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# **Sail Canada**

## **Junior Testing Protocols**

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## OVERVIEW

The Sail Canada testing protocols have changed frequently over the past 4 quadrennials. Reasons have included varied regional and national needs based on athletes' classes and variability in equipment availability across the institutes and centres.

The purpose of this document is to offer a nationally agreed upon testing protocol for junior and development athletes.

<b>Junior (Developmental)</b>
<b>1 Day (when possible)</b>
Anthropometrics – height, mass, (optional: sitting height, arm span)
Dynamic preparation (directed by S&C coach)
Grip strength
Supine Pull ups
Push ups to a metronome
Plank
1km Time Trial – Row OR Beep Test (determined by IST)

Every effort should be made to ensure re-testing occurs on the same day of the week, and the same time during the day if possible. Recovery periods between tests should be standardized and recorded for historical reference.

**The *Rule of Two* and an *Open and Observable* testing environment, as outlined by the Responsible Coaching Movement, is to be maintained for each test described.**



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## HEIGHT

**Purpose:** Height is an important facet in the sport of sailing, depending on the class of the athlete, as limb length effects leverage.

**Equipment:** A stadiometer, or tape measure against a wall if a stadiometer is unavailable, accurate to 0.1cm.

### Procedure:

- The athlete stands without shoes, heels, buttocks and head pressed against the stadiometer or wall with tape measure
- The heels are together with the arms hanging freely by the side
- The tester first instructs the athlete to “stand-tall” while exhaling, and then with permission, proceeds to lift (i.e., adjust) the athlete’s head and shoulders to ensure the body is fully stretched
- The tester then lowers the platform until it makes firm contact with the top of the head.

**Record:** note standing height to the nearest 0.1cm and note the time of day

## BODY MASS

**Purpose:** Mass is an important factor in sailing based on the individual’s boat class. An excess may have a number of negative effects on the athlete’s performance. While other athletes may be required to maintain or increase mass to aid performance as determined by the coach and IST.

**Equipment:** Calibrated balance scales accurate to 0.1kg.

### Procedure:

- The athlete is requested to void the bladder prior to measurement
- The athlete should be shoeless and ideally wearing shorts and a t-shirt (re-testing should be consistent)
- Ensure the scale has been zeroed and have the athlete stand erect on the centre of the scale
- Instruct the athlete to take a deep breath and then exhale prior to measuring.

**Record:** note the athlete’s mass to the nearest 0.1kg. and note the time of day

**HEIGHT AND BODY MASS** – used to determine body mass index



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## SITTING HEIGHT

**Purpose:** Sitting height is a measure of trunk length, and may be used with junior and next generation athletes to assess growth and window of maturation. It is also a measure which affects biomechanics for hiking proficiency.

**Equipment:** A stadiometer, or tape measure against a wall if a stadiometer is unavailable, accurate to 0.1cm, and a box (to sit on).

### Procedure:

- Height of the box is noted (e.g., 40 to 50 cm)
- The athlete is asked to sit on the box with both feet on the floor
- The athlete is asked to place shoulders and lower back against the wall, with hands placed on the thighs
- The tester first instructs the athlete to “sit up” while inhaling, and then with permission, proceeds to lift (i.e., adjust) the athlete’s head ensure the body is fully stretched
- The tester then lowers the platform until it makes firm contact with the top of the head and the measurement is taken from the floor to the top of the athlete’s head
- The athlete is then instructed to exhale after the measurement is taken
- Measurement is calculated from the floor to the top of the athletes head subtracting the height of the box



**Record:** note seated height to the nearest 0.1cm and note the time of day



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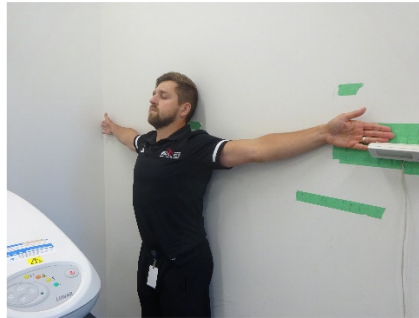


## ARM SPAN

**Purpose:** Arm (wing) span is an important facet in the sport of sailing, similar to the reasoning for tracking body height, limb length effects leverage.

