Fitness Testing

Development Philosophy
All HCSA players need to continuously perfect and advance individual skills and tactics. You must understand how these skills are necessary for maximum improvement and development.

The Canadian Way: What is the ideal player?
Forwards
• Highly skilled, competitive, and intelligent on the ice.
• Agile on their skates north, south, east, west
• Creative – willing to try things
Defense
• Willing to try and make a play
• Good passers, quick thinkers and agile skaters
Goaltenders
• Makes the saves they need to
• Technically sound and athletic

Continuous development of skills will help your students to become the ideal player at their position.

SKILLS TESTING
ON-ICE TESTING – FOCUS
1. Speed (both forward and backwards)
2. Transition
3. Agility
4. Endurance

FORWARD WEAVE/AGILITY SKATE (click for video):

- Time: 6 min
- Start at the blue line, skate forward towards the far pylon and make a tight turn around first pylon.
- Weave back through the pylons, making a tight turn around the last pylon, and weave back through the pylons, making a tight turn around the last one. Sprint back to the blue line which is both the start and finish line.
- Complete test without and with puck.
TRANSITION-AGILITY SKATE (click for video):

- Time: 8 min
- Each player starts on line at the bottom of circle. The player skates forward to far right side pylon, pivots and skates backwards to lower right side pylon.
- The player then pivots and skates forward to far left side pylon, pivots and skates backwards to lower left side pylon.
- The player then pivots and skates forward to designated line, stops, and then skates forward back to starting line.
- Complete test without and with puck.

FORWARD/BACKWARD SPEED SKATE (click for video):

- Time: 8 min
- Players skate as fast as they can straight ahead, first forwards and then backwards. The distance is 100 feet. Measure 100 feet starting at the goal line. Use spray paint to draw a line to indicate the finish line.
- Complete first without a puck. Then add a puck for the second trial.
- Key Execution Points:
  - Encourage players to skate through finish line (discourage players from stopping at the finish line).
6 REPEATS TEST

6 Repeats Test – On ice measurement
- A forward-skating test that consists of six repetitions of maximal velocity skating (91.4m or 300 feet), repeats are initiated every 30 seconds.
- From this test, four variables are recorded:
  - The time to skate one length of the ice (54 m or 180 feet) is designated for the speed index.
  - The total time for the six repetitions is the anaerobic endurance component.
  - A drop-off index is calculated as the difference between the slowest and fastest repetitions.
  - Heart rates are recorded immediately on completion of the test, and at 3 and 5 minutes after exercise. Recovery is calculated as the difference between the exercise and post exercise heart rates.
- What you will need:
  - 6 volunteers
  - 5 clipboards with testing sheets
  - 4 stop watches
  - Heart rate monitor

Setup:
- Players have a 10 minute warm-up prior to the test
- Divide players into three lanes behind the goal line
- Have 3 volunteers stand at the blue line with their clipboard and stop watches at each lane
- Have a volunteer stand at the far goal line, near the first lane
- Have a volunteer at the cool down station recording the heart rates once the test has been completed by each player
- Have a volunteer at the goal line with the players to blow the whistle every 30 seconds, counting down from 30 minutes.

Execution:
- Clock is set at 30 minutes (30 minutes to get 30 players through)
- Volunteer at goal line blows the whistle (30:00 minute mark) and the first player in lane 1 sprints from goal line to far goal line. Sprint timekeeper marks the time it took for him to get there. Player keeps skating to far blue line. Volunteer at far blue line marks his time.
- This should take less than 30 seconds, giving the skater some time to recover until his next repeat.
- Volunteer blows whistle (now at 29:30). Player in lane 1 skates from goal line to far goal line back to far blue line. Only the volunteer at the blue line marks his time.
• At the same time (29:30), player in lane 2 sprints his first repeat. Volunteer at far goal line, marks his sprint time. Skater in lane 2 keeps skating to far blue line where his time is taken.
• There should be some time for recovery
• Whistle blows (29:00). At this point, 3 skaters will be doing their repeats.
  o In lane 1: Skater is on his 3rd repeat
  o In lane 2: Skater is on his 2nd repeat
  o In lane 3: Skater is on his 1st sprint, volunteer at far goal line is getting ready to mark his sprint time

