FA Learning
Fitness for Refereeing
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I would like to thank:

Louise Panteli  
David Dixon  
David Addison  
Craig Grundy  
Alf Field  
Paul Danson  
Roger Goodwin

For their contribution into the development of this publication.

Steve Swallow  
National Referee Fitness Coordinator

INTRODUCTION

I am often asked the question “How fit do you need to be to referee a football match”? Well I think this really depends on two factors. The first relates to a personal attitude which really is down to individuals and whether they use refereeing to keep up their fitness level. The second really depends on your commitment to reach higher levels of refereeing.

As you progress in refereeing, moving from local leagues into semi-professional football, the demands on referees are greater and with that a higher level of fitness is required. With the advent of sports scientists at the highest level and the requirement to keep and submit fitness data, there is even a greater need to be ‘fit for purpose’.

This booklet considers and advises on a range of subjects including information on fitness tests, regular fitness exercises, stretching and dietary requirements. It has been designed as a working document, to support referees in the planning and implementation of a training programme – whether you are new to refereeing and training, or whether you are an experienced referee within the Contributory League system.

I would like to pay a special tribute to Steve Swallow, the Referees Regional Manager in the North West who lead this project and Louise Panteli for her advice and guidance.

There is no doubt in my mind that every referee will benefit from reading this booklet; I do hope you enjoy it.

Ian Blanchard  
Head of National Referee Development
WHAT QUALITIES DO I NEED TO BE FIT TO REFEREE?
Fitness can be defined in many different ways, depending on the individual and the context in which it is being described. However, what we can say for sure is that fitness can be defined much more specifically for an individual sport or activity.

Definitions that you may have heard may include:

- The ability to perform a physical task.
- The ability to cope effectively with the stresses of everyday life.
- A measure of the body’s strength, stamina, and flexibility.
- Looking and feeling good.
- The ability to excel at a task, exercise, event, or test.
- Total fitness – Striving for optimal quality of life including social, mental, spiritual, and physical components. Also called wellness, or positive health.
- Performance - Ability to perform a task or sport at a desired level. Also called motor fitness, or physical fitness.

This list is by no means exhaustive, and I am sure that the majority could give a reasonable definition if we were questioned on the subject. However, something that is common among any definition is that it will mention several different qualities (e.g. strength). These qualities are generally accepted as The Components of Fitness.

<table>
<thead>
<tr>
<th>Component</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muscular Endurance</td>
<td>The ability of a muscle group to repeatedly lift a load over an extended period of time.</td>
</tr>
<tr>
<td>Aerobic Endurance</td>
<td>The ability of an athlete to take in and use oxygen, allowing participation in prolonged periods of continuous sub-maximal activities.</td>
</tr>
<tr>
<td>Speed</td>
<td>Can be defined as the production of repeated muscular contractions over a short distance within a minimal period of time.</td>
</tr>
<tr>
<td>Flexibility</td>
<td>The range of motion about a joint (static flexibility); opposition or resistance of a joint to motion (dynamic flexibility).</td>
</tr>
<tr>
<td>Strength</td>
<td>The maximal pulling force of a muscle or muscle group in a single maximum voluntary contraction.</td>
</tr>
<tr>
<td>Body</td>
<td>Two of the main components of the body. These are mainly fat and fat-free mass.</td>
</tr>
<tr>
<td>Agility</td>
<td>The ability to change the direction of the body in an efficient and effective manner.</td>
</tr>
</tbody>
</table>

These seven components are the foundations of fitness for any activity. Their specific needs and use will differ greatly in some cases, but the components remain the same whether the activity be climbing the stairs, refereeing in grass roots football, or refereeing on the Premier League.
Section two: Where am I now?

This section will give you advice on how to monitor your current fitness level. It is important to do this before taking part in any new form of physical activity.

RESTING HEART RATE
Resting Heart Rate is best measured in the morning as soon as you wake up and when you are still lying in bed. If you have a heart rate monitor that records, you could wear it all night and download your heart rate trace to determine your true resting heart rate. For a true resting heart rate you should be well-hydrated. Resting heart rate is not a measure of fitness (there is nothing you can actually do with it) but a low resting heart rate can reflect a good level of aerobic fitness. Your heart is operating more effectively and pumping more blood per beat (stroke volume) and it therefore doesn’t need to beat as frequently. There should not be too much emphasis placed on resting heart rate as it isn’t very useful.

MAXIMUM HEART RATE
Maximum heart rate is more useful as we calculate our ‘heart rate zones’ in % of our maximum heart rate. To determine maximum heart rate, one must work aerobically and progressively to exhaustion (8-12 minutes). This can be done using a treadmill (running at 12-14km/h, increase the incline by 2% every 2 minutes until exhaustion) or the beep test (as this is an aerobic and progressive, maximal test.) This test should only be done, supervised by an accredited sports scientist, or suitable medical professional.

An easier way to find your maximum heart rate is to conduct the following equation:

\[ 220 - \text{Your Age} = \text{Maximum Heart Rate} \]

It should be remembered, however, that this equation would only provide a rough guide.
DETERMINING BASELINE WEIGHT

Body fat is difficult to measure without the correct equipment and person to administer the test. Skinfold measurement is the best way. You could use also Body Mass Index Calculation:

\[
\text{Body Mass Index} = \frac{\text{Weight in KG}}{\text{Height in Metres}^2}
\]

This is easy as it only requires height and weight, but there are real disadvantages to this method, as people with a lot of muscle mass are made to look obese! The table below can be used as a guide in analyzing your BMI.

<table>
<thead>
<tr>
<th>Body Mass Index</th>
<th>Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 20</td>
<td>Underweight</td>
</tr>
<tr>
<td>20 – 25</td>
<td>Healthy</td>
</tr>
<tr>
<td>25 – 30</td>
<td>Overweight</td>
</tr>
<tr>
<td>More than 30</td>
<td>Obese</td>
</tr>
</tbody>
</table>

**NB:** Please note that this is only a very rough guide, and for an accurate reading of your ideal body weight, you should consult a medical professional.

COOPER TEST

Currently, the Cooper Test is used to test the fitness of Level 3 and 4 Referees. It gives you a general idea of your level of Cardiovascular Activity. It involves a continuous run of 12 minutes. Below is a guide to the distances that you should aim to achieve.

<table>
<thead>
<tr>
<th>Distance</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>2200m</td>
<td>Local, grassroots football. I.e. Level 7 Referee – This is only a rough guide, as there is no FA Fitness Test until a referee reaches Level 4. However, this is a suggested minimum level.</td>
</tr>
<tr>
<td>2500m</td>
<td>Contributory League Assistant Referee / Supply League Referee (Level 4)</td>
</tr>
<tr>
<td>2700m</td>
<td>Contributory League Referee (Level 3)</td>
</tr>
<tr>
<td>2900m</td>
<td>FA Bronze Award (See FA Initiatives - Section 7)</td>
</tr>
<tr>
<td>3100m</td>
<td>FA Silver Award (See FA Initiatives - Section 7)</td>
</tr>
<tr>
<td>3300m</td>
<td>FA Gold Award (See FA Initiatives - Section 7)</td>
</tr>
</tbody>
</table>
Section three: Planning your fitness programme

It is vitally important, that when planning your fitness programme that you take time to consider the activity for which you are training. We have all been guilty at some point of going out a couple of times a week, at a constant pace, for an extended period of time. Of course, this type of training can be beneficial in moderation, as part of an overall fitness programme for health. It covers all of the components that were highlighted earlier. However, on its own, the physiological benefits for football are minimal.

