PHYSICAL TESTING PROTOCOLS  
– CROSS COUNTRY SKIING  

AUSXC 2020 Remote Physical Fitness Tests

Overview
These physical testing protocols for cross country skiing have been adapted from the general protocols prepared by Snow Australia for all winter sports disciplines. The aerobic fitness and upper body strength/power requirements are much greater for cross country skiing than for the other disciplines.

All tests can be performed by athletes on their own or under supervision in their home training environment.

Included within this test battery are three tests conducted by Nordiq Canada as part of their Run-Jump-Pull Challenge. More information is included here: https://nordiqcanada.ca/wp-content/uploads/RunJumpPull.pdf

For all physical testing it is essential that the activities are performed with the correct technique. There is nothing useful to be gained by increasing test results at the expense of technique. Contact your coach if additional instruction is needed.

Test Summary
Fitness Tests
- 1000m run
- 3000m for senior athletes
- Home course rollerski double-pole time trial
- Home course hill run

Strength – Upper Body
- Pull-ups
  - back-up test Push-up
- Dips (full body)
  - back-up test Bench dip

Strength – Legs
- Broad Jump
- 10-Step Bound

Note that this test battery doesn't include core strength/stability exercises, which will be covered at another time.
Fitness Tests

1. **1000M TRACK RUN (FOR ALL ATHLETES)**
   **3000M TRACK RUN (SENIOR TEAM ATHLETES)**
   - Ideally both the 1000m run and 3000m run should be conducted on a 400m athletics track or oval (2 ½ laps for 1000, 7 ½ laps for 3000).
   - Approximate lap times can be used to assist with pacing.
   - The running surface, as well as adverse weather conditions, e.g. windy or rainy, should be noted with the test result.

2. **HOME ROLLERSKI DOUBLE-POLE TIME TRIAL**
   - This is an individualised test to be conducted in an athlete's primary dryland training centre.
   - An ideal course is a gradual uphill of duration around 4-6 minutes for athletes aged 12-16, and 6-12 minutes for athletes 16-20. However, flat courses and other durations can also be used. The main factor is that the time trial is repeatable.
   - Clear starting/finishing points should be identifiable. Athletes may also choose to use a fixed time and aim to increase the distance covered.
   - The same rollerski equipment (rollerskis, pole length) should be used each time.

**CANBERRA OPTION: NATIONAL TEAM 2.2KM DOUBLE-POLE TIME TRIAL**
   - This test is part of the National Team AIS Testing protocol. The Start/Finish location is available from National Team coaches on request.
   - For comparison with National Team test records, use Swix C2 rollerskis with medium resistance wheels.

3. **HOME HILL RUN**
   - This is an individualised test to be conducted in an athlete's primary dryland training centre.
   - An ideal course is a long uphill of duration around 5-8 minutes for athletes aged 12-16, and 8-12 minutes for athletes 16-20. However, undulating tracks or loops and other durations can also be used if a continuous hill isn't available. The main factors are that some hills are involved and that the time trial is repeatable.
   - Clear starting/finishing points should be identifiable. Athletes may also choose to use a fixed time and aim to increase the distance covered.
Upper Body Tests

1. PULL UP
   - A pull-up bar is needed that allows an athlete to hang without their feet touching the ground (legs may be bent). A box can be used to initially reach the bar.
   - A pronated (overhand) grip should be used. Hands should be slightly wider than shoulder width apart.
   - Start from hanging, pull straight up until the chin clears the bar. The arms should lock out straight before the next pull-up starts.
   - No swinging or kicking is allowed. The lowering movement should be controlled and steady.

ALTERNATIVE – PUSH-UPS
   - Use if athletes can’t do full pull-ups or no pull-up bar available
   - The athlete adopts a prone position with feet hip width apart and the ankles dorsiflexed. The hands are placed flat on the floor approximately shoulder width apart.
   - The starting position is with arms straight and only hands and toes touching the ground. Lower the body until the chest touches the ground, then push back up to the starting position.
   - The head, body and legs should be in a straight line at all times. The lowering movement should be controlled and steady.

2. DIPS (FULL BODY)
   - A set of parallel bars approximately shoulder width apart is needed. Two chairs or tables can also be used.
   - Start with straight arms, holding the body upright between the bars.
   - With a slight forward lean, lower the body until the upper arm is parallel to the ground. Lift until the arms are straight again. The lowering movement should be controlled and steady.

ALTERNATIVE – DIPS (BENCH)
   - Use if athletes can’t do full body dips or no parallel bars available
   - Two seats or benches of equal height are required.
   - Arms and feet should be elevated off the ground on opposing benches/seats. The starting position is with arms straight and the body slightly in front of the bench
   - Lower the body until the upper arm is parallel to the ground. Lift until the arms are straight again. The lowering movement should be controlled and steady.
Lower Body Tests

1. **STANDING BROAD JUMP**
   - A tape measure is needed to record the jump distance.
   - The athlete stands with toes of both shoes behind the zero line.
   - The athlete jumps forward for maximum distance, landing with both feet at the same time.
   - The best result from three trials is recorded to the nearest centimetre, from the toe take off to the heel landing point.
   - For scoring it is important to record the athlete's height.

2. **10 STEP BOUND**
   - **The athlete starts** with both feet together behind a line.
   - Starting with a two-foot bound, the athlete lands on one foot and continues to bound for ten steps, finishing with a two-foot landing.
   - Athletes should aim for plyometric bounds with short foot contact time and “hang time” in the air.
   - The best result from three trials for is recorded to the nearest centimetre from the toe take off to the heel landing point.

**Warm-Up**

**Warm Up For Strength Tests**

- 10 minutes aerobic activity
  - e.g. 10 min jogging or skipping, or 5 min exercise bike / 5 min rowing machine,
- 20m side step (each side)
- 20m grapevine (each side)
- 20m high knee running
- 20m butt kick running
- 10 x single arm swings (each arm, front and back)
- 2 x 20m animal movement with arms/legs
  - e.g. inch worm, bear crawl