



### **Transitioning to Running Injury Free- Ross McKinnon, Physiotherapist**

Nordic athletes will be transitioning to running over the next few weeks as the snow disappears and/or the ski trails shut down. Overuse injuries from running were the most commonly reported injuries in BC Nordic athletes in previous injury surveys. The vast majority of these injuries were most prevalent in the General Preparation phase of the annual training plan.

Ski coaches and athletes can help reduce the incidence of injury by following a few guidelines.

#### **Training Load Management**

Overuse injuries occur as there is more stress and strain on the body than it can handle. This is termed the training load, or load for short. In other words, the body's musculoskeletal system's ability to adapt to load is exceeded. This excessive load can be any combination of increased volume, increased intensity and/or too little rest in between running sessions. Athletes need to be educated on taking care of, and

listening to, their body and following the '24 hour rule'. An increase in pain longer than 24 hours after training would be a warning sign of excessive load. If the pain does not settle within 24 hours then the athlete needs to reduce the training load. Working through post exercise muscular soreness, though mildly uncomfortable, is okay and has been proven to have no negative effect. More concerning would be tendon, joint pain or muscular pain that would be described as sharp or stabbing. Athletes should be educated on gradually increasing their running volume and or intensity. Starting off, it would be beneficial not to run on back to back training days. Thankfully, off-season cross country ski training using a variety of activities is a great way to vary the training load to minimize stress on the musculoskeletal system. Cross training has been shown to reduce the injury prevalence in athletes.

### **Work on Running Technique**

- Increase running cadence (180-220 steps per minute). A nice overview can be found on this website: (<http://rosecitypt.com/run-cadence-is-180-a-magic-number>)
- Run 'softly', minimizing foot impact sounds. One drill would involve running in socks without shoes on a rubber track to help 'feel' how to minimize impact.
- Minimize vertical oscillation, i.e excessive up and down motion.
- Minimize 'braking' i.e. sheering forces. The best runners spend very little time with their feet on the ground.
- Forward lean from the ankles.
- Chest tall, arm pump.
- Foot strike not too far ahead of the body (control length of stride). Heel strike vs forefoot strike is debatable. I would suggest the athletes should do what is natural but focus on a soft landing with a high cadence as mentioned above.
- Knee drive up and forwards.

- Watch running technique videos (<https://youtu.be/PJvNOIFeuQA>, <https://youtu.be/GSGzqkjrWRA>, <https://www.youtube.com/watch?v=-AASu9CNFoM> ) I especially like the running mistakes part of the video.
- Teach downhill running to minimize loading and reduce the chance of injury. (Salomon TV: How to downhill Run <https://www.youtube.com/watch?v=YLSrRlispoo>)

### **General**

- Start with running on softer surfaces like trails rather than roads to minimize impact. Gradually work up to hill running.
- Athletes should consider purchasing new shoes at the start of the season and begin to rotate shoes, alternating pairs with each running session. This has been backed by research showing a 39% reduction in running injuries by rotating through 2 or more pairs of shoes.
- Some running over the winter is beneficial to maintain running 'fitness'.
- If athletes continue to complain of pain or soreness it would be best for athletes to consult with a local physiotherapist for advice and treatment.