Therefore, within this section, there are a number of training sessions that will develop every component of your own physical fitness. The sessions are categorised under the following headings:

- Speed/Agility
- Speed Endurance
- High Intensity
- Strength/Core Stability

These sessions are also level specific, so that you can train specifically to the level at which you are officiating. For this, we have developed a ‘traffic lights’ system. This is explained in the table;

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner</td>
<td>Ideally suited to those who are new to training, refereeing or physical activity. This level of fitness training is ideal for match officials operating in junior or youth competitions.</td>
</tr>
<tr>
<td>Intermediate</td>
<td>A match official who is used to fitness training and officiating at ‘Intermediate County Level’. Level 6 to 5.</td>
</tr>
<tr>
<td>Advanced</td>
<td>A match official who has been taking part in fitness training for some time and has a good base level of fitness. A match official who officiates within, or aspires to officiate within the contributory league system should aim to be training at this level.</td>
</tr>
</tbody>
</table>

There is nothing to stop ANY referee completing the ‘Intermediate’ or ‘Advanced’ sessions for personal gain and wellbeing. However, it is strongly recommend that if you are new to training or inexperienced, that you start from a lower level and build up to this over a period of weeks/months.

YOUR WEEKLY TRAINING PROGRAMME

It is important to plan your weekly training programme around your matches. If you have a match, you should not train on the same day. Below, there are some examples of weekly training programmes, which are adapted for the number of games that the referee has.
<table>
<thead>
<tr>
<th>Day</th>
<th>Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>Strength OR Injury Prevention Training</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Speed Endurance Training</td>
</tr>
<tr>
<td>Wednesday</td>
<td>Rest Day</td>
</tr>
<tr>
<td>Thursday</td>
<td>High Intensity Training</td>
</tr>
<tr>
<td>Friday</td>
<td>Rest Day</td>
</tr>
<tr>
<td>Saturday</td>
<td>Speed OR Speed Agility Training</td>
</tr>
<tr>
<td>Sunday</td>
<td>Rest Day</td>
</tr>
</tbody>
</table>

**Two Games**

<table>
<thead>
<tr>
<th>Day</th>
<th>Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>Strength OR Injury Prevention Training</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Match</td>
</tr>
<tr>
<td>Wednesday</td>
<td>Active Recovery Training</td>
</tr>
<tr>
<td>Thursday</td>
<td>High Intensity OR Speed Endurance Training</td>
</tr>
<tr>
<td>Friday</td>
<td>Speed OR Speed Agility Training</td>
</tr>
<tr>
<td>Saturday</td>
<td>Match</td>
</tr>
<tr>
<td>Sunday</td>
<td>Active Recovery Training</td>
</tr>
</tbody>
</table>

**One Game**

<table>
<thead>
<tr>
<th>Day</th>
<th>Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>Strength OR Injury Prevention Training</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Rest Day</td>
</tr>
<tr>
<td>Wednesday</td>
<td>High Intensity Training OR Speed Endurance Training</td>
</tr>
<tr>
<td>Thursday</td>
<td>Rest Day</td>
</tr>
<tr>
<td>Friday</td>
<td>Speed OR Speed Agility Training</td>
</tr>
<tr>
<td>Saturday</td>
<td>Match</td>
</tr>
<tr>
<td>Sunday</td>
<td>Active Recovery</td>
</tr>
</tbody>
</table>

**Three Games**

<table>
<thead>
<tr>
<th>Day</th>
<th>Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>Strength OR Injury Prevention Training</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Match</td>
</tr>
<tr>
<td>Wednesday</td>
<td>Active Recovery Training</td>
</tr>
<tr>
<td>Thursday</td>
<td>Match</td>
</tr>
<tr>
<td>Friday</td>
<td>Active Recovery Training</td>
</tr>
<tr>
<td>Saturday</td>
<td>Match</td>
</tr>
<tr>
<td>Sunday</td>
<td>Active Recovery Training</td>
</tr>
</tbody>
</table>
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**WARM UP**

Warming up is an essential part of preparation for both training and match days. The benefits of warming up include:

- Increased speed of contraction and relaxation of warmed muscles
- Reduce muscle stiffness
- Greater economy of movement
- Increased blood flow through active muscle tissues
- Allows the heart rate to get to a workable rate for beginning exercise
- Mentally focused on the training or competition

A warm up should include 3 main stages:

- **General Warm-up** (3-5 minutes). This should consist of a gentle and constant paced jog (or similar exercise) to raise the heart rate and blood flow around the body.
- **Dynamic Stretching** (5 minutes). This essentially stretching on the move. We stretch in this way when warming up, at it replicates the types of movement that we make in matches. You can see examples of dynamic stretching later on in this section.
- **Specific Warm-Up** (3-5 minutes). The final part of the warm-up should prepare you for ‘match speed’ activity. This should involve some maximum effort sprinting and raise your heart rate to approximately 85-90% of its maximum. A good way to do this is through some sort of team game. This is also a good way of team building before the game and shows unity on the Field of Play. The image below shows referees playing a game of ‘tag’. When training, this stage of the warm-up is not essential. However, if training in a group, you may still wish to do this as it will bring a fun element to training.
DYNAMIC STRETCHING

NB: This should be done between the goal line and the edge of the penalty area (or equivalent distance). Always jog back to the goal line after each exercise.

‘High Knees’
Moving forwards, bring your knees up to approximately waist high.

‘Bum Kicks’
Moving forwards, bring your heels up and try and touch your back-side.

Side Stepping (crabbing)
Standing astride the goal line, move sideways towards the edge of the penalty area by extending your ‘field side’ to the side and bringing your outside leg in to meet it in a “side-together-side-together movement”.
Jog back to the goal line and repeat, using your other leg as the lead leg.
Jog back to the goal line. Repeat both exercises.

Backwards Jogging
From the goal line jog backwards to the edge of the penalty area. Jog back to the goal line. Repeat.
Section three:
Planning your fitness programme

**Skipping**
Skip from the goal line to the edge of the penalty area, using high knee lift.
Jog back to the goal line.
Skip to the edge of the penalty area, bringing first your left knee and then your right across your body, still with a high knee lift.
Jog back to the goal line.
Skip to the edge of the penalty area, still with a high knee lift, but turning your knee outwards.
Jog back to the goal line.
Repeat entire sequence.

**Grapevine**
Standing astride the goal line, move sideways towards the edge of the penalty area by crossing your back leg in front of your leading leg.
Jog back to the goal line.
Face the other way astride the goal line and repeat using your other leg as the cross over leg.
Jog back to the goal line. Repeat both exercises.
Hurdle Walk (in and out)
From the goal line, jog a few paces, stop, raise your right knee and rotate it outwards in a wide, sweeping movement.
Jog a few paces, stop and raise your left knee, rotating it outwards in a wide, sweeping movement.
Keep repeating this movement until you reach the edge of the penalty area.
Jog back to the goal line.
Repeat the exercise but this time sweep your leg from the outside, inwards.
Repeat both exercises.

