Bobsleigh CANADA Skeleton
National Bobsleigh Program
Athletic Testing Protocols

PURPOSE

Physical stature, speed & acceleration, and power are the primary physical 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 progression of national team bobsleigh athletes. Athletic testing data is used to assist in identifying performance gaps as part of the Gold Medal Profile (GMP) and 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

45m Sprint

The 45-meter sprint evaluates both acceleration and top-end speed, with times recorded at 30m, and 45m. The '15-45m Fly' metric is calculated by subtracting the 15m time from the 45m finish time. The 45m Sprint testing protocol is as follows:

a. The Athlete is given a maximum of 2 attempts.
b. The Athlete's fastest split times will be recorded.
c. The 0m starting lights are set on tripods at the lowest height setting, placed a minimum of one lane width apart. The 15m, 30m, and 45m interval lights are set on tripods at the highest height setting, also placed a minimum of one lane width apart.
d. 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 fully clear of the start box tape.
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 initiates forward movement.
g. The athlete must initiate the sprint by stepping first with the rear foot.

h. The athlete's orientation must align with a vertical line drawn from the toe of the lead foot while the shoulders remain in line or in front of that plane. Any backward movement or “rock back” prior to the start will invalidate the test.

3. POWER

COUNTERMOVEMENT JUMP (CMJ)

The Countermovement Jump is used to assess lower-body power output in a vertical direction. The CMJ testing protocol is as follows:

a. Athletes are given a maximum of 3 attempts.
b. The highest single jump will be recorded.
c. The Athlete stands upright, then performs a downward movement (countermovement) followed by an immediate vertical jump.
d. Hands are kept on the hips for all attempts to standardize arm involvement.
e. Athletes will be instructed to jump as high as possible and receive a countdown of “3, 2, 1, Jump”
f. Jump height (cm) and force metrics are collected via a force plate or other calibrated system.
g. The Athlete must land and stabilize on the platform. Unstable landings or stepping off invalidates the attempt.

LOADED COUNTERMOVEMENT JUMP (LCMJ - 25 kg)

The Loaded Countermovement Jump is used to assess the athlete’s power output under load, contributing to force-velocity profiling. The LCMJ testing protocol is as follows:

a. Athletes are given a maximum of 3 attempts to a self-selected depth.
b. The highest single jump will be recorded.
c. A calibrated 25 kg hexagonal bar will be held as an external load.
d. Athletes will be instructed to jump as high as possible and receive a countdown of “3, 2, 1, Jump”
e. Hands must remain fixed on the hexagonal bar for the entire movement.
f. Jump height (cm) and force metrics are collected via a force plate or other calibrated system.
g. The Athlete must land and stabilize on the platform. Unstable landings or stepping off invalidates the attempt.