At 28:30 on the clock:
In lane 1: Skater is on 4th repeat
In lane 2: Skater is on 3rd repeat
In lane 3: Skater is on 2nd repeat

At 28:00 on the clock:
In lane 1: Skater is on 5th repeat
In lane 2: Skater is on 4th repeat
In lane 3: Skater is on 3rd repeat

At 27:30 on the clock:
In lane 1: Skater is on 6th repeat, volunteer at blue line informs him that this is his last repeat. After his last repeat, player goes over to bench and gets his heart rate monitored.
In lane 2: Skater is on 5th repeat
In lane 3: Skater is on 4th repeat

At 27:00 on the clock:
In lane 1: New skater comes to the line for their first sprint. Volunteer at far goal line records his sprint time. Volunteer at blue line records their first repeat.
In lane 2: Skater is on 5th repeat
In lane 3: Skater is on 4th repeat

TESTS FOR GOALTENDERS

Iron Cross – Shuffle (See video for reference)

Iron Cross – Butterfly Slide (See video for reference)

Lateral Slides (click for video):

• Time: 8 min
• The Iron Cross is a timed drill with two separate tests. The forward and backward portions are the same, with the difference being the first one utilizes a shuffle to go sideways and the second one uses a Butterfly slide to go sideways. Goalie starts at bottom of the circle, and skates forward to the center dot and then to one side then sideways back through the dot to the other side of the circle and back to the center dot and back to the starting position where clock is stopped.
• The Lateral Movement test is done by moving sideways 8 feet for 4 repetitions, while keeping the outside pad (slide pad) on the ice the entire time (over and back is counted as 1 repetition)
• Key Execution Points: Goaltenders will do each of the previous tests without a puck

SKILLS TESTING

OFF-ICE TESTING – FOCUS
1. Strength
2. Power
3. Flexibility
4. Quick Feet
5. Endurance

2 HOP JUMP

TESTING PROTOCOL
• Player starts in a crouched position with both feet parallel and toes place on or behind a well-marked take-off line.
• Athlete performs two consecutive broad jumps (i.e. 2-footed forward hops for maximum distance) in a straight line with no pause between jumps.
• Upon landing second broad jump, athlete should remain standing with feet stationary to permit accurate measurement.
• If athlete unable to keep balance upon landing second jump, and measurement could not be made, another trial is allowed.
• Two trials are awarded for each athlete; record both measurements.

DISQUALIFICATION
• Athlete starts with toes over the take-off line.
• Athlete steps into either hop instead of performing 2-footed hops.
• Athlete pauses at least a full second upon landing 1st hop, prior to finishing jump.
• Athlete fails to land 1st hop cleanly or performs stutter step prior to 2nd take-off.
• Athlete fails to land 2nd hop in such a way that allows clear marking of the landing spot of heel of back foot.
20 METER SPRINT

TESTING PROTOCOL

- Start in a 2-foot stance that is most familiar to you and that you think will yield the best time. Counter movements are not permitted. You may step on or touch the starting line. You may lean across the starting line. Hold starting stance for 3 seconds prior to start.
- As you accelerate, keep your head down, maintain a fast stride frequency, and drive your arms and legs.
- Make sure you run through the finish line. The clock stops when your chest crosses the finish line.
- Measure 20 metres (60 feet) on a field or other surface. For the most accurate time, we recommend using a digital timing system, but a stopwatch will work. If you are using a stopwatch, the timing starts with the first movement after the set position. Stop the clock when the athlete’s chest crosses the finish line. The athlete runs the 60-yard dash twice, and his or her best time is recorded to the nearest two decimals (for example, a time of 4.453 should be recorded as 4.45).
**ROTATIONAL POWERBALL THROW**