**Equipment:** A wall, tape measure against a wall accurate to 0.1cm. Procedure:

- The athlete stands with back, buttocks and heels against a wall
- Arms are stretched and parallel to the floor with palms facing out
- Measurement is taken from the longest finger tip of one hand to furthest finger tip in the other hand



**Record:** note measurement to the nearest 0.1cm

## GRIP STRENGTH

**Purpose:** to assess grip strength and to detect left/right strength asymmetry.

**Equipment:** Hand grip dynamometer

**Procedure:**

- The subject holds the dynamometer in the hand to be tested, with the arm at a 45 degree angle from the side with the elbow straight. The handle of the dynamometer is adjusted if required - the base should rest on the first metacarpal (heel of palm), while the handle should rest on middle of the four fingers. When ready the subject squeezes the dynamometer with maximum isometric effort, for 3 seconds. No other body movement is allowed. The subject should be encouraged to give a maximum effort.

**Record:**

- The best result from 2 trials for each hand is recorded, with at least 15 seconds recovery between each effort.



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## SUPINE PULLUPS

**Purpose:** To assess upper body muscle strength endurance

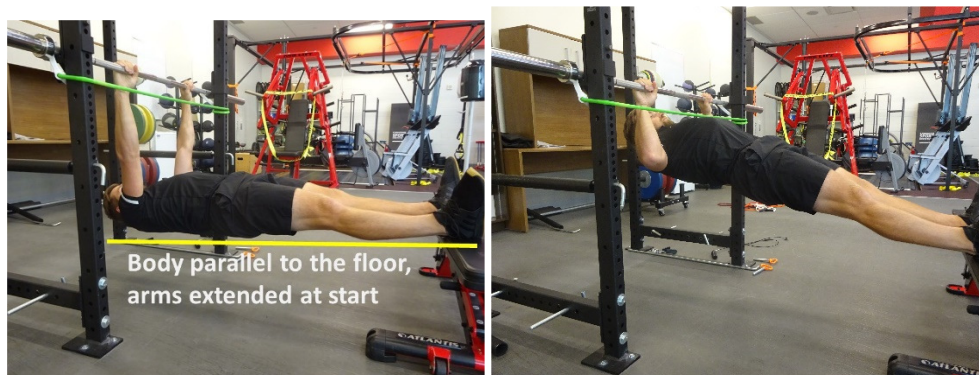
**Equipment:** Squat rack, band, plyo box or risers, Olympic bar

### Setup:

- Set Olympic bar onto rhino hooks
- Hook a band on both sides of the squat rack (frontside) 4 inches below Olympic bar
- Adjust the distance and height of plyo box so that when athlete's arms are at full extension, heels rest on the plyo box
- Ensure the athlete's body is parallel to the floor while arms are fully extended and heels on the plyo box.

### Protocol:

- There is no time limit associated with this test.
- The athlete will perform one single set to achieve his/her maximum number of repetitions.
- The athlete must start in a fully extended position with body (from head to heels) fully extended and parallel to the floor.
- The athlete's heels are placed on an adjustable box or risers.
- The goal in pulling is for the athlete to achieve a 90° angle at the elbows.
- The height of the band must be set up to indicate full range of motion with arms at 90° and chest touching the tube each repetition.
- The band should be placed 10-12cm below and in front of the bar based on being able to achieve 90° at the elbows when touching the band.
- Full range of motion must be achieved for each repetition (i.e., touch the band to arms fully extended and body parallel to the ground), or the repetition will not be counted.
- The tests concludes with the athlete stops, let's go of the bar, or is not able to achieve proper form and stopped by the tester.



### Record:

- Maximum repetitions will be counted



## PUSH UPS TO A METRONOME

**Purpose:** to assess upper body pushing strength

**Equipment:** stopwatch, volcano cone, metronome audio

### Procedure:

- Athlete starts in a high plank position with thumbs under the shoulders, feet hip width
- A metronome is set to 60
- Acceptable depth is judged by height of a volcano cone, secured softball, or yoga block
- The following cues are provided to the athlete:
  - Maintain correct posture from head to heels. The test will be terminated if two consecutive corrective cues do not result in correction in form, and the athlete is scored based on the number of correct repetitions performed.
  - Control movement, aiming to touch implement at “beep” and alternatively reach full extension on opposite “beep”.
  - Rhythm must be maintained throughout testing.
  - Once the athlete fails to touch the implement, or lose rhythm of the metronome, the test is complete.



