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**Women’s Running Clinic Comes to Missoula**

Join Sapphire Physical Therapy and Key Running for a Women’s Running Clinic on Saturday, March 4th at the Runner’s Edge. The clinic will focus on topics important to the female athlete and provide tips on how to stay fit and healthy. Begin the morning with a fun run and return to the Runner’s Edge for a snack and an introduction to the clinic. The rest of the morning will include interactive stations lead by:

- **Courtney Babcock**, former Olympian and running coach from Key Running, will go over specific strength training exercises for female runners and discuss running form

- **Rachael Herynk**, DPT, Women’s Health Physical Therapist from Sapphire Physical Therapy, will teach how to properly engage core muscles specific to the female athlete

- **Holly Warner, DPT** and **Allie Molnar, DPT**, Sapphire PT physical therapists who specialize in running gait analysis and in treating running injuries, will perform video running gait analysis and provide tips on injury prevention based on the results from your personalized running analysis

- **Tara Maurice**, Registered Dietitian and Wellness Coach for the One2One Weight Management program and Competitive Edge
Performance Lab at The Summit Medical Fitness Center in Kalispell, will cover nutrition topics specific for the female athlete focusing on bone health and nutrient intake timing.

This is your chance to make sure you are properly activating your core muscles, get exercises specific to your needs, have your running gait evaluated, and meet other great runners! Class size will be limited to 16 participants and each participant will receive a Sauce Headwear's SWIFT headband. Get ready to run, have fun, and workout!

REGISTER AT:
https://runsignup.com/Race/MT/Missoula/WomensRunningClinic2017

Muscle of the Month: Longus Colli
Jesse Dupre, DPT

The longus colli is not a muscle that we often think of during day to day workouts. However, it serves an important role in stabilization and precise movements at the head and neck, and dysfunction of this muscle has been associated with chronic neck pain. The longus colli is a muscle that is located deep at the front of the neck, and has multiple attachments throughout the cervical spine. When both sides of the longus colli contract, it causes the neck to flex as it does when looking downward. When one side acts alone, the head and neck to tilt to the side. The longus colli does not function in isolation, but is part of a group of deep cervical muscles which includes multifidi, suboccipitals and deep neck flexors which include the longus colli and longus capitis. The sternocleidomastoid, upper trapezius and splenius muscles are larger, more superficial muscles that cause large movements at the neck. While these muscles are important and must function properly to help us visualize our environment, the forces exerted by these muscles must be balanced with activity from deeper muscles. These deep muscles must work together to produce coordinated movements and stabilize the spine.

Of the deep neck flexors, the longus colli in particular has been studied with regard to recruitment patterns (the timing and degree to which the
The longus colli muscle is activated (and association with neck injuries and pain. Studies have shown that the longus colli is sometimes atrophied in patients with chronic neck pain, when compared to individuals without neck pain. When weakened or inhibited, this impairs the muscle’s ability to function adequately as a stabilizer of the cervical spine. The body tries to compensate for poor function of the deep neck flexors by increasing recruitment of other muscles around the neck. Without adequate recruitment of the deep cervical muscles, the sternocleidomastoid is activated to a greater extent during movement. This pattern of muscle activation has been demonstrated to a greater extent in individuals with chronic neck pain. When these muscles are not functioning properly, strengthening exercises can improve recruitment patterns, which has also been shown to positively affect pain in individuals with chronic neck pain.

While the deep neck flexors are important to healthy function of the cervical spine, there are many other things that must work correctly in order for the neck to function optimally. If you have neck pain, a physical therapist can help by evaluating the neck as a whole to help determine and treat the source of pain.

References:
Ski Injuries and Knee Injuries in Females

Allie Molnar, DPT

With winter in full swing and ample snowfall this year, many of us are hitting the slopes of our favorite ski hill. In the clinic however we are seeing many injured skiers. It’s probably no surprise that knee injuries account for approximately one third of injuries in skiers. A 2013 study by Rust et al. found that the 2 most common injuries in skiers were tears of the Anterior Cruciate Ligament (ACL) or other knee sprain. A study published in The Orthopaedic Journal of Sports Medicine investigated the most common mechanisms of injury over 6 ski seasons at 4 different Western ski resorts. One of the most common mechanisms among recreational skiers was termed ‘valgus-external rotation’, whereby the skier falls forward while the inner edge of the ski tip catches the snow. The ski serves as a lever and maximizes external rotation torque on the knee joint, and may result in injury to the Medial Collateral ligament (MCL) and sometimes the Anterior Cruciate Ligament (ACL). The other most common mechanism was named ‘Phantom Foot Mechanism’, which occurs when the skier loses balance backward, causing him/her to sit backward on the rear portion of the skis with hips below the knees. The downhill ski is forced into an inward rotation, which creates a valgus and internal rotation at the knee and places tension on both the ACL and MCL.

Females tend to be most at risk for these ski-related injuries. Jarvinen et al. reported that female patients accounted for 74% of ACL and MCL ruptures. Other research has investigated differences between males and females and their respective risks for ACL injury, specifically those participating in pivoting and landing sports. According to Hewett et. al, ACL injury occurs with a four to six fold greater incidence in female athletes than males. The theories that explain this gender difference are multi-factorial, and include extrinsic factors as well as intrinsic (anatomic, hormonal, neuromuscular, and biomechanical differences). Studies have found differences in the way females versus males move and the muscles that are activated during...
the same tasks. In addition, in tasks that normally require side-to-side symmetry of the legs, women tend to be more one-leg dominant than males, which predisposes her to injury of that dominant leg.\(^1\)

Other populations vulnerable to ACL injury include those that have already torn an ACL. According to Paterno et al., after young female athletes tear their ACL and undergo reconstruction, their risk of rupturing their ACL again is near 1 in 4.\(^3\) A recent article found that subjects whose hip external rotation strength was less than optimal after an ACL reconstruction had an eight times greater chance of sustaining another ACL injury.\(^3\)

If you are prone to knee injury or have suffered an ACL tear in the past, make sure you stay on top of your strength training this winter to prevent future injury. The exercises featured below will help target the important external rotators of the hip, the Clam Shell and Monster Walk.

Should you need further guidance in addressing suspected leg asymmetries or suboptimal movement patterns, come see your local physical therapist to maximize your knee health and safety this ski season!

References: