

**WOMENS HOCKEY  
FIELD TESTING PROTOCOLS**



**1) LEGER 20M SHUTTLE**

This is a non-invasive, indirect maximal multistage test.  $VO_2$ max is predicted from the maximal running speed ( $r=0.84$ ). The shuttle running course consists of running back and forth in a gymnasium or on a running track, on a 20 m course at an initial speed of 8.5 km/h. The running speed is controlled by audio signals that allow the speed to be increased by 0.5 km/h each minute. At every sound signal, participants must reach the 20 m line, pivot, and get to the other line by the next audio signal. The test is terminated when a subject fails to reach within 1 m of the endline two times in succession.

Performance on the 20m Shuttle Run will be evaluated as recommended by the Australian Sports Commission (1998). Scores are a product of the level and the number of successful shuttles completed for that level, which is reported to be a more refined scale for estimation of  $VO_2$  max.

Heart Rate will be recorded immediately after and 1 min post completion of test.

**2) VERTICAL JUMP TESTING (Opto Jump)**

Squat jump with no countermovement- Athlete is instructed to perform a squat to 90 deg of knee flexion with hockey stick on their back. After a 2-second pause the athlete performs 1 maximal vertical jump with no movement before the jump. This is repeated 3 times. Flight time and jump height will be recorded.

### 3) AGILITY TEST

Hockey is a sport that requires great agility. Agility is defined as moving through a range of motion (mobility) as fast as possible without losing body control (balance). The more agile an athlete is the more they can create deception at full speed (e.g. deking). This agility test evaluates the ability to stop, start and think quickly all at the same time, which is critically important in all aspects of hockey. The ability to do fine motor tasks (place ball on cone) while performing gross motor skills (stopping and starting) is also very important in hockey.

The procedure is as follows:

Time starts when athlete picks up top ball (1) with right hand. The sprint to next cone...set it down (2) with outside hand (left), move as fast as possible to next cone (3) pick up ball with right hand, sprint to cone (4) set it down with left hand. Move through sequence with picking up ball with outside hand and switching to set down with other hand. Time stops when final ball is placed on top cone (1 and 8). Balls must be placed into cones. Repeat twice on each side; remember that balls are switched to opposite side each time. See description for set up.

Schéma 1: Gardiens (Delorme, 2002)

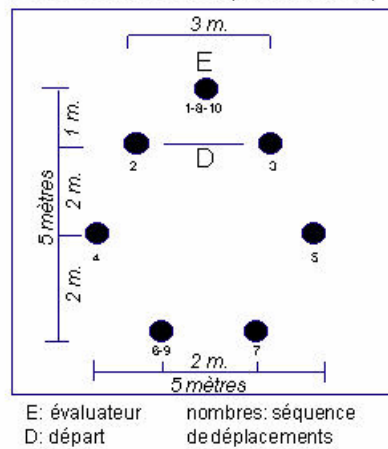
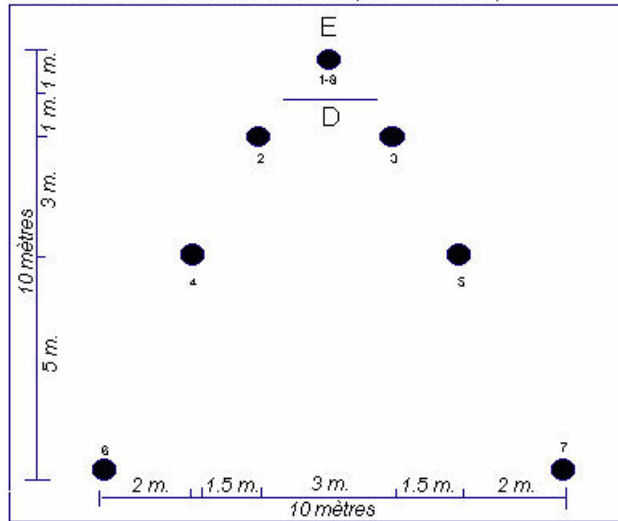


Schéma 2: Avants et Défenseurs (Delorme, 2002)



NWHT Targets for Goaltenders <12.5 seconds, Forwards/Defence <13.2 seconds

#### **4) UPPER BODY MUSCULAR STRENGTH**

##### **Chin ups**

Chin-ups- The pull-up bar is grasped, with hands approximately shoulder width apart, using a supinated grip (palms facing the subject). A chair or box support may be used to get into the starting position but the test must begin from a freely hanging position with arms extended. The subject must pull herself up until her chin is just above the level of the pull-up bar without using any hip motion (body must remain vertical). The arms must return to full extension without hyperextension. One pull-up is completed when the subject returns to the start position. Each subject completes as many repetitions as possible.

#### **5) REPEATED HIGH INTENSITY ENDURANCE TEST (RHET)**

The test should be conducted on a non-slip surface in order to provide good traction for the athletes. A corridor or track of 60m lengths provides for a 40m-test track and 20m in deceleration zones. Measure a distance of 40m with pylons placed at 0m and 40m. Timing lights are placed at 5m and 35 m respectively.

##### **Procedure:**

1. Warm up of 5 – 10 minutes, which should include some short 20-25m all out sprinting.
2. A 3 – 5 minute rest interval should separate the warm-up from the test.
3. The test involves a 40m sprint (0m – 40m) followed by a stop (turn) with a return to the start line. The subject must touch the end line with one foot before returning to the start.
4. Two hand times are measured for each interval – first begins as the athlete crosses the 5m line and stopping at the 35m line, second begins as the athlete crosses the 35m line and stops as the athlete crosses the 5m line.
5. A total of 6 “all out” timed repeats are performed at 30 second intervals, each interval beginning at time 0, 0.5, 1, 1.5, 2 and 2.5 minutes.
6. Tester will give athlete a 5 second count down before each interval.
7. Total time is recorded for each interval.

### **Lateral Leg Power– Load and Jump**

1. Player starts on mark, Loads up on one leg and jumps laterally
2. Player must stick the landing in order for the jump to count
3. Jump is measured in centimeters from the starting mark to where the player sticks the landing.
4. Player is allowed 1 practice trial per leg

### **Medicine Ball Throw (10 lb ball)**

1. Player has two trials to toss the medicine ball
2. Player starts with feet behind the mark in a squat position- in one smooth motion player picks up ball with both arms and thrusts ball forward
3. Throw is measured in centimeters
4. Player is allowed to follow through across line after throw.
5. Player gets a trial toss