time to discover if the training is having its desired effect.

In part 2 of this series of articles I will compare this interval workout with a session incorporating the ball i.e. Small-sided games and will discuss the benefits of both types of training.

Courtesy, By Mick McDermott, B.Sc Physical Education, USSF ‘A’ License, UEFA ‘A’ candidate, Certified Strength & Conditioning Specialist
Continuous Running

In continuous running the heart rate must be maintained above a training threshold for adaptation to take place. Continuous running is a training method, which stresses the aerobic energy system. It is a good training method to maintain and build aerobic fitness in the off-season and as an alternate training method during the pre-season, but for the in-season soccer player one of the other training methods will be more beneficial.

During a continuous running program, stress on the cardiovascular system (which supplies oxygen to the cells) is applied by maintaining a training heart rate for more than 20 minutes of uninterrupted running. The target heart rate represents a threshold below which little adaptation takes place. The table below shows how to determine a training heart rate. The maximum heart rate can be predicted by subtracting the athlete’s age from 220. It is difficult to obtain an accurate maximum heart rate by counting the heart beats; it could also be unsafe to push an untrained person to maximum without trained assistance. Periodic revision of the target heart rate is necessary because resting heart rate slows down as fitness level increases.

When starting a continuous running program, the player should calculate his training heart rate using 70% of the maximum heart rate range and maintain that heart rate for 20 minutes. The overload principle can be applied as his fitness level increases by gradually increasing the percentage to 80% and then, when this has been accomplished for 20 minutes, the running time at that level should be extended to a maximum of one hour. For maximum adaptation a continuous running program should be followed from three to five times a week.

**Determination of a Training Heart Rate for Continuous Running Training.**

<table>
<thead>
<tr>
<th></th>
<th>You</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum heart rate (HR) possible</td>
<td>220</td>
<td>220</td>
</tr>
<tr>
<td>Your age in years</td>
<td>-</td>
<td>-20</td>
</tr>
<tr>
<td>Predicted maximum HR</td>
<td>-</td>
<td>200</td>
</tr>
<tr>
<td>Resting HR*</td>
<td>-70</td>
<td></td>
</tr>
<tr>
<td>Maximum HR range 130</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training percentage (60-80)**</td>
<td>x</td>
<td>0.70</td>
</tr>
<tr>
<td>Percentage of max HR range</td>
<td>91</td>
<td></td>
</tr>
<tr>
<td>Resting Heart rate</td>
<td>+</td>
<td>+70</td>
</tr>
<tr>
<td>TRAINING HEART RATE</td>
<td></td>
<td>161 ***</td>
</tr>
</tbody>
</table>
* Count the resting heart rate before getting up in the morning.
** Use 60% if extremely unfit, otherwise use 70% or 80%.
*** The training heart rate zone will be within 5 beats per minute of the target heart rate (i.e., 156-166).
**Interval Training**

Interval training is probably the best conditioning method for year-round soccer practice and training.

Interval training is possibly the best method of training both the anaerobic and the aerobic energy systems. This method of training consists of fairly intense bouts of exercise, each alternated with a period of relief. Because of the relief intervals, interval training permits far more work to be done at a high intensity before fatigue slows the athlete down than in the other methods. The schedules are fairly rigid and need understanding by those using them so they can achieve maximum improvement by adapting the workloads and training distances to suit individual fitness levels.

In interval training, the exercise repetitions (or reps) are grouped into sets. For example, eight 20-yard runs may constitute two sets of four reps each. After each rep the athlete gets a relief period, during which he keeps moving but at a lower intensity. Between sets he gets a similar, but longer relief period. A target heart rate should be reached during each rep.

The heart rate must be allowed to drop to below 150 beats per minute between reps, and to below 130 beats per minute between sets. Allowing the heart rate to partially recover permits extra stress to be placed on the anaerobic energy systems as well as enabling the athlete to complete more intense work. In this way both aerobic and anaerobic adaptations occur with interval training. It is not necessary to check heart rate for each rep and rest period, the athlete need only check periodically to see that they are maintaining a suitable intensity and allowing adequate recovery time.

The total distance run in intervals should be between one and two miles. Short sprinting distances like 20-yard dashes will stress speed improvement and the anaerobic energy systems, whereas the longer distances like a lap of the field will improve aerobic conditioning.
**Fartlek Training**

Fartlek training is a relaxed adaptation of interval training. Fartlek training (literally "speed play") is normally done in-groups led by a member of the group. The group sets off on a cross-country run at an easy pace. The leader who can be changed periodically, varies the pace from time to time with short, intense sprints, and fast middle distance runs of up to a half mile in length. Recovery periods, tempo, and speed are up to the leader's discretion and can be adapted to suit the terrain, like a sprint up a hill, or a zigzag run between fallen leaves. This is a good aerobic and anaerobic practice for the off-season and pre-season and should be a fun "follow-the-leader" game.

The Fartlek system can also be used during in-season or preseason sessions for skill practice, or a warm-up ball handling session. Here, the leader, closely followed by his group of 2 to 4 players, changes not only the pace and direction of running around the field, but also varies ball control skill challenges into the workout.

During the Fartlek training the leaders must allow some recovery breaks between the intense routines. This will allow the players to do more work at a high intensity before tiring.
Acceleration running can be used to improve endurance and speed. Acceleration running is a form of interval training, which involves a gradual increase of pace from a walk, to a jog, to a stride, and then to a sprint before returning to a recovery walk.

Each change of pace should take place over a similar distance. For speed and anaerobic work the distances for each pace could be from 10 to 20 yards and for aerobic endurance the distances could be from 100 to 200 yards. The walk segment should be slow enough to allow the player's heart rate to drop below 130 beats per minute. The number of repetitions will depend on the player's fitness level. They should work until they are tired, but not exhausted.

Overload can be applied by either increasing the number of repetitions or decreasing the time taken for each run. The rest period depends on heart rate recovery and must not be shortened as a means of overloading the player.

Dribbling skills can also be incorporated into this method of training that stresses both anaerobic and aerobic energy systems. It is a good training method for pre-season and early season training.