Hamstring Walk
From the goal line, jog a few paces, stop and complete the hamstring stretch. Hold the stretch for a count of three.
Jog forwards a few paces and repeat the hamstring stretch on your other leg, holding the stretch for a count of three.
Keep repeating the exercise until you reach the edge of the penalty area.
Jog back to the goal line. Repeat.
Section three: Planning your fitness programme

SPEED/AGILITY SESSIONS

Speed/Agility – Session 1

Set 1

- 5 cones spaced out 20 yards apart
- Sprints are maximal, aimed at improving ability to change pace and enhance ability to reach maximum speed
- Very slow walk back to start (2 minutes between each sprint)
- 5 minutes active rest and drink

Set 2

- Simple variation is to push off at 45° angle when each sprint is performed

<table>
<thead>
<tr>
<th>Level</th>
<th>Set 1</th>
<th>Set 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner</td>
<td>4 Reps</td>
<td>4 Reps</td>
</tr>
<tr>
<td>Intermediate</td>
<td>6 Reps</td>
<td>6 Reps</td>
</tr>
<tr>
<td>Advanced</td>
<td>8 Reps</td>
<td>8 Reps</td>
</tr>
</tbody>
</table>

Speed/Agility – Session 2

Figure of 8

- Utilising the penalty area, Start at A
- Sprint the outlined course arriving back at A
- Quality acceleration, deceleration, change of direction and accelerate away again – not running wide around the corner
- Walk very slowly across the goal-line to B
- Start your next sprint from B, 2 minutes after when you started your first sprint (or after your Heart Rate has returned to 60-65% of your maximum heart rate)
- Then sprint again along the course outlined arriving back at B. Now walk slowly across the goal-line to back A
- This is one set. Active rest for 3 minutes in between each set

<table>
<thead>
<tr>
<th>Level</th>
<th>Sets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner</td>
<td>3</td>
</tr>
<tr>
<td>Intermediate</td>
<td>5</td>
</tr>
<tr>
<td>Advanced</td>
<td>8</td>
</tr>
</tbody>
</table>
**Speed/Agility – Session 3**

- Start each sprint with a 5m rolling start (Dynamic Start).
- Perform each sprint maximally. Your HR should be back to 60 – 65% of your maximum heart rate prior to each individual sprint. A very, very slow walk back to the start is usually a good way of determining your recovery time in between sprints.
- 2 x 30m, 2 x 40m, 2 x 50m = 1 SET. 5 minutes active recovery between each set.

**Speed/Agility – Session 4**

- Place several cones or sticks on the floor and space them out at varying intervals of 1-2 metres apart.
- Accelerate 15 metres from the start.
- On reaching the first stick / cone step over it.
- Then continue with a measured stride length and frequency as dictated by the distance in between the sticks / cones (one foot in-between each cone).
- Decelerate slowly after reaching the last stick.
- Walk slowly back to the start.
- Repeat 4 times = 1 set.
- Active Rest 4 minutes.

<table>
<thead>
<tr>
<th>Level</th>
<th>Sets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner</td>
<td>1 - 1.5</td>
</tr>
<tr>
<td>Intermediate</td>
<td>2</td>
</tr>
<tr>
<td>Advanced</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level</th>
<th>Sets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner</td>
<td>2</td>
</tr>
<tr>
<td>Intermediate</td>
<td>4</td>
</tr>
<tr>
<td>Advanced</td>
<td>6</td>
</tr>
</tbody>
</table>
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**Speed/Agility – Session 5**

- Place 6 cones as shown. Starting from the goal line (or baseline), place cones A to D 5 metres (6 yards) apart.
- Starting at 1, run backwards at medium pace to cone A, then turn and produce a maximal sprint to far corner of the penalty area (2) – walk back to start (1).
- Alternates side-stepping (2 left, 2 right) to the cone B, then as above maximal sprint to far corner of the penalty area – walk back to start (1).
- Jogging to the cone C, then maximal sprint to far corner of the penalty area – walk back to start (1).
- Walking to the cone D, then maximal sprint to far corner of the penalty area – walk back to start (1).
- Remember to perform each individual sprint maximally in order to obtain the full benefit.
- This equals 1 SET. Active Rest for 3 minutes in between sets.

**SPEED ENDURANCE SESSIONS**

**Speed Endurance – Session 1**

**Set 1**
- Starting from the touch-line, run to the opposite touch-line and back at HIGH SPEED (80-85% maximal sprint) This equals one repetition
- Rest 30” between each repetition
- 5’ Active Recovery between each set. See below for number of repetitions per set.

**Set 2**
- Starting from the touch-line, run to the penalty spot and back at HIGH SPEED (80-85% maximal sprint) This equals one repetition
- Rest 20” between each repetition

<table>
<thead>
<tr>
<th>Level</th>
<th>Set 1</th>
<th>Set 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner</td>
<td>3 Reps</td>
<td>6 Reps</td>
</tr>
<tr>
<td>Intermediate</td>
<td>4 Reps</td>
<td>9 Reps</td>
</tr>
<tr>
<td>Advanced</td>
<td>6 Reps</td>
<td>12 Reps</td>
</tr>
</tbody>
</table>
**Speed Endurance – Session 2**

**Set 1**
- Sprint to the edge of penalty area and back, rest for 30 seconds in between each repetition. See below for number of repetitions.
- 5 minutes active recovery

**Set 2**
- Sprint to half-way line and back, rest 60 seconds in between each repetition.
- 5 minutes active recovery

**Set 3**
- Sprint to the edge of far penalty area and back, 90 seconds rest.
- 5’ recovery break stretching

Repeat the above exercise but this time start with SET 3 and finish with SET 1.

<table>
<thead>
<tr>
<th>Level</th>
<th>Set 1</th>
<th>Set 2</th>
<th>Set 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner</td>
<td>6 Reps</td>
<td>3 Reps</td>
<td></td>
</tr>
<tr>
<td>Intermediate</td>
<td>6 Reps</td>
<td>3 Reps</td>
<td>1 Reps</td>
</tr>
<tr>
<td>Advanced</td>
<td>6 Reps</td>
<td>4 Reps</td>
<td>2 Reps</td>
</tr>
</tbody>
</table>
Section three: Planning your fitness programme

Speed Endurance – Session 3
(Could be a gym based session)

• 6 x 10 seconds sprints at 70%–80% of maximum speed. 15 seconds rest/recovery (slow jogging) between each sprint
• This equals 1 SET. Active Recovery for 2 minutes after each set

<table>
<thead>
<tr>
<th>Level</th>
<th>Sets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner</td>
<td>2</td>
</tr>
<tr>
<td>Intermediate</td>
<td>4</td>
</tr>
<tr>
<td>Advanced</td>
<td>6</td>
</tr>
</tbody>
</table>

Speed Endurance – Session 4

Set 1
• Sprint 50m at 80% of maximum sprint
• 25” recovery
• Repeat (See table below for number of repetitions, depending on level.)
• 2’ recovery

Set 2
• Sprint 100m at 80% of maximum sprint
• 45” recovery
• Repeat (See table below for number of repetitions, depending on level.)
• 2’ recovery

Set 3
• Sprint 200m in at 80% of maximum sprint
• 1’30” recovery
• Repeat (See table below for number of repetitions, depending on level.)

