



## **SOCCER**

### **Evaluation of mobility and stability (EMS)**



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## Introduction

The Evaluation of Mobility and Stability (EMS) is a product that has been adapted from a number of validated movement screens.

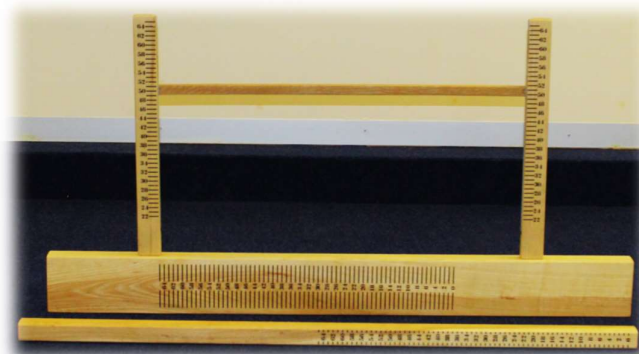
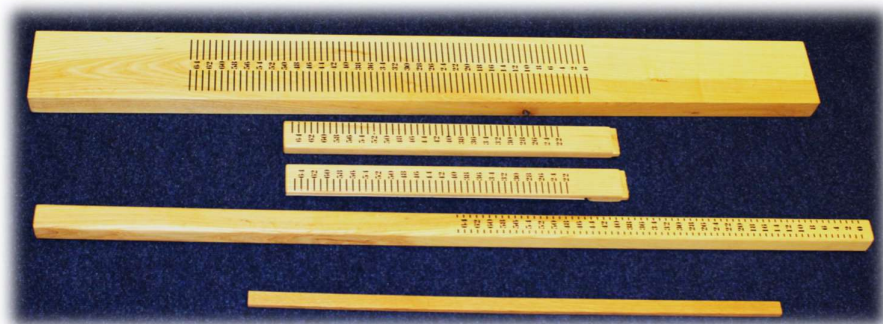
It is an exercise screen which uses seven movements to determine the quality of athlete's movement patterns. The EMS does this by determining if an athlete has movement dysfunction which may place them at an increased risk of injury due to compensatory movements associated with poor mobility and stability.

It offers the ability to objectively score movement over time, which enables one to follow the time course of an individual athlete's responses to training, ensuring appropriate exercise prescription and potentially aiding in the reduction of injury risk.

The EMS has been designed as a screening tool to be performed on individuals, who are ready for sports participation and are without recognised pathologies. It is not a diagnostic tool for injury and it is not able to determine sports performance or skill.

## Equipment

- 1.2m x 15cm x 3cm Testing Board, hurdle and three dowels.



## Tests

1. Overhead Squat
2. Hurdle Step
3. Split Squat
4. Shoulder Mobility
5. Active Straight Leg Raise
6. Stability Push-up
7. Seated Rotation

## Scoring

All tests are scored out of three, with the possibility of scoring from 0 to 3. While more detailed descriptions of the criteria for test - specific scoring will be mentioned later, a general guideline is given below:

- **Scoring a 0**
  - A score of 0 is only, yet, always given if pain is present with the movement.
  - Stop the specific test if pain is present, and continue with the other tests.
  - The athlete should be referred to a clinician if a 0 is scored in any of the tests.
- **Scoring a 1**
  - A score of 1 is given if the individual is unable to perform the movement or cannot get into position.
  - A score of 1 is associated with gross limitations in mobility and stability.
  - Athletes scoring a 1 should be prescribed a corrective programme and advised not to continue with general conditioning until a score of 2 is achieved.
- **Scoring a 2**
  - A score of 2 is given if the athlete is able to complete the movement but compensation occurs.
  - Athletes should continue with their current performance conditioning programme as well as a corrective programme.
- **Scoring a 3**
  - A score of 3 is given if the athlete can perform the movement properly, demonstrates good movement competence and has no evident movement dysfunctions.
  - It is vital to be as strict as possible when scoring.

**\*When in doubt, score lower.**

## Training prescription

Once an athlete has completed the evaluation, a test score is given. The prewritten corrective programmes can then be prescribed. The prescription matrix in the table below indicates which programmes you prescribe according to the athlete's scores.

**A score of 3** suggests that an athlete has sufficient movement competence and should continue with normal or newly prescribed training.

**A score of 2** indicates an athlete cannot correctly complete the movement. They have restricted mobility or stability and this restriction results in compensatory movements, reduced strength or restricted functional range of motion. Therefore, the athlete should add the necessary corrective programme to their current training programme. The number of corrective sessions should be based on the training load of the athlete. A maximum of three corrective sessions a week should be prescribed.

