



ALPINE ONTARIO ALPIN

Provincial Governing Body for Alpine,
Para-Alpine & Ski Cross Racing

2018/19 Fitness Testing Protocols

EQUIPMENT LIST

Wooden dowel
Measuring tapes
Scale
2 Inch block of wood
Masking tape
Pull up bar
Standard hexagonal obstacle
Stop watch
20 cm, 30 cm, 40 cm box (age dependent – see table)
Speaker
Cones
30m large open space
Clipboards & Pencils
Athlete Data Recording Sheets
Beep test recording
Medicine balls- 4, 6, 8, 10lbs

PRE-TEST PREPARATIONS

Familiarize testers with the test protocols.

Practice the test protocols.

Find a suitable testing venue (e.g. non slip surfaces, preferably indoors, minimize environmental factors).

Prepare athletes and parents for factors influencing performance (e.g. ensure athletes are rested, hydrated, well fed, wear proper footwear).

Ensure all athletes participating in the physical fitness testing understand the testing protocol, physical requirements, and are cleared to participate. Understand why it's important to go through the testing process and how each test is applicable to their sport. It is recommended that all athletes participating in fitness testing sign a waiver prior to participating.

TESTING ORDER

Movement Competencies

1. Overhead Squat with Dowel
2. Active Straight Leg Test

Lower Body Power

3. Penta Jump

4. Vertical Jump

Upper Body Strength

5. Medicine Ball Throw

Change of Direction

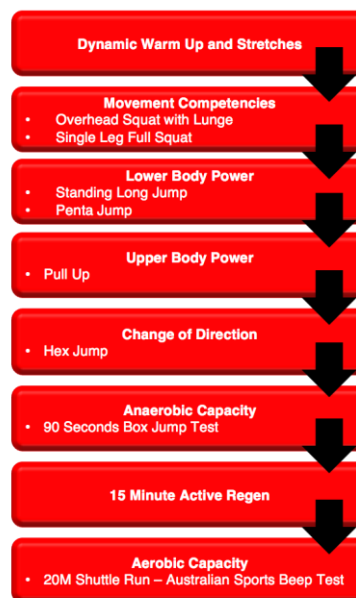
6. Hex Jump Test

Anaerobic Capacity

7. 60 & 90s Box Jump Test

Aerobic Fitness

8. 20m Shuttle Test



Height and Weight

Equipment: Measuring tape, scale.

Protocol: Have athletes remove shoes. For height have the athlete stand up straight with back against the wall. For weight have athlete stand on scale.

Scoring: Height is measured in centimeters (CM), weight is measured in pounds (lbs).

Overhead Squat with Dowel

Equipment: Wooden or plastic dowel, 2-inch block of wood, measuring tape.

Protocol: Measure the length of the leg of the athlete by taking the length from below the knee cap to the bottom of the athlete's foot. The athlete will stand with his/her feet apart to the length of the measurement with both feet pointing forward. Position a dowel on the top of the head and move both hands out until elbows come to 90°, and then fully extend the elbows and lockout directly overhead. Perform 5 squats as low as possible while maintaining overhead dowel position.

Video: [Overhead Squat with Dowel](#)

Scoring: Score out of 3 based on quality of the movement.

3: Upper torso vertical or parallel to shins, femur below parallel to ground, knees align over toes, dowel aligns over feet.

2: Elevate heels by 2 inches, upper torso vertical or parallel to shins, femur below parallel to ground, knees align over toes, dowel aligns over feet.

1: Upper torso not vertical or parallel to shins, femur not below parallel to ground, knees not align over toes, dowel not aligns over feet.

0: Pain while performing the movement.

Contraindications: Lower body injury that limits squat performance or upper body injury that limits overhead position with the dowel.

Single Leg Raise Test

Equipment: Wooden or plastic dowel

Warm Up: Have athlete perform 2-3 warm up leg raises per side

Protocol: Have athlete lay flat on their back. Place wooden dowel vertically at the midline of the athlete's femur. Without breaking at the knee have the athlete raise one leg while leaving the other on the ground. Note how far they were able to move. Repeat for the second leg.

Video: <https://www.youtube.com/watch?v=PgdTj97IL3o>

Scoring: Score out of 3 based on quality of the movement.

3: Heel pass midline of femur before bending leg

2: Heel passes opposite knee but not midline of femur before bending leg

1: Heel does not pass opposite knee before bending leg

0: Pain while performing the movement.

Contraindications: Lower body injury that limits squat performance.

Penta Jump

Equipment: Tape measure, non-slip floor, masking tape, clearly marked takeoff line

Warm Up: Perform 1-3 submaximal jumps in a consecutive manner.

Protocol: Place tape measure on flat ground on a non-slip surface. Place line of masking tape starting at 0 cm. The athlete starts with the toes lined behind the masking tape line. The tester will issue the command "Jump". Using a two-foot takeoff, the athlete will perform a five consecutive maximal effort jumps in a continuous manner. The goal is to maximize the

horizontal jump distance. The athlete will land on two feet. Measure the jump distance from the masking tape to the heel that is closest to the takeoff line. In the event the athlete loses balance on landing, discard the result and repeat the test.

The test consists of 2 maximal effort trials.

Video: [Penta Jump](#)

Scoring: The best total jump distance.

Contraindications: Lower body injury that impairs vertical jump performance.

