

**Protocols for the  
Physiological Assessment of  
Gaelic Football Development  
Squads**

by

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## **Introduction**

Physical fitness in Gaelic football has been defined by the OTú as, “ the ability to perform the basic techniques, engage in physical contests and respond to the signs, sounds and signals experienced during the game with the least possible expenditure of energy”.

## **Physical Fitness Tests**

### **Aims**

1. To provide players with an assessment of their fitness levels and to identify key areas of fitness that need to be developed.
2. To provide the coach with an objective means of collecting information upon which subsequent evaluations and decisions are made.

### **Objectives**

The physical fitness tests are designed to:

- Monitor and record the physical development of talented young players.
- Assess and evaluate specific areas of fitness.
- Provide constructive feedback.
- Prescribe training programmes based on strengths/weaknesses to help improve aspects of fitness.
- Identify positional differences and tailor the training programme accordingly.
- Look for indicators that can help prevent injury and player burnout.
- Educate coaches and players so that they have a better understanding of the physical demands of the sport.

### **Test Protocol**

It is necessary to adhere to the following protocols to obtain valid and reliable results. This allows standardisation between tests within counties and between counties. All tests need to be carried out indoors in a hall or gymnasium to ensure that the environment and surface conditions are standardised throughout. The same equipment should be used each time a test is conducted. Aspects such as the encouragement given to players and the rest period allowed between repetitions of a single test or between different tests should remain constant from one test occasion to the next. Adherence to this protocol will allow comparisons to be made throughout Ulster. Specific information to counties is treated as confidential but the norms for Ulster will be available to all Development Coaches that take part in this exercise.

### **Pretest Preparation**

- All players should be familiar with the test procedures before formal testing.
- Players should not train on the day of the test and they should refrain from any unaccustomed exercise the previous day.
- Players should maintain their normal diet in the days leading up to the test and not eat for two hours before the test.
- On the test day, players should avoid smoking, drinking alcohol, tea, or coffee; and taking any substances that are known to affect or may be suspected of affecting performance.
- Each player should be in good health and fully recovered from previous injuries on the day of testing.

### **Test Battery**

The following tests are designed to assess specific aspects of fitness in a manner relevant to Gaelic footballers. It is recommended that players perform a standardised warm-up, including mobility exercises and stretching, before attempting the fitness tests. This is necessary to ensure that players are physiologically prepared to engage in the tests and to achieve peak performance. This also reduces the risk of players sustaining injuries during testing. The recommended order of administration is height, body mass, flexibility, vertical jump, medicine ball throw, speed, agility, and shuttle run. It is essential that the shuttle run is administered last in the session. Water should be available throughout the duration of the tests.

### **List of Equipment**

- Data collection sheets
- Pencils and clip boards
- Digital stop watch
- Weighing scales (measured in kg)
- Stadiometer or wall mounted scale (measured in cm)
- Digital jump mat
- Multi-stage shuttle run test (CD protocol)
- 30 metre measuring tape
- Cones (x 10)

### **Test 1 Height**

#### *Purpose*

Standing height is an important factor because taller players have an advantage when contesting aerial possession of the ball.

#### *Procedure*

Remove trainers and stand erect with heels, buttocks and shoulders pressed against the stadiometer or wall mounted scale. Arms should hang freely by the side. Players should look straight ahead, take a deep breath and stand as tall as possible. Measure height to the nearest 0.1 cm.

### **Test 2 Body Mass**

#### *Purpose*

Lighter individuals are likely to be more mobile around the pitch than their heavier counterparts. Excess body weight is also likely to negatively influence speed.

#### *Procedure*

Remove shoes, heavy clothing and valuables. Stand still and erect with weight evenly distributed on the centre of the scales. Record measurement to the nearest 0.1 kg.

### **Test 3 Flexibility**

#### *Purpose*

Muscles respond to continuous training by becoming tighter and shorter, therefore limiting range of motion. This can result in injury, particularly if the muscle is forced beyond its natural limits. Maintaining good flexibility through regular stretching can improve the range of motion of a joint and actively reduce the incidence of soft tissue injuries.

#### *Procedure*

The Sit and Reach test assesses the flexibility of the hamstrings and lower back. Players should remove their trainers and sit on the floor. Their legs should be straight and placed against the sit and reach unit. The player should then bend forward from the trunk, without jerking, pushing the marker as far forward as possible with their fingers, holding the final position for about three seconds. Each player is given three trials and the best score is recorded to the nearest 0.5 cm.

## **Test 4 Muscular Strength/Power**

### *Purpose*

In multiple sprint sports such as Gaelic football, players are now required to be faster and more powerful than their predecessors. Strength is defined as the ability to apply force and power is defined as the ability to apply a force at speed. Strength in Gaelic football relates to the ability of a player to be able to give and take a shoulder tackle and to contest possession of the ball. In addition, skills need to be performed dynamically and explosively. Good muscular strength facilitates power development and lays the foundation for sprinting and high intensity training such as plyometrics.