Acceleration running is a good training method for cold weather because the gradual increase in speed is less likely to cause injury to cold muscles than a sudden change of speed.
Designing a Soccer Specific Fitness Program

The fitness trainer is now becoming accepted as a necessary member of the modern soccer coaching team. This new coaching model has the Head Coach leading a team of specialist coaches, therapists and sports scientists. For example, the head coach is accompanied by a secondary technical coach, a physiotherapist, a psychologist, a fitness trainer and a physiologist, with each performing their specified role, but communicating and working as a team.

The trainer should be able to design workouts that cover all relevant fitness areas - strength, flexibility, agility, aerobic and anaerobic endurance and speed. These workouts must be both specific to the sport and suitable for the level of the athlete. In addition, the trainer should be able to assess fitness levels, understand physiological and biomechanical test data, liaise with physiotherapists regarding injury prevention and rehabilitation and also be able to pass on sound nutritional instruction. This job description, if carried out to full capacity, requires a great deal of expertise and experience and is likely to be beyond the knowledge base of most head coaches. Thus, the advantage of using a specialist fitness trainer is that he or she has the specific skills, experience and time to optimize the physical preparation of the athlete.

The purpose of this presentation is to explain the principles behind designing a soccer specific fitness program and describe some of the important training methods that should be employed. Specifically I will discuss fitness assessment procedures, analysis of the fitness demands of a sport, strength and power training, balance and stability training, endurance training, and speed and agility training.

Fitness assessment & needs analysis
The principles behind designing soccer training programs are analogous to the methods used by corporate management consultancy firms. When asked to provide a business solution, a management consultancy firm will begin by establishing the goal the client wants to achieve. They then assess the client's current status, systems, markets, etc.

The final step is to calculate what is required to bridge the gap between the client's current status, and what they need to achieve their business goal. This final step is called gap analysis. The plan they implement is based completely on the outcome of the gap analysis. This gap analysis model is exactly how a Soccer fitness program should be designed. Step 1 is to set the athlete's or team's goals - what do they want to achieve. Step 2 is to assess the Soccer players or team's current level of fitness. This assessment must cover all the relevant fitness areas specific to their sport or event. Step 3 is the gap analysis, which is calculating the difference for each fitness component between the current and ideal fitness levels.
Finally, Step 4 is designing the training program that will improve each respective fitness area to the required level.

This example should clarify the situation. Player profile: Male 19 year-old national soccer player (goal keeper). Some weight training experience and completes regular cycling and treadmill workouts.

1. Goal - Become a professional player
2. Fitness Status

<table>
<thead>
<tr>
<th>Test</th>
<th>Fitness area</th>
<th>Current</th>
<th>Ideal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multistage fit test</td>
<td>Aerobic</td>
<td>11.8,</td>
<td>60</td>
</tr>
<tr>
<td>30 m sprint</td>
<td>Linear speed</td>
<td>4.2 s</td>
<td>3.9 s</td>
</tr>
<tr>
<td>Standing broad jump</td>
<td>Leg power</td>
<td>2.3 m</td>
<td>2.8 m</td>
</tr>
<tr>
<td>Overhead medicine ball throw</td>
<td>Arm power</td>
<td>16.1 m</td>
<td>16 m</td>
</tr>
<tr>
<td>20 m Shuttle run</td>
<td>Agility</td>
<td>4.7 s</td>
<td>&lt; 4.5</td>
</tr>
</tbody>
</table>

**Gap analysis**

Aerobic fitness is pretty good, not far off ideal. All the sprint, agility and leg power tests are below ideal. Especially, the standing broad jump test, suggesting that leg power could be improved. Arm power is fine and therefore needs only to be maintained.

**The program**

The player has a six-week period of no competitive Soccer and so we will devise a plan to improve leg power and agility for this period, while maintaining upper body strength and aerobic fitness.

**Monday**
- Frappier drills
- Squat jumps, standing long jumps, hexagon drill, lateral hops.
- Resisted sprints, 10 x T drill, 2 minutes rest.

**Tuesday**
- Power cleans, squats, leg curls, power lunges, medicine ball for upper body and trunk
- As Monday

**Wednesday**
- Easy aerobic session plus medicine ball work

**Thursday**
- Rest

**Friday**
- As Monday

**Saturday**

The progression over six weeks would be to increase the intensity of the plyometric drills and the weight lifted in the gym - e.g., replace squat jumps with drop jumps into lateral sprint. By the end of the six week period the player would be re-tested and hopefully we would see improvements in 30m sprint, standing long jump test and 20 m shuttle run test.

**Non-lab-based fitness assessments**

Here is a selection of fitness assessments that cover all aspects of physical performance. For each Soccer player or team one should select a few relevant tests, using this list as a guide.

**Multi-Stage Fitness Test (Bleep test)**
Estimates aerobic power or VO2max, in ml/kg/min. Very good for games players as it is specific to the nature of their sport. Not suitable for rowers, swimmers or cyclists as they will achieve higher scores on specific tests.
Also, endurance athletes may have trouble with short turns.

<table>
<thead>
<tr>
<th>Level</th>
<th>VO2 max (ml/kg/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>40</td>
</tr>
<tr>
<td>10</td>
<td>47</td>
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<td>12</td>
<td>54</td>
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<td>61</td>
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<tr>
<td>16</td>
<td>68</td>
</tr>
<tr>
<td>18</td>
<td>75</td>
</tr>
</tbody>
</table>

**Cooper Test**
The Cooper test is an alternative test for aerobic fitness. It is very simple, being the maximum distance run in 12 minutes. VO2 max is estimated by the formula $\text{VO2 max} \approx 22.351 \times d \text{(km)} - 11.288$ (ml/kg/min)

**VO2 max scores from elite sports:**
- Endurance runners & cyclists > 75 ml/kg/min
- Squash = 65 ml/kg/min (male)
- Soccer = 60-65 ml/kg/min (male)
- Rugby = 55 ml/kg/min
- Volleyball = 50 ml/kg/min (female)
- Baseball = 50 ml/kg/min (male)

**300 yard Shuttle**
This is a test of intermediate anaerobic power, i.e., the lactate system. It is performed as a shuttle run over 25 yards (300 = 12 x 25). This is a good test for games players as the shuttle format makes it sport specific. Especially for soccer.