<table>
<thead>
<tr>
<th>Level</th>
<th>Set 1</th>
<th>Set 2</th>
<th>Set 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner</td>
<td>6 Reps</td>
<td>3 Reps</td>
<td></td>
</tr>
<tr>
<td>Intermediate</td>
<td>6 Reps</td>
<td>3 Reps</td>
<td>1 Reps</td>
</tr>
<tr>
<td>Advanced</td>
<td>6 Reps</td>
<td>4 Reps</td>
<td>2 Reps</td>
</tr>
</tbody>
</table>
Speed Endurance – Session 5

Set 1
- Sprint at 80 - 90% of your maximal speed the full length of the pitch
- Walk / very slow jog across to the far corner. This should take 3 times as long as your sprint time. (e.g. Sprint = 15”, Recover = 45”)
- Sprint at 80 - 90% of your maximal speed the other full length of the pitch
- Walk / very slow jog across to the far corner
- This constitutes ONE REPETITION
- Take a 5’ recovery break

Set 2
- Repeat Procedure

<table>
<thead>
<tr>
<th>Level</th>
<th>Set 1</th>
<th>Set 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner</td>
<td>3 Reps</td>
<td>3 Reps</td>
</tr>
<tr>
<td>Intermediate</td>
<td>4 Reps</td>
<td>4 Reps</td>
</tr>
<tr>
<td>Advanced</td>
<td>6 Reps</td>
<td>6 Reps</td>
</tr>
</tbody>
</table>
Section three: Planning your fitness programme

HIGH INTENSITY SESSIONS

High Intensity – Session 1

Hi Running

Set 1
- Run from one penalty area to the opposite penalty area (minimum 60 metres), and back at High Intensity Pace (65-75% of maximum sprint). THIS EQUALS 1 REPETITION
- Rest for 60 seconds between each repetition
- Active Recovery for 4 minutes

Set 2
- Repeat the exercise at a slightly faster pace. (75 – 85% of maximum sprint)
- Rest for 80 seconds between each repetition.

<table>
<thead>
<tr>
<th>Level</th>
<th>Set 1</th>
<th>Set 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner</td>
<td>3 Reps</td>
<td>2 Reps</td>
</tr>
<tr>
<td>Intermediate</td>
<td>5 Reps</td>
<td>3 Reps</td>
</tr>
<tr>
<td>Advanced</td>
<td>6 Reps</td>
<td>4 Reps</td>
</tr>
</tbody>
</table>

High Intensity – Session 2 – Gym Based Session

Beginner
- 1000m in 6 minutes
- 3 mins slow jogging
- 500m in 3 minutes
- 3 mins slow jogging
- 500m in 3 minutes

Intermediate
- 1000m in 5 minutes
- 3 mins slow jogging
- 500m in 2’30”
- 3 mins slow jog
- 500m in 2’30

Advanced
- 1000m in 4 mins
- 3 mins slow jogging
- 500m in 2 minutes
- 3 minutes slow jogging
- 500m in 2 minutes
High Intensity – Session 3

Set 1
- Perform HI running around the perimeter of the pitch, as per above diagram
- Beginners and Intermediates should aim for a run time of 50 – 60 seconds. Advanced Referees should aim for 45 – 50 seconds.
- Recovery very slow jog or walk across goal line
- Complete number of laps on table below, depending on level.
- 5’ recovery break

Set 2
- Repeat procedure, but change direction of movement around the field of play

<table>
<thead>
<tr>
<th>Level</th>
<th>Set 1</th>
<th>Set 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner</td>
<td>3 Reps</td>
<td>3 Reps</td>
</tr>
<tr>
<td>Intermediate</td>
<td>5 Reps</td>
<td>5 Reps</td>
</tr>
<tr>
<td>Advanced</td>
<td>7 Reps</td>
<td>7 Reps</td>
</tr>
</tbody>
</table>
Section three: Planning your fitness programme

High Intensity – Session 4

- Set out 6 cones as shown above.
- Run from Cone 1, round A to Cone 2, jog recovery between 1 and 2.
- Repeat between B, C & D.
- Repeat the whole circuit again in reverse (i.e. D, C, B, A).
- This constitutes 1 SET
- 4 minutes recover between each set

<table>
<thead>
<tr>
<th>Level</th>
<th>Sets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner</td>
<td>1</td>
</tr>
<tr>
<td>Intermediate</td>
<td>2</td>
</tr>
<tr>
<td>Advanced</td>
<td>3</td>
</tr>
</tbody>
</table>
High Intensity – Session 5

Figure of 8

Set 1
- Follow the arrows from the START — performing a figure of 8.
- The ‘diagonal’ running should be 75% of full sprinting pace. The goal line running should be a very slow jog or walk — consistency in your lap times is the key object of this exercise (Beginner 5’30”, Intermediate 5’20”, Advanced 5 minutes)
- Rest for 5 minutes

Set 2
- Repeat procedure for SET 1, running in the opposite direction

<table>
<thead>
<tr>
<th>Level</th>
<th>Set 1</th>
<th>Set 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner</td>
<td>2 Laps</td>
<td>2 Laps</td>
</tr>
<tr>
<td>Intermediate</td>
<td>3 Laps</td>
<td>2 Laps</td>
</tr>
<tr>
<td>Advanced</td>
<td>3 Laps</td>
<td>3 Laps</td>
</tr>
</tbody>
</table>
CORE STABILITY
In the current Health and Fitness environment it is difficult to avoid the term “core stability”.

Core Stability Defined
The spine relies, for stability, on the muscles that actively support each segment; these are termed the “core” muscles. The core muscles lie deep within the trunk of the body and attach directly/indirectly to the spine, stabilising it to create a firm foundation for coordinated movement of the arms and legs. These muscles help maintain good posture and movement.

Research has shown that these core muscles are actually activated to support the spine, prior to movement of the limbs. It has also been demonstrated that back injury patients are unable to recruit these muscles early enough to stabilise the spine prior to movement. This evidence suggests that the poor function of core stability muscles could be one of the major factors for Low Back Pain (LBP).

Core Stability Training
The aim of core stability training is to develop the ability of the core muscles to work in an efficient and coordinated fashion to maintain correct alignment and support of the spine, and pelvis whilst the limbs are moving. Research has shown that core muscle stability training improves function and activity of people with spinal problems and reduces the reoccurrence of spinal pain.

The muscles involved in core training lay deep to the superficial abdominal or “six pack” muscles, therefore it can be difficult to actually know what you are training. To get some idea of where these muscles are:

Lay on your back, place your fingers on the bony points of your hips, now move them 2-3 cm's inwards and now cough. The muscle you should feel contact is the Transversus Abdominus (TrA) this muscle is thought to play a major part in core stability.

The following are some exercises that you can perform as part of your training and/or conditioning program. As with any training program progression and variety are key to optimising benefits:

Superman

- Start with on all fours with the hands below the shoulders and knees below the hips.
- Set your back into neutral and brace your abs slightly, by pulling your navel towards your spine, whilst maintaining a natural breathing rhythm.
- Slowly slide back one leg and slide forward the opposite arm (ensure that the back does not bend, and that the shoulders and pelvis do not tilt sideways.)
• Hold, increasing the duration up to a maximum of 20 seconds.
• Slowly bring your leg and arm back and swap sides.
• Perform sets of 5-10, alternating sides after each hold

**The Plank**

**Beginner**
- Lie face down on mat, resting on forearms
- Push off of the floor raising up onto the knees and resting on your elbows.
- Keep your back flat, by drawing your navel towards your spine and tilting your pelvis forwards.
- Hold for 20 to 60 seconds, lower and repeat 2-5 reps.