**TESTING PROTOCOL**
- Stand perpendicular to the launch line.
- Cradle the Power Ball (8 LBS) in two hands with your backhand (palm facing the launch line) on the back of the ball and your front hand under the ball.
- Draw the Power Ball back, keeping the Power Ball between your waist and chest.
- In one fluid motion, with your arms fully extended and supporting the ball, laterally rotate your body as you sling the Power Ball out and forward (optimally at a 45 degree angle). As you rotate, your body will simulate a bat swing, beginning with the drop of your front heel and continuing through as you rotate your core from the waist up.
- Finish with your arms extended and high, with the release point tracking as if you were hitting a ball up the middle.
- Following through over the launch line is acceptable, but your feet should not step in front of the line until the Power Ball is released.

**DISQUALIFICATION**
- You initiate the throw before ball marking official is ready to sight the ball and mark its landing;
- You step across line prior to release of the Power Ball.
- You throw the Power Ball with one hand.
- Note: You will be warned after first disqualification and allowed to redo throw. Any additional trials in which you do not complete throw as instructed by the protocol, will result in a disqualified trial without an opportunity to redo.

**SHUTTLE CROSS-PICKUP**

**DETAILED PROTOCOL**
- Cones + 3 octagonal (SPARQ Agility Web) rings spaced in Cross Formation as shown.
- 10m from starting cones (A) to center (B); 5m from (B) out to center of each ring
- SPARQ Quick React Balls preferred (tennis balls also work)
- Athlete stands at starting line (A) in two-point athletic stance, in set position for 2 sec.
- Athlete sprints forward to center (B) around cone to ring (C) for ball pick-up
- Sprint back across center (B) to ring (D) for ball drop-off in ring
- Sprint back to center (B), around cone to ring (E) for second ball pick-up
- Sprint back through start/finish line (A) with 2nd ball in hand. NOTE: a dropped ball disqualifies trial!
- Total running distance = 50 meters, requiring both right and left turns + 3 stop/starts
• Test demands eye-hand and eye-body coordination with each ball pickup/drop-off;
• Black ( ) denotes ball dropped off (ball must land within ring for trial to count)
• Athlete given two timed trials; both are recorded. Best time counts toward Rating.

TESTING PROTOCOL
• If using hand-timing, athlete begins in a 2-point (standing) athletic stance on the start line.
• If timing with an electronic start/finish beam, athlete should start from a line marked 50 cm (20 inches) behind the timing beam to minimize premature breaking of beam due to arm swing. Instruct athletes to run through the finish line for best times.
• Hand-timing begins on athlete’s first movement from set position. Instruct athletes that any countermovement (rock-back or drop step) will initiate timing and affect the result. Two timed trials are allowed; both should be recorded.

DISQUALIFICATION
• Athlete false starts, i.e. starts without first being set for 2-3 seconds, or uses a rolling start.
• Athlete starts in a 3-point or 4-point stance, with hand(s) down on line.
• Athlete starts with foot across start line (or across 20in/50cm setback line if electronic start beam in use).
• There is a timing error or equipment malfunction that prevents accurate timing or casts doubt on the accuracy of the reported time.
• Athlete fails to perform left and right-hand turns as instructed by protocol.
• Athlete fails to place 1st ball in right-hand ring or fails to carry 2nd ball through start/finish line.
**BEEP TEST**

**20m Leger Shuttle (Beep) Test**

- The 20 meter shuttle run is a simple test that gives a good estimate of maximum oxygen uptake (VO2) or aerobic endurance. Running the shuttle test using the CD version is the best way to eliminate possible variation of speed.

