



NEWSLETTER

Ski Injuries and Prevention



This is the quarterly newsletter for Waldron's Peak PT. The newsletters will be a way for us to let you know what is new with the clinic, and also keep you up to date on relevant and recent research regarding physical therapy and your health.

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As the weather becomes colder and colder our minds begin to shift towards our winter activities. For many of us that means dusting off our skis and heading up to the mountains. With this change in seasons and recreational activities comes a risk of injury. Recent evidence has demonstrated a decrease in injuries to skiers over the past 50 years. The reason behind this decrease have been attributed to an increased quality of equipment, particularly boots and bindings. In the 1970's, the injury rate for skiing was 5 to 8 per 1000 skier days (the number of injuries per skier per day.)^{1,2,3} More recently, the number has decreased to 2 to 3 per 1000 skier days.^{1,4-6}

Although there has been a decrease in the number of injuries per skier per day there has been a significant shift in the anatomical distribution of injury sites. Since the 1970's, there has been an 89% reduction in tibial fractures, but there has been a 280% increase in ACL injuries.^{1,5} This increase in ACL injuries is now comparable to that of collegiate football players.⁶

What is also interesting is the data showed women, who are at a greater risk of ACL injuries in sports such as soccer and basketball, are at no greater risk than men for ACL injuries while skiing.¹ This data was collected over a seven year period in Vail, CO. It was determined that the ACL injury rate for men was 4.2 per 100,000 skier days, and ACL injury rate for women was 4.4 per 100,00 skier days.⁷

There has also been evidence supporting the redistribution of injuries into upper extremity. Thorough review of the literature indicates up to 11% of all ski injuries involve the shoulder.^{8,9} These injuries consisted of rotator cuff strain, shoulder dislocations, shoulder separation, and collar bone fractures.⁹ Additionally, the most common upper extremity injury in skiing occurs at the thumb and is referred to as skier's thumb. This is the result of tearing the ulnar collateral ligament and accounts for approximately one third of the injuries to the upper extremity.¹

Mechanism of Injuries:

Knee

- Catching inside edge of one ski while falling forward. Causing a rotation of the ski outward causing the leg to forcibly rotate and abduct.¹
- Landing from a jump or when skis leave the surface of snow with tail of ski contacting first with straight leg. This causes a lever at the boot forcibly bringing the tibia forward.¹
- When falling back on bent knees with hips below the knee while going down hill. The injury occurs when the down hill ski catches on the inside edge near the tail of the ski. This forcibly rotates the knee to the inside.^{1,6}

Shoulder

Most commonly occur as a result of a fall. These injuries come from one of three mechanisms.¹

- Falling on an out stretched arm causing a force through the arm into the shoulder joint¹
- Direct blow to the shoulder¹
- Attempting to resist the arm going into abduction while falling or landing on the same side¹

Injuries to the shoulder can also result from improper or prolonged pole planting. This causes the arm to be forcibly rotated and pulled outward to the side.⁸

Thumb

Typically when the ulnar collateral ligament of the thumb is damaged it occurs during a fall. The mechanism of this injury, like the shoulder, occurs when falling on an outstretched arm with the pole in hand. At contact with the snow surface the thumb is forcibly pulled to the side.¹

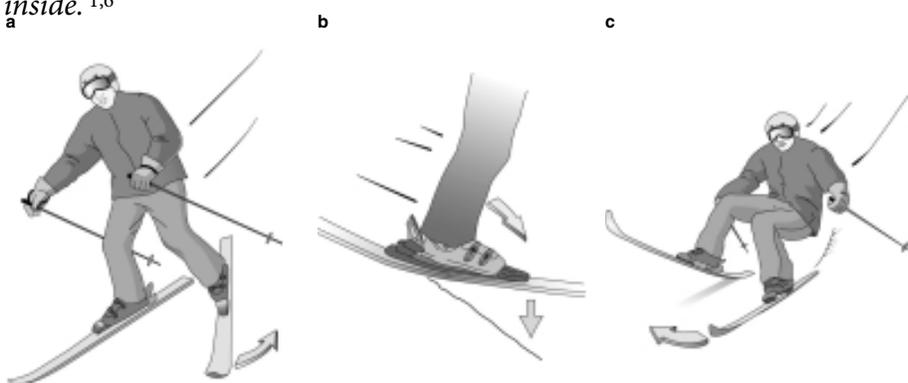


Fig. 1. Common mechanisms of anterior cruciate ligament injury. From left to right: (a) valgus-external rotation; (b) boot-induced anterior drawer; and (c) 'phantom foot' mechanisms.

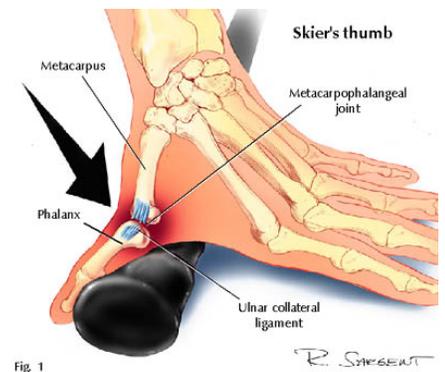


Fig 1

R. SHESKUT

Prevention

Skiing injuries are common to our area, diminishing skiers' recreational enjoyment and sometimes resulting in lost work time. The most current literature widely recommends conditioning prior to the beginning of the ski season to decrease the risk of injuries while skiing.^{1,8,10,11} These pre-season condition programs should consist of both strengthening exercises and cardiovascular conditioning exercises.¹ In addition to proper condition there are several other factors to aid in the prevention of injury during this upcoming season, these include: proper equipment, appropriate DIN setting (www.dinsetting.com), proper falling techniques, and appropriate knowledge of individual skill level.

To learn more about how Physical Therapy can help in reducing your injury risk please contact the experts at Waldron's Peak Physical Therapy.

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