**Intermediate**
- Lie face down on mat resting on the forearms.
- Push off the floor, raising up onto toes and resting on the elbows.
- Keep your back flat, in a straight line from head to heels.
- Tilt your pelvis and contract your abdominals to prevent your rear end from sticking up in the air.
- Hold for 20 to 60 seconds, lower and repeat for 2-5 reps.

**Advanced**
- Repeat intermediate
- Lift one leg just off the floor; hold the position without tilting at the pelvis
- Keep your back flat, in a straight line from toe to shoulders.
- Hold for 20 to 60 seconds, lower and repeat on the opposite side.
Section three: Planning your fitness programme

Side Plank

Beginner
- Lie on one side, elbow under your shoulder, ensuring hips are level
- Bend the bottom leg, and keep the top leg straight
- Push up on the bottom leg and elbow until there is a straight bodyline
- Hold for 20 to 60 seconds
- Lower under control and repeat on the other side

Intermediate
- Lie on one side, elbow under your shoulder, ensuring hips are level
- Both legs should remain straight, and in line with the body
- Push up until there is a straight bodyline through feet, hips and head
- Hold for 20 – 60 seconds
- Lower under control and repeat on the other side

Advanced
- Repeat intermediate
- Ensure there is a straight body line through feet, hips and head
- Raise the top leg away from supporting leg and hold
- Hold for 20 – 60 seconds
- Lower under control and repeat on the other side

Bridging

Beginner
- Lie flat on the floor with your knees bent, arms by your side for support
- Squeeze your gluteals and push your hips towards the ceiling until there is a straight line through knee and hip to shoulders
Avoid raising too high or arching the back
Hold for 10 seconds, lower under control and repeat up to 5 times
Progress to 2 - 3 set of up to 60 seconds

Intermediate
Repeat steps for beginner
Extend one leg carefully, maintaining a straight body line, without dropping or tilting the pelvis
Hold for 10 seconds, lower under control and repeat up to 5 times
Progress to 2 - 3 set of up to 60 seconds

Advanced
Repeat steps for intermediate
With the leg extended bring the hands from the floor and place them on your stomach
Maintain a straight body line at all times
If you feel your unable to maintain revert back to intermediate
Hold for 10 seconds, lower under control and repeat up to 5 times
Progress to 2 - 3 set of up to 60 seconds

NB: If you suffer from back pain, prior to or during, completing these exercises please consult your GP before commencing any further core stability training. These exercises are meant only as a guide; for further progressions and variations please seek the advice from a qualified professional

REST DAYS
Rest is crucial in ensuring optimum physical performance. The demands of maintaining a training programme and officiating on a regular basis throughout the year will result in a certain level of fatigue.

It is vitally important that anyone involved in physical activity on a regular basis gives the body time to recover. Therefore, you should use the following tiredness scale in conjunction with your training plan.

To use this table
Give yourself a number between 1 and 10 to rank how tired you are feeling. Use the table below to help you do this.

<table>
<thead>
<tr>
<th>Level of Tiredness</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>Physically ready, no signs of fatigue whatsoever. Feel GREAT.</td>
</tr>
<tr>
<td>2-3</td>
<td>Slightly tired, no significant physical and/or mental fatigue. Generally feeling GOOD</td>
</tr>
<tr>
<td>4-5</td>
<td>Tired, slight physical and/or mental fatigue, although no expected impact upon training/match. Feel AVERAGE to OK</td>
</tr>
<tr>
<td>6-7</td>
<td>Legs heavy, tired, slightly concerned about impact upon training/match. Feeling FATIGUED</td>
</tr>
<tr>
<td>8-9</td>
<td>Legs very heavy, physically and mentally fatigued, very concerned about impact upon training/match. Feeling DRAINED/WORN OUT</td>
</tr>
<tr>
<td>10</td>
<td>Feel fatigued, exhausted and sore; “how am I going to get through this?!“ ABSOLUTELY SHATTERED!</td>
</tr>
</tbody>
</table>

If you have numbered yourself 1 – 3. Carry on your training as normal.
4 – 5. Continue your training, but be aware that if your level of fatigue increases, and has an effect on your training, you should reduce the intensity.
6 – 7. At this point you should be participating in some recovery training as a maximum, i.e. Low intensity running, cycling, swimming etc.
8 – 10. Complete Rest.
COOL DOWN/WARM DOWN

Achilles Stretch
Stand with one leg forward of the other, feet pointing forwards, back heel on the ground with the back leg slightly bent. Keeping your back straight and your back heel on the ground – sit back until you can feel a stretch low down near your Achilles tendon.

Calf stretch
Stand with one leg forward of the other – slightly more than in the previous exercise- feet pointing forwards; back heel on the ground and the back leg straight. Keeping your back straight and your back heel on the ground – bend your front knee and move your weight forward and down until you can feel a stretch on the back of your calf.

Quadriceps stretch (front of thigh)
Hold your foot with your hand and lift your foot up behind your buttock. Pull the foot back and away from the buttocks and push the knee towards the ground. Use a wall or a partner if balance is a problem.
Hamstring Stretch (back of thigh)
Stand with one leg forward of the other, feet pointing forwards. Push the hips back and keep your back as straight as possible, with your hands on the supporting knee, then straighten your front leg. Increase the stretch by pushing your hips back and down.

Advanced hamstring stretch.
Sit with one leg stretched out in front of you, with the other bent so that your foot touches the inside of your straight leg. Keeping your back as straight as possible reach to touch as far as possible along your straight leg. Hold, exhale and move the hands further along the leg. Come up. Swap legs and repeat.

Groin stretch
Stand with your feet just over shoulder width apart. Keeping your right leg straight, bend your left knee and lean your upper body towards the outstretched leg until you feel the stretch on the inside of your right thigh.

Toe grab (Alternative Groin Stretch)
Begin this stretch with your heels together, holding both feet with your hands. Lean forward from your hips, gradually increasing the stretch by bringing your heels closer to your groin, and your chest closer to you feet. Make the movements small and controlled. Avoid bouncing and excessive upward pressure on your feet.
Section three: Planning your fitness programme

Shoulder strangle
Cross one arm horizontally over your chest, grasping it with your hand or forearm, just above the elbow joint. Exhale slowly pulling your upper arm in toward your chest. Aim to keep the hips and shoulders facing forward through the stretch. Repeat for other arm.

Hand down spine (Triceps)
Extend one hand down the centre of your back, fingers pointing downward. Use the other hand to grasp the elbow. Exhale slowly, pulling gently downward on your elbow, aiming to take your finger along the spine.
Section four: Understanding injury

UNDERSTANDING INJURY

Injuries decrease the amount of time you can spend refereeing, lower you fitness, downgrade your performance and can lead to long term health problems. Like most players you undoubtedly want to lower your chances of incurring an injury whilst refereeing. Prevention is better than cure, so if you know what causes injuries you will have a better chance of preventing them.

An injury is a sudden or excessive stress applied to part of the body generating forces in excess of tolerable loads.

The mechanism of injuries can be considered as Primary or Secondary causes:

Primary
(within this group there are 3 mechanisms):

Extrinsic
Extrinsic factors to which you are likely to have little control over:
• Direct violence
  Direct contact with a player or equipment, resulting in immediate injury
• Indirect Violence
  Unexpected stresses on fixed structures, such as forced rotation (E.g.: twisting your ankle on uneven ground).