**T - Drill**
This is a test of agility. It involves running forwards 10 yards, side-stepping left 5 yards touching a cone, side stepping right 10 yards touching a cone, side-stepping back 5 yards and running backwards 10 yards to the start. This is classic test for Soccer, which involve multidirectional movement.

**20 metre Shuttle Run**
Another test of agility but a more simple drill involving only sprinting and turning. Good for Soccer. The athlete starts in the middle cone, sprints 5 metres to the left, touches the far cone, turns, sprints 10 metres across to far cone, touches and sprints back to the middle.

**Standing Long Jump**
A test of maximum anaerobic power (leg). Functional test for initial acceleration and horizontal power. Good scores are 2.50 - 3.30 m (male), 2.3 - 3.0 m (female).

**Vertical or Sergeant Jump**
A test of maximum anaerobic power (leg). Probably the most widespread test used to test leg power. Considered very functional. Athlete performs a counter movement jump using the arms and touches with one arm as high as possible. This is a functional vertical power test. Good score: 55 - 70 cm (male).

**Drop Jump**
A further max anaerobic power test (leg). Athlete drops off a bench and instantly rebounds and performs a maximum vertical jump. The score is the maximum drop height at which the athlete can still achieve the same score as on the vertical jump. This is a measure of the athlete’s plyometric (SSC) power. Anything less than 18” suggests that SSC exercises for RFD are a priority.
Overhead Medicine Ball Throw
A test of upper body power. The athlete performs the equivalent of a football throw-in with no run-up. 2 - 5 kg ball.

Press Up Max
This is a test of upper-body strength. Correct form is important and must be monitored for a correct test score. For men >45 is excellent, women >30 is excellent. For men <20 is poor, women <8 is poor.

Sit Up Max (1 min)
This is a measure of trunk strength endurance. The Soccer Player performs as many full sit ups as possible in 1 minute with his/her feet held. Good scores are 60 for men and 50 for women. Poor scores are 38 for men, 30 for women.

1 RM Squat
Maximum leg strength test. Considered the most functional of leg strength tests in predicting sprinting and jumping ability. Elite players can achieve 2 x BW (male) and 1.5 x BW (female). 1 RM can be estimated from formula 1 RM = wt x (1 + 0.0333 x reps).

1RM Leg Press
Maximum leg strength test. A useful test as no technique or prior experience is required; however, it is not as functional as the squat. The recommended guideline is that Player should be able to push >2.5 x BW.

1 RM Bench Press
Maximum upper body strength test. The need for maximum upper body strength varies between sports and so it does not always need to be tested. For example, in Soccer a basic upper body strength will suffice. Good scores are 1.25 x BW (male) and 0.8 x BW (female).

Per Cent Body Fat
This is an important test because it relates directly to an athlete's fitness. It can be measured by skin fold formulas or by bio-impedance machines. Too much body fat means aerobic training and nutrition need to be prioritized. Remember: athletes only need to eat a low-fat diet to be lean - not a low calorie diet. Be careful that the test is accurate and that you can trust it; otherwise you could be boosting aerobic training and changing diets for no good reason. A body-fat score can be highly motivational; you do not want to invoke misplaced changes in eating habits. Typical scores for athletes are 6-12% for men and 12-20% for women.

Flexibility
Ideally, the full range of motion for all the major joint movements should be tested, for instance, straight leg raise test for the hamstrings.

Food for thought
All the tests above are easily accessible and will provide the trainer with the information they need to design the training program. However, you do not need to use them all. Select only those which are relevant to the athletes’ sport. Sometimes we can be tempted to use a test because it is popular or because there is data available. For instance, quads/hams isokinetic ratios or lactate profile test in lab. Remember to always question exactly what the test is telling you. Make up your own tests. Sometimes it does not matter if no one else uses it, if it is relevant to the athlete and you see the progression.
The assessment results are analyzed to establish which fitness areas need to be developed to raise competitive performance. The design of the training program should prioritize these areas to bring them up to scratch. The fitness areas which are already good can simply be maintained. This principle recognizes the fact that it is difficult to develop all aspects of physical performance at once. This is both because of practical issues - there may be simply a lack of time to work on all areas during the training week - and physiological issues, in that strength and power development is compromised by endurance training.

The following sections will briefly describe appropriate training methods and their dosage for each of the fitness aspects.

**Strength and power**
At some stage every Soccer player needs to develop strength and power. The best results are achieved with 2-4 times a week training, with little concurrent endurance training. In competitive periods, this is not practical for many sports although research has shown strength maintenance and sometimes improvements are possible through a season with regular strength training. The best solution is for strength and power development to be planned for the off season and then maintained through the season.

To develop max strength, a weights exercise session should be designed. A typical session comprises 5-10 exercises with 2-4 sets of 5-12 RM per exercise. To develop power, plyometric exercises are most commonly used. A session comprises 5-8 exercises with a total of 100 - 300 foot/shoulder contacts per workout, depending on the athlete's level and time of year. Weights and plyometric exercises can be combined in the same session. This is called complex training and is very effective for peaking.

**Aerobic endurance**
Aerobic fitness is primary for Soccer. However, it is not the only fitness area and if it is focused on too much can be detrimental to strength and power - which are equally, if not more important, in many sports. Trainers must think carefully about the fitness level they believe is appropriate for peak performance and then achieve that. For example, in elite Soccer a high aerobic capacity is key.

**Effective methods of developing aerobic fitness:**

a) 4-6 x 2-5 minutes with 2-5 minutes rest. Proven to be very effective for boosting VO2 max when performed once/twice a week.

b) 20 x 200m with 30 seconds recovery or 10 x 400m with 60-90 seconds recovery.

c) 5 - 10 km steady runs.

The advantage of using interval sessions is that the athlete always runs fast, and the volume of training is kept low. This should help reduce interference with strength and power development. The advantage of steady runs is that they take less recovery time, and are not as psychologically demanding.

