

## **Bobsleigh CANADA Skeleton National Bobsleigh Program Athletic Testing Protocols**

### **PURPOSE**

Physical stature, speed & acceleration and strength are the primary athletic attributes of a bobsleigh athlete. Bobsleigh Canada Skeleton's (BCS) National Bobsleigh Program (NBP) Athletic Testing Protocols are designed to quantitatively identify, evaluate and track the athletic foundations of national team bobsleigh athletes. Athletic testing data is utilized to assist in identifying athletic performance gaps as part of Individual Athlete Performance Plan (IPP) development.

### **1. ANTHROPOMETRIC**

#### **Height & Mass**

The height and body mass of the Athlete shall be recorded at the start of athletic testing as follows:

- a. Height shall be measured in centimeters (cm).
- b. Body mass shall be measured in kilograms (kg).

### **2. SPEED & ACCELERATION**

#### **60m Sprint**

The 60m Sprint, recording time intervals at 15m, 30m, 45m and 60m, is used to evaluate both speed development and top end speed. Notably, the 30m interval time is used for the 'NBP Sprint Standard' metric. The '30m Fly' metric is calculated by subtracting the 30m interval time from the 60m finish time. The 60m Sprint testing protocol is as follows:

- a. The Athlete is given a maximum of 2 attempts.
- b. The 0m, starting, lights are set on tripods being at the lowest height setting placed a minimum of one lane width apart. The 15m, 30m, 45m and 60m, interval, lights are set on tripods being at the highest height setting placed a minimum of one lane width apart or the same as the 0m, starting, lights.
- c. A start box is measured and clearly indicated 1m behind the designated 0m mark. The Athlete starts from a 2-point stance, keeping the entire lead foot inside the 1m box, with the heel of the lead foot being fully clear of the start box tape.
- d. The Athlete must start from a static position and any movement initiation may only be forward.
- e. The lead foot must remain in contact with the ground until the athlete has initiated a forward move.
- f. The set-up orientation of the Athlete must be as if a vertical line is drawn up from the toe of their lead foot, while their shoulders remain in line, or in front of said plane. Shifting of the Athlete's bodyweight backwards prior to starting or beginning with their shoulders set behind the toes of their lead foot is prohibited. This is known as a "rock back" and will invalidate the test.

### **1080 Sprint**

The 1080 Sprint is a test utilizing a mechanism which allows evaluation of the Athlete's force production during a sprint test over 40m (distance subject to change by the tester), at speed, against constant external loads. The 1080 Sprint testing protocol is as follows:

- a. The Athlete is given 1 attempt at each of the test loads.
- b. Test loads are 5kg, 10kg and 15kg.
- c. A cable will be attached to a belt being worn by the Athlete, with the cable orientation extending from the Athletes' posterior, centered on their lumbar spine.
- d. The Athlete will be instructed to set up in a 2-point stance at mark 0m and await instruction from the tester to begin once the cable tension is appropriately set. Note, there is no "1m start box". Set up will be with the toe of the lead foot set up to, but not beyond the start mark.
- e. The Athlete must start from a static position and any movement initiation may only be forward.
- f. The lead foot must remain in contact with the ground until the Athlete has initiated a forward move.
- g. The set-up orientation of the Athlete must be as if a vertical line is drawn up from the toe of their lead foot, while their shoulders remain in line, or in front of said plane. Shifting of the Athlete's bodyweight backwards prior to starting or beginning with their shoulders set behind the toes of their lead foot is prohibited. This is known as a "rock back" and will invalidate the test.

## **3. ELASTIC STRENGTH**

### **Standing Long Jump**

The Standing Long Jump is used to evaluate elastic strength and is used to evaluate explosive leg power. The Standing Long Jump testing protocol is as follows:

- a. The Athlete is given a maximum of 2 attempts.
- b. The Athlete must set-up in a double-leg stance with their toes behind a designated start line.
- c. The Athlete dips to a non-predetermined depth and immediately jumps forwards as far as possible.
- d. Feet must remain stationary prior to jumping.
- e. The Athlete must hold the landing position until the tester can accurately determine the point of contact nearest to the start line.
- f. The jump distance is measured from the rear aspect of the start line to the nearest point of contact, relative to the rear aspect of the start line.
- g. The Athlete stepping back after landing, falling back or touching the floor with their hand behind their heel, is a missed attempt with no result being recorded.

#### **4. ABSOLUTE STRENGTH**

For all strength tests athletes are given a maximum of 2 recorded lift attempts of the indicated repetition maximum. Athletes must inform the tester prior to each attempt so that the results can be recorded as official. The order of exercises shall be as follows, unless otherwise stated by the tester:

##### **Power Clean: 1 Rep Max**

The Power Clean test is used to evaluate the Athlete's ability to combine strength and speed resulting in a power movement. The Power Clean testing protocol is as follows:

- a. The Athlete pulls a barbell from the floor to be caught in a 'Front Rack', at a position of shoulder height.
- b. The barbell must be caught in a 'Half-Squat', at or above a position with the top of the Athlete's thigh parallel to the ground. The Athlete stands up to a full posture while maintaining control for a minimum of a two count.
- c. Weightlifting straps, belts, shoes and knee wraps may be used.

##### **Front Squat: 3 Rep Max**

The Front Squat test is used to evaluate the Athlete's overall strength, stability and mobility. The Front Squat testing protocol is as follows:

- a. With a spotter(s) present, the Athlete sets up and removes a barbell from safety hooks in a 'Front Rack, ready position. Upon stabilization at the ready position, the Athlete commences their 3 repetitions, being given a clear "YES" when a successful depth is acquired of each repetition.
- b. Each repetition requires the squat to descend below the top of the Athlete's thigh being parallel to the ground and return back to a full posture, standing position.
- c. For safety, if lumbar posture becomes compromised, or it is indicated that the repetition attempt is nearing or at failure, spotters are instructed to interject, and the attempt is marked as unsuccessful.
- d. Weightlifting belts, shoes and knee wraps may be used.