**A score of 1** suggests an athlete cannot perform a specific movement or has a significantly restricted range of motion around a specific joint or joints. They should be advised to consider stopping their current training and to begin the relevant corrective training programmes. Usual training should only start again when a score of 2 is achieved. At least two weeks of corrective training should be completed before a follow up EMS test should be performed. A maximum of three corrective sessions a week should be prescribed.

**Athletes scoring 0** for any of the tests should be referred to a medical professional. All training should be stopped until the athlete is pain free.

### Corrective Training Prescription Matrix

TEST	SCORE OF 3	SCORE OF 2	SCORE OF 1	SCORE OF 0
Action required	Continue with normal training	Complete this session 1-3 times per week as supplementary training to your usual training	Complete this session 3 times per week before returning to your usual training	Refer to a physician for further assessment
Overhead squat		Lumbar, Pelvic, Hip Complex	Lumbar, Pelvic, Hip Complex	
Hurdle Step		Hip, Knee and Ankle	Hip, Knee and Ankle	
Split Squat		Lumbar, Pelvic, Hip Complex	Lumbar, Pelvic, Hip Complex	
Shoulder mobility		Scapulothoracic	Scapulothoracic	
Active Straight Leg Raise		Hip, Knee and Ankle	Hip, Knee and Ankle	

Stability Push Up		Scapulothoracic / Lumbar, Pelvic, Hip Complex	Scapulothoracic / Lumbar, Pelvic, Hip Complex	
Seated Rotation		Scapulothoracic / Lumbar, Pelvic, Hip Complex	Scapulothoracic / Lumbar, Pelvic, Hip Complex	

**\*These corrective programmes are available at the end of the document in appendic B, C and D**

## Clearance tests

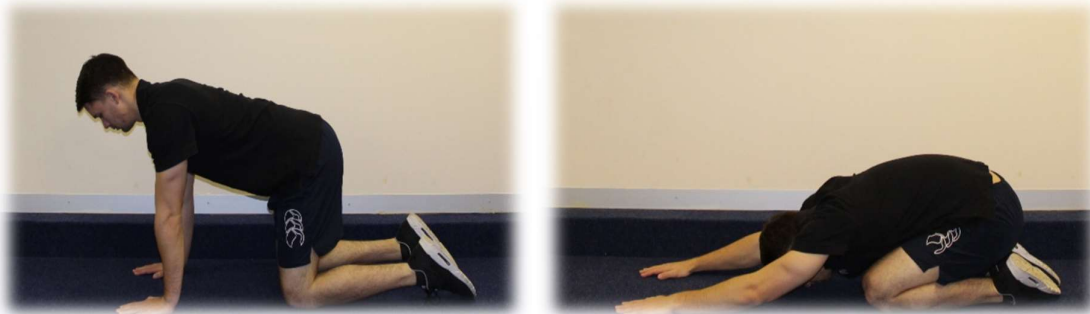
Prior to assessing an individual performing the EMS it is important to run three clearing tests. These tests are designed to help the tester determine if there should be any restriction on the test protocol. These tests are used to determine if pain is present during specific movements and are therefore not numerically scored. They are scored either positive or negative for pain. Positive pain scores should be addressed with further assessment or referral to a clinician.

### Clearance test - Shoulder impingement



The individual places the palm of the hand on the opposite shoulder and lifts the elbow as high as possible. Both shoulders should be assessed. **Individuals' should not perform the shoulder mobility test following a positive score.**

### Clearance test – Shoulder and lumbar flexion



Starting from a quadrupled position, the individual should sit back onto their feet, drop their chest to the floor and reach their hands out as far as possible along the ground.

**An individual who has discomfort or pain in their shoulders should not do the following tests:**

- Shoulder mobility
- Overhead squat
- Split squat
- Trunk stability push up

A score of 0 will then be assigned for these tests.

**An individual who has discomfort/pain in their back during flexion should not do the following tests:**

- Seated rotation
- Trunk stability push up

A score of 0 will then be assigned for these tests.

#### **Clearance test – Full back extension**



In a push up position, the individual pushes their chest off of the floor and keeps their hips in contact with the floor.

**An individual who has discomfort or pain in their lower back during the test should not perform the following tests:**

- Overhead squat
- Split squat
- Trunk stability push up
- Seated rotation

A score of 0 will be assigned for these tests.