To develop aerobic fitness perform session a & b once a week plus two or three steady runs. To maintain aerobic training, perform either sessions a or b once a week. **...and anaerobic**

Anaerobic endurance is also important for many sports. This is the ability to work at a high intensity repeatedly. Both the lactate system and the ATP-PC system should be trained, significant lactate system training as it much more continuous. Anaerobic endurance can be developed with 2-3 times a week training.

**Effective methods for ATP-PC development:**

a) 3 x 10 x 30 m sprints starting every 30 seconds. 5 minutes between sets.

b) 15 x 60 m with 1 minutes rest.

c) 20 x 20m shuttle run, 45 seconds rest.
Effective methods for lactate development:
   a) 5-8 x 300m fast, with 45 seconds rest until pace significantly slows.
   b) 150m intervals at 400m pace, with 20 seconds rest until pace significantly slows.
   c) 8 x 300 m, 3 minutes rest (lactate recovery training).

Some aerobic benefit will also be gained from these sessions. Full anaerobic training should not take place with full aerobic training as well: one or the other must be prioritized.

Speed and agility
Speed and agility are a key to soccer.

Effective methods for acceleration:
a) All max leg strength exercises improve acceleration, as do leg plyometric exercises. Particularly useful ones are standing long jump, standing triple jump, hurdle hops, combination jumps (horizontal). b) Sprint starts. For example, 20 x 5 m with 30 seconds recovery. These can be made more specific by incorporating reactions to signals (e.g., the ball) or starting from various positions (e.g., the floor). c) Foot speed drills. For instance, frappier drills, complete max number of foot contacts in 10 seconds. d) Resisted accelerations. Athlete performs max 10 m efforts with trainer pulling with tubing. Very useful as it is a completely specific way to add resistance sprint start movement. However, must not be overdone as athlete can learn to run with slow cadence. Always finish workout with normal accelerations.

Effective methods for max sprint speed:
a) Hill sprints. 10% gradient up and down.
b) Overspeed running. For advanced athletes only but very effective for improving leg speed. Athlete sprints while being towed by tubing or machine.
c) Sprint drills. There is a whole repertoire of these used worldwide by athletics coaches. If used regularly they are very effective at improving running technique, coordination and stability of synergistic muscles involved in running. For instance, the walking drill.
d) Sprint workout. A typical sprint workout could be 5 - 10 x 30 - 80 m max efforts. 3-5 minutes rest in between.

VERY IMPORTANT TIP 1:
Soccer Players must always be completely fresh for speed training if it is to be effective. Therefore, no heavy weight training or hard endurance training the day before.

VERY IMPORTANT TIP 2:
Speed training sessions must always include long rest periods and focus solely on quality. Speed development is about teaching the neuromuscular system to operate at full speed and power and this is not possible if there is any fatigue. If rests are too short, the training will only develop speed endurance and not maximum speed.

Effective methods for agility:
a) Agility plyometrics. Certain plyometric exercises have an agility component in them. For example, lateral hops, depth jump and 180 turn, line hopping. b) Footwork ladder. Ladder drills are great for foot speed and agility as the ladder forces precision and speed of movement. c) Agility drills and shuttles. A regular workout should be performed including lateral shuffle, crossovers, back stepping etc., plus shuttle runs and drills which involve turning, e.g., the T drill. Focus on quality movement and technique to increase the athlete's agility and grace. These drills can be customized and made more sports-specific once the athlete has mastered the basics. For example, add catching a ball into the drill.
Balance, coordination and stability
A final area that must be incorporated into a Soccer training program is balance, co-ordination and stability training. Economy of movement, peak power and agility cannot be optimized unless the athlete has highly developed balance and stability. Balance and co-ordination have to be developed through many different methods as variety is key. Exercises on the wobble board and balance beam are great for this. With a little imagination one can think of many things to challenge an athlete's balance and co-ordination. For instance, balancing on a wobble board while juggling. Stability, especially in the trunk, must also be developed through various methods. I recommend using gymnastic balls, learning some Tai Chi moves, as well as using a medicine ball for the stomach and low back exercises. Particularly effective are static bridging exercises, e.g., The Plank, for developing functional core stability. A stability workout should be performed at least twice a week.

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**Chasing Shadows**

**Exercise Objectives:**
This exercise can be used as a anaerobic fitness drill or part of your practice session warm up. It will improve players speed and agility over short distances and spatial awareness.

**Field Preparation**
Area approximately 20 x 20 yards, unlimited number of players.

**Coaching Pointers:**
The group is divided into pairs. The players make a circle approximately 20 yards in diameter as shown above. Two players start the exercise. Player "A" tries to tag player "B", player "B" can run anywhere to avoid being tagged, inside or outside of the circle. If player "B" is tagged they must now chase player "A". As the player runs around trying to avoid being tagged, they can rest by standing next to any of the pairs or players. The player they stand next too now become the "chased" player.

Allow time for all players to get a good work out.

Coach should develop a high tempo rhythm as quickly as possible.

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Penalty Spot Run

**Exercise Objectives:**
This is a great anaerobic fitness exercise to improve each players speed and agility over short distances.

**Field Preparation**
- Penalty Area
- Unlimited number of players
- Stop Watch.

**Coaching Pointers:**
The working player starts from the penalty area. The players sprint “flat out” to a corner of the box and back to the penalty spot. Hit all four corners. Best performed with small group of 4 players. Ratio 3:1, Rest 3, Work 1. Do 7 sets each player.

**Variation:**
Add a ball. Player now performs the same exercise but runs with the ball at their feet.

Coach should develop a high tempo rhythm as quickly as possible.
**Fitness Triangle**

**Exercise Objectives:**
This is a great anaerobic fitness exercise to improve each player's speed over 10 yards.

**Field Preparation**
- 10 yard Triangle
- 4 players
- 1 Ball

**Coaching Pointers:**
The exercise starts with the player "A" passing the ball to player "B". After passing the ball the player must sprint "flat out" to the next cone. This is repeated around the triangle.