### *Procedure*

- The **vertical jump** measures the explosive power of the legs and is best performed using a digital jump meter. Players should stand in the centre of the vertical jump mat and attach the belt around their waist so that it sits comfortably. The string should be wound up until taught and the meter should be set to zero. To avoid arm assistance players are advised to place their arms on their hips. Once ready, players should bend their knees and crouch down and then jump up as high as possible. The position of the crouch can be varied and is left to the discretion of the player. Players should be encouraged to experiment with the depth of crouch. Once familiarised the players should be given three trials and the scores should be recorded in cm.
- A one-legged vertical jump is a reliable estimate of lower body strength in individual limbs. The same stance should be taken as in the double leg jump. However, the player is required to flex the non-jumping leg to 90 degrees to prevent it from touching the ground. The jumping leg should not bend further than 90 degrees during the countermovement.
- The **medicine ball throw** is designed to measure upper body power. Players should sit with their buttocks, back and head resting against a wall, and with their legs resting horizontally in front of them on the floor. A two-handed chest pass should be used to push the ball in the horizontal direction as far forward as possible. The distance from the wall to the first bounce of the ball is recorded to the nearest cm and each player gets two trials.

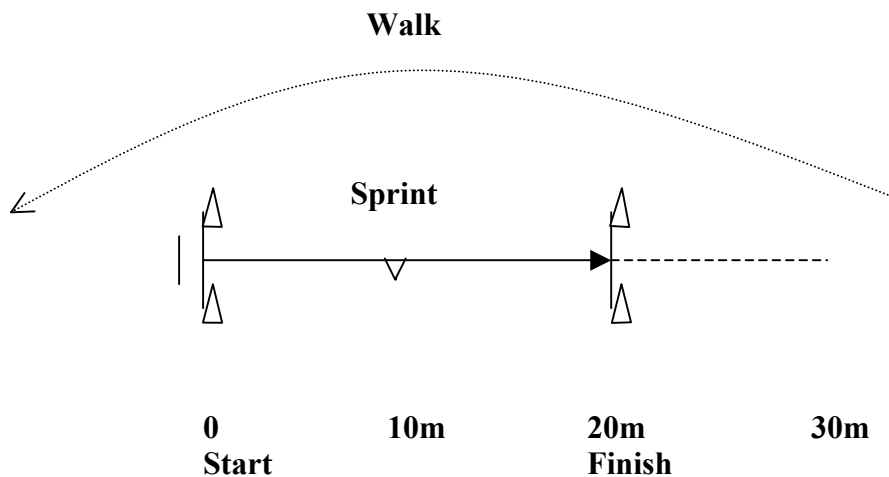
## **Test 5 Speed**

### *Purpose*

Although, a player may spend less than one minute actually sprinting during a match, the ability to run faster than an opponent may give a team a competitive edge.

### *Procedure*

Distances of 10 and 20m should be measured to the nearest cm and there should be a minimum of 10 metres beyond the 20m mark, in order to provide the players with ample space to slow down. Players should perform a few strides at half- then three-quarter pace over 20-30 metres prior to sprinting. For the starting position the player should adopt a low centre of gravity and a forward lean and stand on the line marked (30 cm behind the start line).