Intrinsic
Intrinsic injuries occur as a result of:
• Uncoordinated muscle contractions,
• Poorly prepared or non-warmed up muscles,
• Sudden stops or explosive starts

Overuse
Overuse injuries build up over time and are generally caused by:
• Insufficient recovery or rest periods
• Inadequate equipment
• Poor technique

Secondary
(within this group there are 2 mechanisms):

Referred pain
Pain perceived by one structure is actually a result of a distant injury
E.g.: pain perceived in the hamstrings can be referred from the back

Deformity
Injuries which occur as a result of altered angles of muscle pull due to:
• Leg length discrepancies
• Poor posture
• Poor technique

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INJURY PREVENTION
There are some general rules for injury avoidance that apply to all activities. Sports scientists suggest that injury rates could be reduced by 25% if appropriate preventative action was taken.

Introduce new activities slowly
Be especially careful if you are a relative new comer to the physical demands of refereeing, your body will require time to adapt.
• Build up work load slowly

Warm up
(refer to warm up section)
The aim of a warm up is to prepare the body for exercise; muscles are more likely to become injured when they are ‘cold’.

An effective warm up will:
• Give the body time to adapt to the extra work demands gradually, avoiding any discomfort.
• Increase circulation to the working muscles, in turn providing the necessary supply of oxygen and essential nutrients to fuel the muscles
• Gradually increase body temperature, making muscles, tendons, ligaments and other soft tissues supplier, allowing muscles to contract and relax at greater speed.

These contribute to an increase in the range of movement and flexibility thereby reducing the risk of injury.

Cool down
(refer to cool down section)
The aim of the cool down is to return the body to a pre-exercise state.

Cool down exercises should be performed immediately after training or a game to provide adjustment between exercise and rest. They should decrease in intensity gradually:
• Lowering heart rate
• Lowering breathing rate
• Reducing body temperature
• Promoting return of blood from the working muscles to the heart, removing potentially harmful waste products

Subsequently this could reduce the risk of injury.

The period following exercise, in which the body temperature is still elevated, provides a good opportunity to improve your range of movement and flexibility further by performing stretching exercises, reducing the risk of injury.

Specificity
It is important to keep training specific, in order to prepare your body for the demands of refereeing. Training the wrong muscles or even the right muscles in the wrong way, can lead to injury.

Rest/recovery
Adequate rest and recuperation is necessary for the body to recover from bouts of exercise and adaptation to take place. An increase in training should be matched by increases in rest.

During exercise the body is subjected to a considerable amount of mechanical stress which results in micro-trauma to the muscles and other soft tissues.
• Inadequate rest periods result in the accumulation of ‘micro-trauma’ and eventually resulting in chronic (long term) or overuse injuries
• Adequate rest will allow the body to not only heal but also adapt to withstand the stress of exercise.
Sleep is one of the most important forms of rest and allows the referee to adapt to the physical and mental demands of refereeing and training.

You should avoid training when you are tired - Tired muscles do not provide adequate support for tendons, ligaments or bones.

**Nutrition**
*(refuelling/re-hydration)*
Muscles which are low on essential nutrients, in particular carbohydrates, are tired muscles and increase the risk of injury. The consumption of carbohydrates should be increased during heavy periods of training.

The most important components for nutritional recovery are fluid and fuel replacement. You should avoid drinks containing caffeine and drink enough fluids (water, cordials or sports drinks) before during and after training to replace sweat loss.

Some other things to consider:

**Use appropriate equipment**
- Wear suitable and supportive footwear for the type of training or activity and for the conditions you will be exposed to.
- Choose suitable clothing to ensure comfortable body temperature, personal comfort and safety i.e.: reflective clothing if training in the dark.

**Choose appropriate training surfaces**
- Avoid training on uneven ground, especially if training when dark! A high percentage of ankle sprains occur as a result of ‘rolling ankles’ on uneven surfaces.
- Vary training surfaces. A common cause of overuse injuries is training to frequently on hard surfaces.

**Travel in comfort**
Sitting in discomfort for several hours before a game can increase stress and tension and predispose injury. It is recommended that if travelling long distances you stop frequently and stretch your legs.

**RECOGNISING INJURIES**
As previously discussed injuries occur in a variety of ways and situations and are not always immediately recognisable.

As a general guideline, if you experience pain during training, STOP immediately. Pain is your body’s own defence mechanism against further injury. A temporary loss in training time and fitness is far better than long term damage to your body.

Recognising the signs and symptoms of injured soft tissues early, is essential in the recovery process. Some of the signs and symptoms to look out for are:

- Pain
- Swelling
- Bruising
- Tenderness
- Loss of function
- Heat
- Redness
- Loss of movement
- Changes in posture
If you are unfortunate enough to become injured there are some basic DO's and DON'Ts you can follow to prevent the risk of further damage:

- **DO: ‘PRICE’**

  - **Protection** – remove yourself from any environment/situation that will potentially increase injury
  
  - **Rest** – will give the body the time it needs to heal/repair itself.
  
  - **Ice** - aims to limit the amount of swelling, promote tissue repair and reduce pain. As a general guideline ice should be applied to more superficial injuries for 5-10 minutes per session at 30-60 minute intervals and for larger muscle masses, up to 30 minutes every 1-2 hours.
  
  - **Compression** – aims to reduce swelling, promote healing and offer support. Make sure the compression bandage is applied both above and below the site of injury.
  
  - **Elevation** – aims to limit the amount of swelling by aiding return of blood to the heart and in turn promote the healing process. Raise the injured limb to the level of the heart at all possible times, insuring comfort at all times.

- **DON'T: ‘HARM’ (for the first 48-72 hours)**

  - **Heat** – Avoid the application of heat treatment
  
  - **Alcohol** – Avoid the consumption of alcohol
  
  - **Run** – avoid running or performing any vigorous activity that may increase injury
  
  - **Massage** – Avoid receiving massage during this period

All of the above will increase metabolic activity and blood flow to the injured area, in turn increasing swelling, pain, tissue damage and prolonging the road to recovery.

**NB:** This advice is not intended as a comprehensive guide to injury treatment. It is important that you consult a professional Physiotherapist, Sports Therapist or Doctor for an accurate diagnosis of the injury. With an accurate diagnosis, you can then move onto a specific rehabilitation programme to reduce your injury time.
Section five: Nutrition for refereeing

NUTRITION FOR REFEREEING

Our body can only perform to the best of its ability if we take the correct foods and liquids on board. The best way to think of your body is like a car. If your car took unleaded fuel, would it work how you wanted it to if you filled it with Diesel? The answer is simple – NO! We need to use the same principle when deciding what we are going to eat and drink, particularly in the days/hours leading up to a game or training sessions.

There is always the argument of Theory Vs Reality. For a grass roots level referee, we are not saying that you need to give up all of life’s little comforts. The message is simple, everything in moderation.

Ideally your diet should consist of the following:

Carbohydrates

Carbohydrates have several important functions:

• They provide both physical and mental energy for high intense activity.
• They are broken down into glucose within the blood, to be used as immediate energy, or are stored as glycogen within the muscles and liver, to be utilised at a later time.
• Glucose is the primary fuel for our brain function, utilising around 60% of available glucose. So when blood glucose levels are low (hypoglycaemia), the brain does not work as well as it could. Decisions and skill are impaired, and fatigue will occur.

Whilst it is important to consume enough carbohydrates to avoid hypoglycaemia, it is also essential to eat the right carbohydrates in order to keep blood sugar levels balanced to maintain even energy levels (and weight).