- Do 10 sprints Clockwise, 10 x 10 yards = 100 yards.
- Do 10 sprints Counter - Clockwise, 10 x 10 yards = 100 yards.
- Run with the ball 10 x 10 yards = 100 yards.

**Variation:**
Add more players and 2 balls.

Coach should develop a high tempo rhythm as quickly as possible.
**Fitness Circle 1**

**Exercise Objectives:**  
This is a great drill that incorporates technique and fitness work.

**Field Preparation**  
Practice area approximately 20 yards x 20 yards, Group of 8 to 12 players, I Ball

**Coaching Pointers:**  
The exercise starts with the players in a large circle 15-20 yards. In the diagram above, player “A” sprints “flat out” around the circle and back to his original position. The player to his right then sprint full circle etc. While the player on the outside of the circle is sprinting and working on his fitness, the players on the inside play “keep away” with a defender in the middle. Make sure the circle is always balanced.

Coach should develop a high tempo rhythm as quickly as possible. Players must constantly be moving and communicating with each other. Passes should be quality followed with explosive runs into space. The player sprinting should work “flat out”.

**Variation**  
- Have player run backwards around circle.  
- Have player run the circle twice.  
- Have 2 defenders in inner circle.  
- Play one touch.
**Fitness Circle 2**

**Exercise Objectives:**
This is a great drill that incorporates technique and fitness work.

**Field Preparation**
Practice area approximately 20 yards x 20 yards, 1 Ball, Variety of fitness equipment - High Hurdles, Mini Hurdles, Ladders, Group of 8 to 12 players.

**Coaching Pointers:**
The exercise starts with the players in a large circle 15-20 yards. In the diagram above, player "A" goes "flat out" around the circle and performs exercise at each piece of equipment. "Quick steps through the Ladder, two foot hop over mini hurdle and under high hurdle etc, be creative! Once he get back to his original position the next player in line then repeats the drill.

While the player on the outside of the circle is sprinting and working on his fitness, the players on the inside play "keep away" with a defender in the middle. Make sure the circle is always balanced. Coach should develop a high tempo rhythm as quickly as possible.

Players must constantly be moving and communicating with each other. Passes should be quality followed with explosive runs into space. The player sprinting should work "flat out".
The Running Tree

Exercise Objectives:
This running session can accommodate the entire team. The distances, angles and types of sprints are varied.

Field Preparation
- Practice area approximately 40 yards x 50 yards
- Entire Group
- Cone and Flag Poles

Coaching Pointers: From the starting gate:

(Part 1) Sprint to first cone and back, then sprint to second cone and back.
(Part 2) Sprint left to flag, return running backwards.
(Part 3) Sprint backwards to flag, return sprinting forward.
(Part 4) Sprint in "Zig Zag"
(Part 5) Sprint full length to end flag.
Several players can run at the same time. Each player should complete six sets.

Variation
Add different exercises at the end of each branch, such as; sprint and do 5 sit ups, push ups etc. Incorporate a ball, ladders or hurdles.
Scotland Runs

Exercise Objectives:
This exercise is used by the National Team of Scotland to develop team fitness while incorporating the ball.

Field Preparation
Place cones approximately 10 yards apart (9 meters) as in the diagram above. Position a player at each cone with a ball each (except the starting cone), Position a group of players at the starting point.

Coaching Pointers:
First player at the start line, player "1" runs to player "2" and plays a "give and go" with player 2. He then runs around the cone and plays a "give and go" with player 3. He repeats this with all the players until he reaches player 9. He then takes the player 9 position. After each player passes the ball to player "1" they must receive the return pass and kill the ball dead at the cone. They leave the ball and sprint to the next cone ahead of them, back to their cone and again back to the cone ahead of them where they stay. After each pass they are moving up a cone closer to the starting line. The concept is for the players to move up the cones by doing 3 sprints each time they pass the ball to the runner. Eventually when they reach the last cone they then become the running player. Note: Start the second runner when the first runner is mid-way down the line. This sets a good tempo to the practice session. Keep track of distance covered during session. Work approximately 15 minutes.
**Exercise Objectives:**
This is a great exercise to develop your team's fitness level while incorporating the ball.

**Field Preparation**
Place flag poles approximately 20 to 30 yards apart (9 to 27 meters) as in the diagram above. Position a player at each flag pole, Position a group of players with a ball each at the starting point.

**Coaching Pointers:**
- First player at the "start line" passes to player (2) and runs to flag 2.
- Player (2) passes to player (3) and runs to flag 3.
- Player (3) passes to player (4) and runs to flag 4.
- Player (4) passes to player (5) and runs to flag 5.
- Player (5) passes to player (6) and runs to flag 6.
- Player (6) passes to player (7) and runs to flag 7.
- Player (7) controls the ball and dribbles full speed to the starting line.

**Note:** The sequence is started each time player (3) passes to player (4). This ensures that several balls are being played at the same time and keeps a high tempo to the practice.
Progressions:

- Have player "run with the ball" to the flag pole.
- Have player chip the ball to the next player at the flag pole.
- Have players run with the ball half way and play a "give and go" to the player at the flag pole.
The circuit consists of 8 soccer specific speed, agility and quickness drills. Each drill is done for: 45 seconds then a: 30 second rest is given for rotation and recovery. As the conditioning level of the players increase decrease the rest time to 15 seconds and increase the work time to 1:00 minute.

Guidelines

- All speed work must be performed when the body is fully rested.
- Proper sprinting techniques must be taught and mastered by the player.
- All sets and reps must be followed by adequate rest.

Acceleration

- Most important component of speed development.
- The highest rate of acceleration is in the first 8-10 strides taken by a player.
- Close to 75% of max running velocity is achieved within the first 10 yards (8 metres).
- As mentioned earlier true max running speed is seldom attained in most sporting situations.
- The two things that will improve soccer speed is stride frequency and stride length.
Stride Frequency

- Stride frequency is the number of strides taken in a given amount of time or distance.
- By improving stride frequency the player will be able to decrease the time between strides, while at
  the same time maintaining or improving stride length. This will result in overall increased speed.
- Traditional methods of improving stride frequency are downhill running or towing.