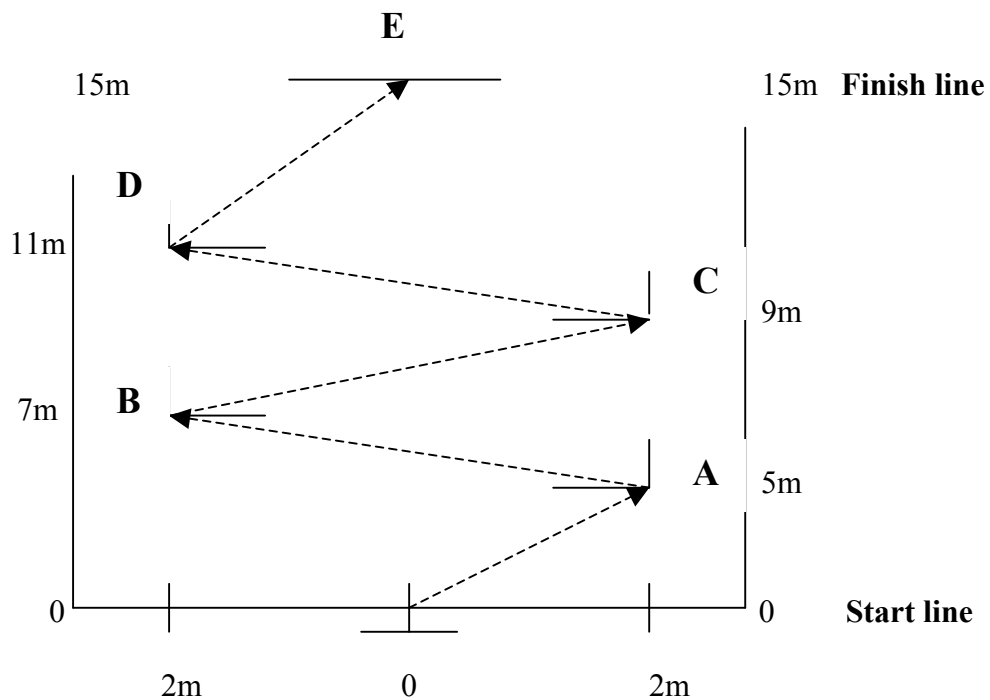


The two sprint times can be recorded simultaneously by placing a tester at both positions (i.e. 10 and 20m). The leader at the starting point starts the test by shouting "2-1-GO". The counting is co-ordinated with the following arm movements. On "2" the arm is raised vertically, on "1" the arm is then moved to an angle of 45 degrees between the vertical and horizontal and on "GO" it is moved to the horizontal. This is a signal for the other test leaders at 10m and the finish line to start their stopwatches. The stopwatches are then stopped once the player has passed the marked distance or finish line. The score recorded (accurate to 1/100<sup>th</sup> of a second) should be the best time for 2-3 trials. Allow 3-5 minutes recovery between sprints.

## **Test 6 Agility**

### *Purpose*

In Gaelic football players are required to perform sudden changes in body direction in combination with rapid movement of limbs. The whole-body movement can be in the horizontal plane, as when the player is evading an opponent, or in the vertical plane, as when a player is jumping.



### *Procedure*

The cones need to be placed at the locations and correct distances illustrated in the diagram. For the starting position the player should adopt a low centre of gravity and a forward lean and stand just behind the start line (30 cm behind the start line). On the command “GO” the player sprints forward as fast as possible to cone A and places his foot over the line. At “A” the player then accelerates to cone B and puts his foot over the line. The player then accelerates to cone C, then cone D and then across to the finish line. The watch is stopped once the player crosses the finish line. Each player gets two trials and the fastest time is taken.

## **Test 7 Aerobic Endurance**

Endurance (also referred to as aerobic power/stamina) can be described as the ability to take oxygen from the atmosphere and supply it to the working muscles, in order to produce energy which can then be used to fuel exercise.

### *Purpose*

In Gaelic football, it is not uncommon for players to cover 7-11 km in a match. Therefore, a high level of endurance is essential, not only to reduce fatigue but also to maintain skill and concentration levels throughout the match, which can greatly reduce the risk of injury. Aerobic fitness can also enhance recovery in between sprints and aid recovery from games and training bouts. A sound aerobic foundation is also a prerequisite to higher intensity anaerobic training such as speed and speed-endurance training, since recovery from this type of training is largely aerobic in nature.

The multistage fitness test is used as an accurate estimate of aerobic power. The activity is similar to that of Gaelic football, with respect to the stop, start, and change of direction movement patterns.

### *Procedure*

Players are required to run a set distance of 20 metres in time with an audio signal. As the test proceeds the interval between successive beeps gets smaller, therefore the players have to run progressively faster. The test is terminated when a player can no longer keep pace with two successive audio signals. During the test, it is important that the players cover the set distance and touch each line prior to turning and proceeding towards the next line. In order to administer the test effectively, it is recommended that one test leader calls out or keeps a record of when players drop out of the test, or are unable to maintain the required pace. Results are expressed as the level and shuttle.

For any structured yearly training, the coach and sports physiologist should decide on and plan all testing dates in advance. Generally appropriate testing times are at the beginning and end of each training phase, allowing assessment of the effectiveness of each phase. The coach can then use this information to plan the next training phase at both the team and individual level.

Protocols for the Physiological Assessment of Gaelic Footballers

NAME \_\_\_\_\_ DOB \_\_\_\_\_ DATE \_\_\_\_ / \_\_\_\_ / \_\_\_\_

SQUAD \_\_\_\_\_ VENUE \_\_\_\_\_

TIME \_\_\_\_\_ TESTER/S \_\_\_\_\_

HEIGHT	<b>cm</b>	BODY MASS	<b>Kg</b>
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SIT & REACH			<b>cm</b>
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VERTICAL JUMP	Trial 1	Trial 2	Trial 3
Both Legs			<b>cm</b>
Right Leg			<b>cm</b>
Left Leg			<b>cm</b>

MEDICINE BALL THROW		<b>cm</b>
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10 m SPRINT			<b>sec</b>
20 m SPRINT			<b>sec</b>

AGILITY RUN		<b>sec</b>
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20 m SHUTTLE RUN	<b>Level</b>	<b>Shuttle</b>
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