There are various different forms of carbohydrates, some of which are slow releasing providing a steady, prolonged source of energy. Others, which are quick releasing, lead to a rapid increase in blood sugars and a corresponding surge in energy, which is often followed by a drop as the body works to rebalance blood sugar levels.

Good sources of Slow Releasing Carbohydrates:

<table>
<thead>
<tr>
<th>Whole Wheat Pasta</th>
<th>Lentils/Soya beans/Kidney beans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole Grain Bread</td>
<td>Apples/Pears/Berries</td>
</tr>
<tr>
<td>Brown Basmati Rice</td>
<td>Broccoli/Tomato/Green Beans</td>
</tr>
<tr>
<td>Rolled Oats</td>
<td>Smoothie drinks</td>
</tr>
<tr>
<td>Muesli/All Bran</td>
<td></td>
</tr>
</tbody>
</table>

Good sources of fast Releasing Carbohydrate snacks:

<table>
<thead>
<tr>
<th>Digestive Biscuits</th>
<th>Potato</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chocolate</td>
<td>Dried Fruits</td>
</tr>
<tr>
<td>Cereal Bars</td>
<td>Buckwheat/Couscous</td>
</tr>
<tr>
<td>Bananas</td>
<td>Fruit juice</td>
</tr>
<tr>
<td></td>
<td>Sports Drinks</td>
</tr>
</tbody>
</table>
Section five: Nutrition for refereeing

**Fats**

Fats are needed in the diet and have many essential functions within the body. Such as:

- Fats are the major energy reserve in the body, and the major source of energy for low intensity activity.
- Fats act as a protective shield against trauma to vital organs such as the heart, liver, kidneys, spleen, brain and the spinal cord.
- Fats are a major part of all cell membranes including nerves and brain cells.
- Fat serves as a carrier for the fat soluble vitamins—A, D, E, and K. They also help in the transport of fats and cholesterol in the blood.
- Fats in the diet delay the onset of ‘hunger pangs’ and contribute to feeling of fullness after a meal. This is because fat empties from the stomach slowly.

Whilst fat is essential in any referees diet, it is important to consume the right kinds of fats. Fats found in seeds, nuts and fish are essential, as are polyunsaturated fats and oils. Saturated and Monosaturated fats found in dairy products, and often fried and processed foods are considered non essential fats and can be potentially harmful in large quantities.

**Protein**

Protein is an essential macronutrient within the body and performs many important roles concerning structure and function. These roles include:

- Building material for bone, ligaments, tendons, and muscles.
- All enzymes are proteins. Enzymes regulate many energy producing reactions, as well as the building and repair of tissues, especially muscle.
- Hormones such as insulin and adrenaline are proteins and are important in controlling exercise metabolism.
- Protein is required in the body for the synthesis of the many blood transport proteins such as haemoglobin and albumin.

- Proteins can act as an energy source after the depletion of carbohydrate following exercise, but this situation should be avoided where possible.

The chart below gives a general guide for intake of Carbohydrate, Protein and Fat for an ‘athletic person.’

![Nutrition Chart]

**Fluids**

**Dehydration**

Muscles are 75% water. A loss of just 3% water can cause a 10% reduction in strength and an 8% loss in speed and can also impair mental focus and concentration. Sweating is a normal response in training and match play, the inevitable result is that the body loses water, the body temperature becomes elevated and energy is diverted from the muscles to cool the body. During exercise thirst sensors can been inhibited, therefore it is imperative that referees are well hydrated before a match, and continue to drink fluids at opportunities during the match.

**Prevention of dehydration**

1. Ideally referees should drink 2 litres of water the day before a game.
2. The loss of body fluids causes fatigue, and so referees must take on board enough fluids during games and training.
3. The rule of thumb is ‘little and often’. Drinking around 200 mls (a paper cup full) every 15-20 minutes is recommended.

4. Drinking about 1 glass of water every 15 minutes in the hours leading up to a match/training is required.

5. Drinking fluids during half-time is strongly advised.

6. If you are drinking any drink containing caffeine, you should drink an extra glass of water per caffeine drink consumed.

What should the drink contain?

1. In hot conditions just water should be ingested. This is because the addition of carbohydrates tends to slow down the rate at which water gets into the blood. The more concentrated the carbohydrate drink, the slower the rate of delivery of water to the blood.

2. Drink a low carbohydrate drink in the early stages (say 40-45 minutes), followed by a normal carbohydrate sports drink at half-time and in the last 20 minutes.

Rehydration

1. Dehydration from sweat loss is inevitable during strenuous exercise, whether in the heat or not. This is because more fluid is lost through sweating than can be taken by drinking i.e. sweat rates of 1.5-2 litres an hour are not uncommon, whereas drinking more than 1 litre an hour is difficult to achieve.

2. Referees must rehydrate adequately afterwards.

3. Drink fluid after training/match at least one and a half the body weight loss i.e. if 1 kg of body weight is lost through sweat, drink 1.5 litres of fluid.

4. Carbohydrate drinks do not make a difference to rehydration after exercise. However, for refuelling purposes they can have a positive effect in replenishing carbohydrate stores.

5. Food eaten with water helps to rehydrate, because the food contains water and salt, which aids rehydration.

6. Many of the ‘soft’ drinks (e.g. coke) contain no (or too little) salt, and are not useful for rehydration.

7. Drink as soon as possible after exercise since body fluid recovery takes at least 30 minutes.

However because drinking fluids inevitably leads to urine production and elimination, actual rehydration may not be complete for 4-6 hours.

PLANNING YOUR MEALS

If you have any specific dietary needs, you should consult a nutritionist for specific nutritional advice.

The day before the match

- Eat a high slow releasing carbohydrate breakfast, e.g. a bowl of muesli or bran flakes with fruit, 1-2 pieces of whole grain toast (with jam, marmalade or honey if you wish), and a glass of fruit juice.
- It is important to drink more throughout the day (water, fruit juices, sports drinks, etc.).
- Eat 2-3 ‘Carbohydrate Snacks’ during the day.
- For your main meal (evening) — eat a meal based around high slow releasing carbohydrate foods.

Match day

- Eat a slow release carbohydrate breakfast as on the previous day.
- For your Pre-Match Meal eat a slow releasing carbohydrate meal 3-4 hours before kick-off.
- Continue eating ‘Carbohydrate Snacks’ up to 1 hour before the game.

After the game

- Eat a ‘Carbohydrate Snack’ as soon as you can following a match or training, e.g. a banana, digestive biscuits, etc.
- Eat a carbohydrate-based meal within 2 hours of the game or training session.
Recruitment and Retention Task Force Findings

Section six: Fitness for the mind

FITNESS FOR THE MIND
By David Dixon BSc (Hons), MSc

David has just completed a MSc in Sport Psychology at the University of Chichester and is undergoing a Supervised Experience programme as a Sports Psychologist with BASES and Total Performance Ltd. He is also a Level 5 Referee and an FA Licensed Instructor.

So far you would have heard the phrase you need to be mentally tough to be a referee, it is mentioned a lot within the referee course and DVD’s produced by the FA but what is it? As someone who works in a number of sports, one of the first things I hear from coaches/managers is, “I want you to make my team mentally tough”, “I want you to teach them about mental toughness”. My first reply is “what does it mean to you?” Therefore I would like you to take a few moments to think and note down what mental toughness means to you. Alternatively it may be that a particular referee or other sports person spring to mind, when mental toughness is mentioned but what is it about them that make you believe they are mentally tough.

