

NZ Alpine Ski Team - Physical Testing Summary

Below are the assessments used and a rationale for their use:

Vertical jump for explosive power: The VJ is a test of explosive power and also relates to timing and quickness.

Double Leg Bounds for jumping technique and muscular power: 5 bounds in a row. The double and single leg bounds test the shorter more explosive components of eccentric and concentric power – derivatives of both speed and strength.

Single Leg Bounds for muscular power and comparing left to right side dominance: 5 bounds in a row. As above this tests muscular power, but more specifically it identifies left and right side biomechanics (movement control and awareness). Poor biomechanics in sport or training is a direct contributor to injuries such as Patellar tendinopathy, ACL and low back pain.

The Beep test for aerobic fitness: Aerobic fitness allows you to adapt to training and living at altitude. In addition, it assists with recovery between runs, between training days and over a training week. Being aerobically fit helps you recover from injury and allows a greater number of quality days on snow over a season. Furthermore, good running technique is a sign of good biomechanics and may be a sign of reduced injury potential.

3RM Bench Press: Along with maximum pull ups this attests to athlete's upper body strength and robustness and overall athleticism.

Maximum Number of Pull Ups: This provides insight into strength/ power to weight ratio as well as an effective assessment of upper back strength which is key to maintaining effective athletic posture.

6RM Squat: This is a test of lower body strength which is key to skiing performance and injury prevention. 6RM has been chosen as it poses less unnecessary risk than testing at higher loads.

Illinois Agility Test: Assesses agility, speed and dynamic athleticism.

Box jump for jumping technique, quickness, agility, anaerobic and muscular endurance: Good biomechanics and jumping technique are essential in order to train effectively and safely whether on snow or off. Skiing involves a lot of eccentric absorption and reutilization of stored elastic energy and being able to create and sustain this over time is important for performance and to avoid injury.

60 second Slack-line dynamic balance: Completed following the box jump test, assesses dynamic balance, and general kinaesthetic awareness under fatigue conditions

Maximum Push Up: assesses upper body and trunk (anterior core) muscular endurance.

100 Rep Challenge: This assesses strength endurance, technique under fatigue and effort and willingness to work hard. The ability to persevere, dig deep, and doing whatever it takes to succeed are essential elements found in elite/world class athletes.

| | Vertical Jump (cm) | Double Leg Bound (m) | SLB RIGHT (m) | SLB LEFT (m) | Beep Level/Vo2 |
|----------------------------------|--------------------|----------------------|---------------|--------------|----------------|
| Minimum Testing Standards | 60 | 12 | 11.5 | 11.5 | 107 (12-1) |
| Elite Podium Standard | 65 | 13 | 12.5 | 12.5 | 111(12-5) |

(Physical test example only, not including balance and agility)