Stride Length

- Stride length is the distance covered in one stride during running.
- Stride length can be developed by improving the players elastic strength.
- There are numerous ways to improve elastic strength including resistance training, plyometrics and
  resisted running, weighted vests and uphill running.

Coaches should be careful not to get carried away with some of these methods. The decision to use these
methods depends on the training level of the player, time available to train the player and familiarity of the
method. Don’t know, Don’t teach it!

Sprint Mechanics

Sprint mechanics is just another term for sprint form or sprint technique. Proper technique allows the athlete
to maximize the forces that the muscles are generating so the highest speed predicted by the players
 genetic potential and training can be achieved.

There are three main elements to concentrate on regarding proper sprinting mechanics. Posture, Arm action
and leg action.

Posture: Forward lean in acceleration, as player approaches top speed the posture should be more erect.

Arm action: Vigorous and coordinated arm movement is necessary in all phases of sprinting. The arm
swing counteracts leg and hip rotational forces. This counterbalance allows the body to stay aligned in the
intended direction.

Leg action: Relationship of the hips and legs relative to the torso and the ground.

Proper Sprinting Technique

- Head Position: should be inline with the body.
- Body Position: a slight forward lean during acceleration. At max speed the torso should be tall.
- Leg Action: weight should be on balls of the feet.

Agility

Agility is the ability to accelerate, decelerate and change direction quickly while maintaining good body
control. Soccer is not performed straight ahead, it is all change of direction in which lateral movements are
used in several planes. Agility doesn’t tend to dissipate as quickly as speed, strength and endurance
training. Players that
develop the ability to change direction quickly and efficiently will be the better prepared for competition.
Players need agility to increase their speed of movements, manage injuries and improve athleticism.
Quickness

The successful performance of a player relies heavily on their ability to react quickly. The quicker player will maintain the competitive advantage.

Quickness in of itself seems simple enough to explain. A player is either quick or not. Although genetic potential plays an important role in a player’s physical ability, many biomotor skills that depend on quickness can be improved.

**Reaction Time:** Reacting to a stimulus with speed. The time it takes for a player to react to a stimulus can be the difference between winning and losing.

Improving quickness has major implications for the enhancement of speed acceleration and reaction time. The faster one can teach the brain the movement patterns required, the faster one can concentrate on improving the quickness with which the movement is performed.

**How to be quick?** Perform successive repetitions of technically correct movement patterns as fast as possible.

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**Soccer Speed, Agility and Quickness Circuit**

**Forward Ladder**

All drills will be performed in a linear fashion.

1. **Forward run** – run through the ladder putting both feet in the rung.

2. **In-in-out** – start on the left side of the ladder. Lateral step with the right foot and place it in the first square, then the left foot follows the right foot inside the first square of the ladder. Lateral step with the right foot to the right side of the ladder, then advance the left foot to the next square in the ladder. Bring the right foot to the square the left foot is in. Lateral step to the left side of the ladder and advance the right foot to the next square on the ladder. Repeat pattern.
Zig Zag Runs

Place 6 cones, 5 yards (4 metres) apart at a 45° angle. Start in a 2-point stance. Sprint to the first cone, plant on outside leg and cut sharply towards the next cone. Repeat. Variations: Change distance of cones, cut with inside leg or plant and run around cones.
**Soccer Speed, Agility and Quickness Circuit**

**Mini Hurdle Hops**

Start 5 yards (4 metres) away from the first mini-hurdle. Sprint to the hurdle do a forward hop over it. As soon as contact is made with the ground laterally jump left over the next mini hurdle. As soon as contact is made with the ground jump forward over the next mini hurdle. As soon as contact is made with the ground jump laterally right over the mini hurdle. As soon as you hit the ground sprint 5 yards, forward at the cone side shuffle left. At the next cone drop step and sprint through the last cone.
**Soccer Speed, Agility and Quickness Circuit**

**Four Corner Drill**

Start in a 2-point stance. Sprint 20 yards (18 metres) to the first cone. At the first cone sprint diagonally 14 yards (12 metres) to the second cone. Backpedal 10 yards (8 metres) to the third cone. At the third cone, sprint diagonally 14 yards to the fourth cone.
**Soccer Speed, Agility and Quickness Circuit**

**Lateral Ladder**

All drills will be done in a lateral fashion.

1. **Side shuffle** - Begin by standing sideways to the ladder. Leading with your right foot place both feet in the box. Repeat this procedure throughout the ladder. At the end lead with your left foot and again repeat the procedure through the ladder.

2. **Carioca** - Begin standing sideways to the ladder. Cross-step with the right foot into the first square in front of the left leg. Cross the left foot into the second square. The left foot should cross behind the right leg. Cross-step with the right foot into the third square. The right foot should cross behind the left foot. The left foot crosses over in front of the right foot into the next square. Repeat this sequence through the ladder.
Traffic Run with Cones

Place cones as indicated above. Sprint to first cone, plant on outside and cut sharply towards next cone. When the cones are next to each other side shuffle to the next cone. Once you reach the cone drop step and accelerate to the bottom cones.
Soccer Speed, Agility and Quickness Circuit

Drop and Recover Sprints
Place the cones as indicated above. Sprint to the first cone drop on to a push-up position as soon as you drop get up as fast as possible and sprint to the next cone. Repeat at each cone. The key to this goal is accelerating as soon as the athlete is up.
Agility Drill

Place 2 cones 10 yards (8 metres) apart in a straight line. In a 2-point stance sprint to the cone as fast as possible touch the cone with your foot and sprint back. Once you get back to the start, side shuffle to the cone touch it with your foot and side shuffle back. Once you get back to the start cone touch it and back pedal up and back. Repeat this until time expires.
The following is an example of a "Skills and Fitness" Circuit Training set up.

This is a 30 minute program and designed for players to work at high intensity. There are 6 stations with players working for a total of 5 minutes at each station. The coach should first explain each station to the entire group and the pattern of rotation.

On the coaches command players must jog quickly to their next exercise to maintain their working heart rate. Click on the station on the diagram above to see drills.