Mental Toughness is a relatively new word which has been bounded about by the media, performers and coaches, but it has only been researched in any great depth over the last five years. The main purpose was to gain an explanation and some understanding about the concept of Mental Toughness. In the first to examination of this concept; the researchers interviewed 10 elite athletes, from a variety of sports to establish what the term meant to them. The results of their interviews gave them a framework of 12 attributes which the athletes involved believed summed up Mental Toughness to them. These can be summarise as self belief, interval motivation, bounce back ability, thriving on pressure, accepting anxiety, being fully focused and regaining control following unexpected events. Following on from the attributes, Mental Toughness is defined as having “natural or developed psychological edge that enables you to generally, cope better than your opponent with the many demands (competition, training, lifestyle) that sport places on a performer. Specifically, be more consistent and better than your opponents in remaining determined, focused, confident and in control under pressure.”

Since this initial research a number of other researches have investigated what Mental Toughness means in a single sport population. In two articles the views of international cricketers and international football players were sought and more recently a mixture of performers, coaches and sport psychologist were interviewed for their views. All three papers support the earlier information. However in addition a model and a framework have been introduced the Mental Toughness (MT) Pyramid and the Mental Toughness (MT) Framework. These only support earlier findings and go some way to explaining how mental toughness is developed and constantly achieved within our sport. Due to the restriction on space the MT Pyramid and MT Framework will not be explained any further in this article. However, you might be asking yourself what does this all mean and how do I put it into practice.

If we examine the definition it mentions natural or developed psychological edge, cope better in remaining determined, focused, confident and in control under pressure. This would seem to suggest that there are some mental skills training to be done in addition to the other elements that have been written about in this book already.
Remaining determined
This is about having self belief in your ability to achieve the goals that you have set yourself along with the desire and having internal motivation to drive you. Therefore you would need to make a realistic plan to achieve your goal, this can be done at what ever, level you are at the moment. A long term goal may be to be the best referee you can or referee in the Premiership. However, if you are a level 7 at the moment is that achievable by the end of this season therefore goals are a bit like a staircase; let’s make a plan to reach the next step before we start thinking about what we will do when we get to the top.

Internal motivation is the drive that comes from within to succeed and do better, rather than only doing it for the money or the reward we might get. Therefore having a good plan for our goal setting strategy which involved the process of getting there rather than the outcome will tend to increase internal motivation.

Focused
The ability to be totally focused when the need arises, athletes remarked how they needed to be totally focused on their sport and being able to prioritize this within the framework of their life outside sport. An example of this might be turning down the offer of going out to a nightclub the night before a game, not going for an after work drink, on a training night. Although it is also having the ability to be able to relax and switch off when the time does not warrant such focus, all the athletes spoke about this being a strong indication of a mentally though athlete, as they know how this balance plays a part in their success.

Confident
Confidence is all about having the self belief, in oneself. Confidence can be situation specific, but one way of improving confidence is practising your skills and trusting in them when the time arises. Proper preparation is being another factor, an poor example of this would making yourself available for a big game when you know you are injured, the chances are someone will be watching you, when you least want them to. However, a good example would be Bounce back ability would also fall under this title, when you are trying to be the best; there are always times you will take a knock back, a bad assessment, not getting promoted. How you deal with this shows character, do we allow our self to become engrossed in what went wrong and blame others, or do we learn from it in order to make our performance stronger and better. The latter is a sign of a mentally tough athlete.
**IN CONTROL WHEN UNDER PRESSURE**

If you look at Michael Jordan, probably the one of the greatest all-time basketball players he missed 9000 shots, missed 26 game winning shots and lost 300 games. However, he would admit that because he failed and learnt from it, it is one of the reasons why he was successful. Therefore control the controllable things (fitness, diet and knowledge) and the uncontrollable situations (promotion, cup finals etc) will look after themselves.

This section is also about being able to raise your performance when the need arises, no matter what has gone on before. This is also about having the ability to move on from situations which have not gone so well in a game i.e. do you worry about a decision for the rest of the game or are you able to forget about it and not let it worry you.

Lastly and in my opinion the most important is Honest Self Appraisal. You will not improve and progress unless you have the ability to know your strengths and weaknesses both global (refereeing/personal qualities) and situational (game specific). From this appraisal you can make all your other performance and training decisions.

If you go back to your piece of paper that you wrote earlier, you will probably see that you mentioned quite a few of the qualities needed to be mentally tough, and you probably have some of those qualities already and others you may need to work on. However, by writing down your qualities you are already on the path to becoming mentally tough. All you need to do now is think about and write down how you will achieve the other qualities and improve the qualities you already have. Remember to be mentally tough you need to be consistent and better than others in remaining determined, focused, confident and in control when under pressure.

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**Section six: Fitness for the mind**
Recruitment and Retention Task Force Findings

Belief
Focus

Training

Belief
Staying focused
Regulating performance
Handling pressure
Awareness and control of thoughts and feelings

Competition

Controlling the environment

Post Competition

Handling failure
Handling success

Mental Toughness

Using long term goal as the source of motivation
Controlling the environment
Pushing yourself to the limit

Jones et al. 2007

Bull et al. 2005

Tough Thinking

Tough Attitudes

Tough Character

Environmental Influence

Bull et al. 2005
Current FA Fitness Tests at Contributory League Level and Below:

Contributory League Referees (Level 3):
- 2 runs of 50 metres in 7.5 seconds
- A continuous run of 12 minutes, achieving a minimum of 2700 metres

Contributory Assistant Referees (Level 4):
- 2 runs of 50 metres in 7.5 seconds
- A continuous run of 12 minutes, achieving a minimum of 2500 metres

Referees Outside of the Contributory League System:
No standardised fitness test exists for referees at this level, but it is suggested that all officials should be able to complete a continuous run of 12 minutes, achieving 2,200m. If you are unable to achieve this, we suggest that you seek medical advice before starting to referee.

Fitness Awards
Would you like to be known as the fittest referee in England, or your County, or your League? The Football Association awards Certificates of Achievement to those referees who not only pass their fitness test but achieve a standard higher than the one needed to pass.

The award is open to all referees and involves completing a 12 minute continuous run. The 12 minute run must be undertaken as part of a supervised fitness test by a competition or a County FA, or organised by your Area Fitness Co-ordinator or an approved Fitness Training Leader. The distances required to receive awards are:

- Pass Certificate - 2500m (Not available to Contributory League Officials)
- Bronze - 2900m
- Silver - 3100m
- Gold - 3300m

FAMOA Incentive Scheme
You can claim points in your FAMOA Incentive scheme logbook for attending organised fitness sessions. If you are not currently a member of the scheme and would like to become one, please email FAMOA@TheFA.com or call 0207 745 4651 and request to join.

County Fitness Coordinator
Each County has a County Fitness Coordinator. This person is responsible for Coordinating the Fitness Training within the County, working closely with approved Fitness Leaders. To find out who your County Fitness Coordinator is, please contact your County FA Referees Development Officer, or email the National Fitness Coordinator, Steve Swallow on Steve.Swallow@TheFA.com.


Sport for All: Sport Injuries and Their Prevention, Council of Europe, Netherlands Institute of Sports Health Care, Oosterbeek, 1989


BIOGRAPHY


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