Vertical Jump

Equipment: Vertical Jump Mat or Measuring tape and painters' tape

Warm Up: Perform 1-3 submaximal jumps in a consecutive manner.

Protocol: With Jump Mat – Have athlete start off the mat, move them onto the mat and stay still, give “Jump” command, have them step off the mat. With Measuring Tape – have athlete stand parallel to the wall and touch as far up the wall with arm extended overhead. Jump and touch the wall with the painter's tape as high as possible. Subtract standing reach from jump height.

Scoring: The best jump height, measured in CM.

Contraindications: Lower body injury that impairs vertical jump performance

Medicine Ball Toss

Equipment: Medicine Ball, tape measure.

Warm Up: 2-3 submaximal tosses.

Protocol: Weight of medicine ball is determined by athlete's weight (*Equation- approx 4% of body weight OR >100lbs 4lbs, 100-150lbs 6lbs med. ball, 150-200lbs 8lbs med. ball, 200lbs+ 10lbs med. ball*). Ball is thrown in basketball chest-pass style toss. Feet must stay on the ground/not pass the line. The test consists of 2 attempts.

Scoring: Results recorded based on first landing of ball. Measured in meters

Contraindications: Upper body injury that limits pull up performance or a history of shoulder instability.

Hex Jump Test

This test is designed to measure ski motor skills of coordination, specifically foot accuracy and speed with upper body stability.

Equipment: Stop Watch, Standard Hex Jump OR stop watch and masking tape and measuring tape. Surface must be solid, ie. Tennis courts, gym floor, track (no grass)

Warm up: 1 Lap in each direction around the hex rail

Protocol: Test will be done clockwise(cw), then counter clockwise (ccw). One trial will be done in each direction. One provisional trial for each direction will be granted if an athlete knocks over an obstacle. Athletes will be allowed **only one** practice trial in each direction.

- 1) Athlete begins inside the hex with body perpendicular to 20cm obstacle.
- 2) Clockwise (Cw) direction is performed first. Therefore, left shoulder is closest to the first 20cm obstacle. The timer gives the athlete the verbal command of “Ready, Set, Go” to begin the test. The stopwatch begins on ‘Go’

- 3) For the Cw trials, the athlete jumps over and back over each obstacle in the order 20, 35, 20, 32, 20, 25cm obstacles moving around the hex jump for the prescribed number of revolutions ie. (3x taped for U12), (2x apparatus for U14), (3x apparatus for U16 AND U19)
- 4) The clock stops when the athlete lands back in the center of the hex following the jump back over final 25cm obstacle. If at any point during the test, an athlete knocks over an obstacle, the test will be restarted.
- 5) The athlete will be given 2 minutes to recover between trials.
- 6) For the counter clockwise (Ccw) rotation the obstacles are not rearranged, therefore the order is 20, 32, 20, 35, 20, 25cm obstacles. The athlete will only be given three total trials to finish the test direction without knocking over an obstacle. If the obstacle is knocked over is the first obstacle, it will not be counted as a miss. After knocking over an obstacle, the athlete will be given up to 2 minutes to recover. **Athlete body position when jumping over the obstacles should be to face forward for the entire test.**
- 7) REPEAT the same instructions for the ccw test.

Scoring: Record time of clockwise and counter-clockwise attempts and add them together.

Box Jump Test

Equipment: Box Height Age Dependent (See Table 7a below)

Warm Up: Perform 3-5 jumps each side. Technical feedback should be provided during the warm up.

Protocol: The athlete starts by standing on the ground beside the box. Upon start command, the athlete jumps down laterally to one side and back up, then jump down laterally to the other side and back up. The aim is to get as many repetitions as possible in the time allotted. The athlete is not allowed to step up onto the box.

This test consists of 1 attempt.

Video: [Box Jump](#)

Scoring: Each jump to the top of the box counts as a repetition. Athlete must land on box with both feet at same time for it to count as a proper rep. Record the maximal number of correctly performed repetition.

Contraindications: Lower body injury that limits jumping performance.

Table 7a: Box Height and Test Duration

Age Height Time

U12 20 cm, 60 s

U14 30 cm, 60 s

U16 40 cm, 60 s FIS 40 cm, 90 s

20m Shuttle Test

Equipment: Tape Measure, speaker, audio device with Australian Sports 20m beep test, large open space that is 30 meters in length.

Audio: Australian Sports 20M Beep Test

Warm Up: Perform dynamic warm up and static stretching for 10 minutes.

Protocol: The athlete will follow the instructions on the audio device, and run to the sound of the beep until the athlete is no longer able to complete a level. The testers must watch the athletes carefully and only give athletes 2 opportunities to reach the marked end points should they fall behind. When the athlete falls short of the line twice in a row, the test is stopped.

Video: [20M Shuttle Run](#)

Scoring: Record the last stage completed.

Contraindications: Lower body injury that limits running performance.

RECORDING RESULTS

During the testing session each athlete should be provided a results worksheet they can carry from testing station to testing station. The worksheets should be collected at the end of the testing.

Station evaluators should be provided with clipboards and pencils. It is best practice to have two evaluators at each station; one evaluator to record and one evaluator to conduct the assessment.

The individual result worksheets can be used to upload the data to the standardized Google Form using the provided link.

SUBMITTING RESULTS

Results must be submitted to Alpine Ontario by December 31st of the current race season. Results must be submitted on the following [excel document](#) and to:

admin@alpineontario.ca