

Winter conditioning has begun or is already in full swing. Training to be Balanced (T2BB) also offers what we call “Ski Performance” group training that covers all facets of training for winter conditions - strength, balance, agility/coordination, flexibility and power. Injury prevention and efficiency of movement are taught, and we even go as far as bare feet training and training with ski/snowboard boots on during the last two weeks.

This month provides some basic concepts that can aid in whatever winter conditioning you have decided to participate. Injury prevention ideas, core strength through Pilates, and example exercises we do at T2BB.

Pillar strength or core strength is our first focus. Maintaining the integrity of your core will allow the entire legs (not just quads) to perform at its highest recruitment of muscles and not have to over work to help hold up the core.

T2BB has integrated Pilates (movement training with an emphasis on alignment, breathing, and core conditioning) concepts into its training and has offered a separate group training to compliment Ski Performance this year. Holly Wooldridge is a certified instructor who connects the breathing, centering, control and fluid motion in mat Pilates to the slopes. She recommended reading the author Lauri Ann Stricker who is a certified Pilates instructor that offers the following tips from her book *Pilates for the outdoor athlete*.

Keeping the torso upright while stacking the ankles, knees, hips and shoulders over the center of your [skies/boards] with slightly flexed knees produces better alignment and technique. Alignment helps skiers and boarders apply pressure through the feet to turn and maintain a quite torso, thereby improving balance, agility, and breathing. Skiers and boarders recruit power from the hips and core. Skiers rely on the lateral side-to-side hip movement to access the inside and outside edge of the ski. Boarders rely on tipping their hips forward and back to access the toe-side and heel-side edge.

Integrating core strength into your edging, you’ll transfer a powerful line of energy to your skis or board. By tightening the core you reduce impact on your back, hips, and knees. As you improve your alignment and core strength, your movements become energy efficient, minimize wear and tear on your joints, and are more enjoyable.

Too many skiers/boarders, in this valley, focus in excess on the quads. I am not at all against quad strength/power, I am against those who predominantly train the quads and believe by developing strong quads that it is the driving force for winter sport activity preparation. It is not! The primary driving force is hamstring (back of the thighs) the glutes (butt muscle) muscle synergy, hip/leg proprioception (body awareness) and neuromuscular control, ACL (anterior cruciate ligament) prevention, and a equal development of strength, balance, flexibility, coordination/agility, and power of the hip complex.

Generally, the quad area (front of thighs) makes up 40% of the legs. The glutes and hamstrings have about 60%. Where is most potential capacity to develop power? Front or back of the legs. Most winter sport enthusiasts choose the front and continue to over work the quads predominantly neglecting the development of the hamstring/glute muscle connection. As a result an imbalance occurs.

A report out of the University of Nevada, Las Vegas states: If the strength of the quadriceps significantly exceeds the strength of the hamstrings, then both the hamstrings and anterior cruciate ligament (ACL) become more susceptible to injury. The hamstring is required to lengthen during knee extension, and if it is relatively weaker than the quadriceps, a strain may occur. With assistance from the hamstrings, the ACL stabilizes the knee by preventing anterior translation of the tibia on the femur [lower leg bone moving forward]. This anterior translation can occur during awkward landings and sudden changes in direction. When the quadriceps is stronger than the hamstrings, excessive anterior translation may occur during dynamic activities, and the ACL will experience higher shear forces. If the hamstrings are too weak to counteract this force, an ACL injury is likely.

One counter acting exercises is the Single Leg Deadlift: **Starting Position:** Single leg stance with rear foot resting lightly on floor. **Movement:** Bend at waist and lower dumbbells until rear leg is parallel to floor. Use glutes and hamstrings to return to starting position. Repeat for 10-15 repetitions and switch legs. **Considerations:** Maintain straight back, hips should not rotate to either side; they should remain level, and keep a soft bend in the base leg knee. **You Should Feel:** Balancing leg, hamstrings, biceps, shoulders, and core.

Of course there is much more to consider which will be the topic of next month article. More exercises to be presented and concepts to consider while attending a winter conditioning class. Good luck, train hard and have fun.