

## **How Can I Ski With a Sore Knee?** **by Ryan and Joanna Sleik**

The snow has fallen and the hill is open and you can't wait to hit the slopes. But with a knee that aches after walking or sitting too long you can't help but wonder... How can I ski with a sore knee?

The knee is a large and complex hinge joint that is designed to bend in two directions: forward and backward. Unfortunately our knees are often subject to forces that deviate from the drudgery of forward and backward motion and sprains, strains and tears can occur. The knee has 4 primary ligaments (cable-like structures that help keep bones attached) known as the cruciate ligaments (ACL and PCL) and collateral ligaments (MCL and LCL) that prevent excessive movements in forward, backward, and side-to-side directions. The muscles that surround the knee (namely your quadriceps and hamstring muscles) help to move it and also help to stabilize it through a process called muscular co-contraction. Co-contraction occurs with two or more muscle groups work together to control movement at a joint. The kneecap or patella helps to transfer force from the quadriceps muscles to the lower leg. The patella runs through a channel or groove in the thigh bone and requires balanced muscles and straight alignment of the leg for it to track through this groove evenly. The surfaces of our bones are also covered with smooth cartilage to help reduce friction. Lastly, your meniscus is a cup-shaped shock absorber that fills the space between your thigh bone and your leg bone. With so many components in the knee joint it is no wonder that injuries can easily occur.

The knee is susceptible to damage when it is forced to move in directions outside of its comfort zone. For instance, having a ski go left while your attached knee goes right can lead to excessive stress to your ligaments leading to a tear. An injury such as this can have varying degrees of severity. A mild sprain, where a ligament is partially torn, will resolve with rest, protection of the injured structure (bracing), and re-strengthening the related muscles. If structures are damaged beyond natural repair, such as a full tear, a surgery may be required to restore integrity of the knee joint.

Things can also go wrong at the knee joint when it is repeatedly forced to move in a way it was not designed. If the muscles at the knee are not balanced the kneecap will not run through the groove evenly resulting in uneven pressure and wearing of the cartilage underneath the joint. This condition is often referred to as patellofemoral syndrome or runner's knee. Uneven forces and poor alignment do not typically show up on x-rays initially but over time uneven wearing will damage the cartilage over the bones and can eventually lead to arthritis.

Have no fear, all is not lost if you have a bum knee! Improving the alignment and muscular control of your ankle, knee, and hip joint can significantly help reduce knee pain and even allow for damaged cartilage to repair itself. Remember the knee is a hinge joint attached to your foot and your hip; it relies on the control of the joints above and below it to help keep it in line. Paying attention to why your knee is sore and what

activities aggravate it can help get you on the road to recovery and ready to hit the slopes once again.