Circuit training can be adapted to make skill, agility, and strength practice fun. Circuit training is a method of attaining fitness, which uses intense work with a number of repetitions interspersed with rest or running. Parcours exercise programs are an example of this type of training and are excellent for developing and maintaining off-season overall fitness.

With a little imagination, circuit training can be adapted to in-season soccer practice with drills or exercise stations designed as tests of fitness or to add variety to practices.

When designing a circuit, see that activities using the same muscle groups do not follow one another; this allows the different muscle groups to recover between exercises. Usually a circuit will have from 6 to 8 stations and take from 2 to 10 minutes to complete. For soccer, stations can include skill, agility, and strength activities.
Station 1: Sprint Work (Around the Clock)

Position cones as in diagram above. Each cone is placed 6 yards out from the center cone. Two players alternate running. From the start position the player sprints to the center cone, then out to the next cone in sequence. Then the player jockeys backwards to center cone. The players sprints forward to the outside and jockeys backwards into the center. Complete full circle and alternate players. Each run should take approximately 20-25 seconds.
**Station 2: Aerial Passing**

Two players alternate playing aerial passes to each other. Encourage a variety of passing techniques such as the lofted pass, the bent pass and the chip pass. Players must not allow the ball to leave the grid when controlling the ball.
**Circuit Training**

**Station 3: Wedge Control**

Players throw their own service. A high lofted ball is served into the center of the grid. The player chases after their ball and redirects the ball using the "wedge control" technique. After redirecting the ball the player accelerates to any open side of the grid. The players keep alternating until they move to the next station.
Circuit Training

Station 4: Explosive Movements for Dribbling

Two cones should be placed approximately 10 yards apart. Both players are positioned each side of the cones. No player may cross over the imaginary line and the defender may not try to steal the ball.

The player in possession of the ball must use body feints, head fakes and a variety of dribbling moves to upset the balance of the defender. A goal is scored each time the dribbling player can lose the defender and stop the ball dead at either of the cones. The dribbling players knees should be bent and center of gravity low for an explosive start. If the defender does not move by using body movements, then move the ball to move the position of the defender. Once the defender is off balance the player should explode into the opposite direction. Try to face the defender at all times.

The defensive player can prevent the dribbling player from scoring a goal by placing his foot in front of the cone the player is attacking. The defender may not tackle or cross over the imaginary line. Players change roles.
Station 5: 1 V 1 Dribbling and Defending

Two cones are placed 1 yard apart in the middle of the center circle. Players play 1 v 1 within the confines of the center circle. Whoever has possession is the attacker until the ball is lost. Encourage a variety of dribbling maneuvers while attacking. Encourage defenders to be patient, always "goal side" and precise timing when making the tackle.
Circuit Training

Station 6: Attacking Heading

One player is the receiver, the second the server. The server plays under handed throws for the receiving player to head back "first time". The receiver must head the ball down to the ground and back to the server. The player scores a point for each header played back to the servers hands after bouncing once of the ground. After each header the receiver must turn and run to the starting line.

The server must throw a straight serve to the receiving player. The ball should be served approximately 7 yards in front of the server. If the server throws the ball too far the receiving player will not come to meet the ball. With a correct serve the receiving player is always encouraged to attack the ball. Change roles every 20 headers.
Speed Training One

Exercise Objectives:
This exercise can be used as an anaerobic fitness drill as part of your fitness session.

Field Preparation
- Full Field
- Unlimited Number of Players.
- Cones for Markers

Coaching Pointers:
Warm up for 15 minutes and stretch well before sprinting.

1. 10 X 20 yards
   - Sprint 20 yards and jog back
   - Rest 20 seconds
   - Repeat 10 times
   - Rest 2 minutes

2. 10 X 40 yards
   - Sprint 40 yards and Jog back
   - Rest 30 seconds
   - Repeat 10 times
   - Rest 2 minutes
3. **10 X 60 yards**
   - Sprint 60 yards and Jog back
   - Rest 40 seconds
   - Repeat 10 times
   - Rest and stretch 5 minutes

4. **10 X 120 yards (full field)**
   - Sprint 120 yards (full field)
   - Jog Back in own time
   - Repeat 10 times
   - Cool Down for 10 Minute
**Speed Training Two**

Exercise Objectives:
This exercise can be used as an anaerobic fitness drill as part of your fitness session.

Field Preparation
- Full Field
- Unlimited Number of Players.
- Cones for Markers

Coaching Pointers:
Warm up for 15 minutes and stretch well before sprinting.

Fast Feet
- Take very short and very fast steps with your arms pumping fast.
- Take 30 seconds to travel 10 yards i.e. your steps will be fast but your progress forward will be slow. Repeat 6 times.

Sprinting on the Soccer Field
- Sprint to 6yd line. Jog back. Repeat 6 times.
- Sprint to 18 yard line. Jog back. Repeat 6 times.
- Sprint to ½ way line. Jog back. Repeat 6 times.
- Sprint to other 18 yard line. Jog back. Repeat 6 times.
- Sprint to other 6 yard line. Jog back. Repeat 6 times.
- Sprint to Full field. Jog back. Repeat 6 times.

Cool Down and Stretch
Liverpool Runs

Exercise Objectives:
This exercise can be used as an anaerobic fitness drill as part of your fitness session.

Field Preparation
- Place each flag pole 20 yards apart in a circle as in the diagram above.

Coaching Pointers:
Position 2 players per flag pole, plus 4 more at one flag pole. The flag pole with 6 will be the starting position.

To start, 4 players from the starting position sprint to the next flag pole. When they reach the next flag pole 2 of the players stay there. The other 2 run to the next flag pole and rest. As soon as the first group hit the first flag pole, 2 players join them and sprint the length of 2 flags.

The whole concept is for each pair to sprint 2 flags and rest. On each sprint they will be paced by 2 players. Each circle completed equals 160 yards.