- The test is simple to administer. A portable (loud) stereo, an authentic version of the test on CD, cones or markers and a measuring tape is all that is required. Measure out 20 meters using cones at either end for markers. Create lanes for the players to run with at least 1 meter separating each player. The testing area should be a consistent even non-slip surface. Allow 5 meters at either end of your 20 meter grid for a safe exit. The CD player should be placed close to the testing area, make sure all the players can hear the test.

- There are clear instructions on the CD itself. Let the players listen to the instructions prior to each test. During the test be prepared to record the final stage number the player attained. Be firm with your marking, don’t let the players cheat the line. This test involves continuous running between two lines 20 meters apart in time to recorded beeps. The athletes stand in between their two cones, facing the second line or cones at the opposite end of the 20 meter zone.

- The speed at the start is quite slow. The athletes continue running between the two lines, turning when instructed by the recorded beeps. After approx. one minute, a sound indicates an increase in speed and the beeps will be closer together. This continues each minute (level). If the line is not reached in time for each beep, the subject must still run to the line, turn and try to catch up with the pace before the next ‘beep’. Also, if the line is reached before the beep sounds, the subject must wait until the beep sounds. The test is stopped if the athlete fails to reach the line for two consecutive beeps.

**RESULTS COMPARISON**

**OVERALL RESULTS**

<table>
<thead>
<tr>
<th>Test</th>
<th>U17 Best Score</th>
<th>U18 Comparison</th>
<th>OHL Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fwd Speed</td>
<td>4.10</td>
<td>3.92</td>
<td>3.99</td>
</tr>
<tr>
<td>Fwd Speed with puck</td>
<td>4.18</td>
<td>4.29</td>
<td>4.08</td>
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<tr>
<td>Bwd Speed</td>
<td>4.54</td>
<td>4.89</td>
<td>4.86</td>
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<td>Bwd Speed With Puck</td>
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<tr>
<td>Transition</td>
<td>10.96</td>
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<td>11.43</td>
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<tr>
<td>Transition with puck</td>
<td>11.98</td>
<td>12.15</td>
<td>11.60</td>
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<tr>
<td>Agility</td>
<td>9.95</td>
<td>9.14</td>
<td>9.89</td>
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<tr>
<td>Agility with Puck</td>
<td>10.32</td>
<td>10.36</td>
<td>10.33</td>
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## Position Specific Results – Defense

<table>
<thead>
<tr>
<th>Test</th>
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<th>OHL Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fwd Speed</td>
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<td>Fwd Speed with puck</td>
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<td>Bwd Speed</td>
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<td>4.78</td>
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<td>4.86</td>
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<tr>
<td>Bwd Speed With Puck</td>
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<td>4.86</td>
<td>4.91</td>
<td>4.89</td>
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<tr>
<td>Transition</td>
<td>12.37</td>
<td>11.77</td>
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<tr>
<td>Transition with puck</td>
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<td>12.15</td>
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</tr>
<tr>
<td>Agility</td>
<td>10.66</td>
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<td>9.89</td>
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<tr>
<td>Agility with Puck</td>
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<td>10.42</td>
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## Position Specific Results – Forwards

<table>
<thead>
<tr>
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<th>OHL Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fwd Speed</td>
<td>4.45</td>
<td>4.14</td>
<td>3.92</td>
<td>3.99</td>
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<tr>
<td>Fwd Speed with puck</td>
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<td>Bwd Speed</td>
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<tr>
<td>Bwd Speed With Puck</td>
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<td>4.91</td>
<td>4.89</td>
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<td>9.89</td>
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<tr>
<td>Agility with Puck</td>
<td>11.02</td>
<td>10.32</td>
<td>10.36</td>
<td>10.33</td>
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POSITION SPECIFIC RESULTS – GOALIES

<table>
<thead>
<tr>
<th>Test</th>
<th>Average Score</th>
<th>Best Score</th>
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<tbody>
<tr>
<td>Iron Cross – Shuffle</td>
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<tr>
<td>Iron Cross – B Fly Slide</td>
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<tr>
<td>Lateral Movement</td>
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