### Record:

- total number of push-ups completed



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## FOREARM PLANK

**Purpose:** To assess trunk muscle endurance in neutral trunk alignment.

**Equipment:** floor mat or yoga mat on a non-slip surface, stop watch

### Procedure:

- The athlete is instructed on the proper plank position with feet hip width, elbows directly beneath the shoulders, and hands directly in front of elbows
- A neutral ankle position is maintained with full hip and knee extension, and a neutral spine and head position is to be maintained
- When the athlete assumes the proper position, the tester starts the stopwatch
- Athletes are provided cues during the test as technique falters away from the accepted position
- The test is terminated if two consecutive corrective cues given to the athlete do not result in correction in form
- Causes of test termination include, the athlete fatigues, voluntarily stops, the athlete fails to maintain the proper position, the athlete reports ill effects from the test, 3 minutes is achieved



### Record:

- Time position is held with proper form up to 3 mins
- If 3 mins is achieved, the athletes is recommended to progress to the next level during subsequent testing





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## AEROBIC EVALUATION

### 1 KM ROW

**Purpose:** To assess aerobic power (lactate collection optional)

**Equipment:** Concept 2 Model C rowing ergometer, heart rate monitor, stop watch, optional - lactate strips, lactate analyser, lactate Edge Analyser

#### Protocol:

- Pre-screen: If lactates will be collected, ensure pre-test levels are below 2.0 mmol/L which will be considered the baseline measure.
- If pre-test lactate is above baseline, allow the athlete to rest / recover for the necessary time to achieve baseline (e.g., 10 - 20 mins).
- Direct the athlete to place the heart rate monitor strap on and ensure the use of gel (or water if gel is unavailable)
- Confirm heart rate monitor connection prior to testing
- If using multiple ergs, record which rowing ergometer the athlete is using so data from the head unit can be appointed
- Adjust the rowing erg damper to achieve the following drag factors:
  - 110 for Junior Women
  - 120 for Junior Men
- Adjust the unit monitor to countdown distance from 1000m
- The athlete is instructed that the test will begin in the catch position
- When the athlete is ready, he/she will row as quickly and as powerfully as possible until the distance is completed
- As soon as he/she is finished, record the end time, end heart rate, and begin the stopwatch
- Have the athlete rest on the row ergometer while taking a lactate sample (i.e., end result)
- Record heart rates at 1min, 2mins and 3mins post completion
- At the conclusion of 3 mins, take a second lactate sample (i.e., 3 min post test completion)

#### Record:

- Time to complete 1km
- Heart rates at – end and 3mins post
- Average watts, average split, average stroke rate - optional



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## BEEP TEST

**Purpose:** To indirectly assess aerobic capacity by means of a shuttle run

### Equipment:

- 20 meters of hard floor length space, width specific to number of athletes being tested (minimum 1 meter width for each athlete)
- Powerful speakers + associated cables • Audio device with AUS 20m Shuttle Run audio file or CD + charger
- Cones to direct athlete lanes
- Measuring tape (minimum 20m long)

### Protocol:

- Introduce test by stating that it is a maximal progressive test, which starts out very easy and requires the athlete to run faster as the test continues. It is important for each individual athlete to give 100% effort
- Demonstrate how the test is run, particularly paying attention to running pace and turning. Either foot must touch the line and pivot to change direction
- When an athlete is unable to reach the line at the beep by two steps or more on two successive times, the test is terminated. The tester records the level and number of shuttles achieved by athlete as stated by the CD. Record the last fully completed level/shuttle and not necessarily the level/shuttle the athlete stopped



### Critical Points:

- Pivot on the turn (do not make wide turns)
- Athletes should not speed ahead and then wait at the line (keep pace to arrive on the line at the beep)
- Athletes must touch the line for each shuttle even if they are late.
- After the test, have athletes recover by walking for at least 3 minutes

### Record:

- Final stage and level completed