Record total distance sprinted.
<table>
<thead>
<tr>
<th>Completed Laps (based on 6 stations - 20 yards apart - 120 yards lap)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Lap</td>
<td>120 Yards</td>
</tr>
<tr>
<td>2 Laps</td>
<td>240 yards</td>
</tr>
<tr>
<td>3 Laps</td>
<td>360 yards</td>
</tr>
<tr>
<td>4 Laps</td>
<td>480 Yards</td>
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<tr>
<td>5 Laps</td>
<td>600 Yards</td>
</tr>
<tr>
<td>6 Laps</td>
<td>720 yards</td>
</tr>
<tr>
<td>7 Laps</td>
<td>840 yards</td>
</tr>
<tr>
<td>8 Laps</td>
<td>960 yards</td>
</tr>
<tr>
<td>9 Laps</td>
<td>1080 yards</td>
</tr>
<tr>
<td>10 Laps</td>
<td>1200 yards</td>
</tr>
<tr>
<td>11 Laps</td>
<td>1320 yards</td>
</tr>
<tr>
<td>12 Laps</td>
<td>1440 yards</td>
</tr>
<tr>
<td>13 Laps</td>
<td>1560 yards</td>
</tr>
<tr>
<td>14 Laps</td>
<td>1680 yards</td>
</tr>
<tr>
<td>15 Laps</td>
<td>1800 yards</td>
</tr>
<tr>
<td>16 Laps</td>
<td>1920 yards</td>
</tr>
<tr>
<td>17 Laps</td>
<td>2040 yards</td>
</tr>
<tr>
<td>18 Laps</td>
<td>2160 yards</td>
</tr>
<tr>
<td>19 Laps</td>
<td>2280 yards</td>
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<tr>
<td>20 Laps</td>
<td>2400 yards</td>
</tr>
</tbody>
</table>

Time to complete 2400 yards = ______________ date:_______________
**Half Field Runs**

**Exercise Objectives:**
This is an exercise designed to improve the aerobic fitness level of your players.

**Field Preparation**
- Half Field
- Entire Group

**Coaching Pointers:**
Spend at least 15 minutes on a good stretch and warm up before commencing the running program. Divide players into four groups and position a group at each corner of a half field. Assign a leader or "pacesetter" for each group.

On the coaches command the players will run in the following sequence:

1. **Sprint** 1 side, **Jog** 1 side.
2. **Sprint** 2 sides, **Jog** 2 sides.
3. **Sprint** 3 sides, **Jog** 1 side.
4. **Sprint** 4 sides, **Jog** 1 side.
5. **Rest** - continue walking around field.
Total average distance covered will be 1040 yards.

This exercise can also be performed with diagonal runs across the field. Distance would differ.

<table>
<thead>
<tr>
<th>Completed Distance</th>
<th>Average total distance covered - 1040 yards</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Sprint</td>
<td>80 Yards</td>
</tr>
<tr>
<td>1 Jog</td>
<td>60 Yards</td>
</tr>
<tr>
<td>2 Sprints</td>
<td>140 Yards</td>
</tr>
<tr>
<td>2 Jogs</td>
<td>140 Yards</td>
</tr>
<tr>
<td>3 Sprints</td>
<td>220 Yards</td>
</tr>
<tr>
<td>1 Jog</td>
<td>60 Yards</td>
</tr>
<tr>
<td>4 Sprints</td>
<td>280 Yards</td>
</tr>
<tr>
<td>1 Jog</td>
<td>60 Yards</td>
</tr>
</tbody>
</table>

Time to complete 1040 yards = _____________ date: ___________

<table>
<thead>
<tr>
<th>Group One</th>
<th>Group Two</th>
<th>Group Three</th>
<th>Group Four</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
<td>2.</td>
<td>2.</td>
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</tr>
<tr>
<td>3.</td>
<td>3.</td>
<td>3.</td>
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<tr>
<td>4.</td>
<td>4.</td>
<td>4.</td>
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<tr>
<td>5.</td>
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</tr>
<tr>
<td>6.</td>
<td>6.</td>
<td>6.</td>
<td>6.</td>
</tr>
</tbody>
</table>

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**Shuttle Runs**

**Exercise Objectives:**
This is an exercise designed to improve anaerobic fitness.

**Field Preparation**
- Area approximately 10 x 25 yards.
- Small group of players
- Cones

**Coaching Pointers:**

Shuttles runs are one of the most commonly used methods of speed training in soccer.

From the starting line, players alternate sprinting back and forth to designated markers placed at a distance of 5, 10, 15, 20 and 25 yards.

Sample work and rest ratio:

- 1:1 (2 players) run 1 set, rest 1 set.
- 1:2 (3 players) run 1 set, rest 2 set.
- 1:3 (4 players) run 1 set, rest 3 set.
One complete set of sprints equals 150 yards.

Average time to sprint should be 35 seconds.

**Variations:**
Go long to short.
Do it with a ball.

<table>
<thead>
<tr>
<th>Completed Sprints</th>
<th>150 yards per set</th>
</tr>
</thead>
<tbody>
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<td>1 Set</td>
<td>150 Yards</td>
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<td>2 Sets</td>
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<td>4 Sets</td>
<td>600 Yards</td>
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<td>5 Sets</td>
<td>750 Yards</td>
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<td>6 Sets</td>
<td>900 yards</td>
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<tr>
<td>7 Sets</td>
<td>1050 yards</td>
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<td>8 Sets</td>
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<td>9 Sets</td>
<td>1350 yards</td>
</tr>
<tr>
<td>10 Sets</td>
<td>1500 yards</td>
</tr>
</tbody>
</table>

Time to complete 20 Sets = ____________ date:________________
Fitness with the Ball

Exercise Objectives:
This is a simple anaerobic fitness drill with the ball that simulates a player running for the ball.

Field Preparation
Area approximately 10 x 20 yards, Small group of players, Cones and balls.

Coaching Pointers:
From the starting line, one player starts the exercise by playing a ball out towards the cone at the opposite side of the grid. Next player in line must sprint after the ball and prevent it from going past the cone. The player turns with the ball as quickly as possible, dribbles the ball back with speed and passes to the next server in line. Players alternate serving and sprinting. This exercise provides a change for the players rather than traditional sprints. Often players will sprint harder when chasing a ball.

Variations:
Players chase a bouncing ball.
Players pass immediately after turning.
After turning, players perform a "give & go" pass.