



Knees 4 Skis

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Interactive Session with the Audience!

- Using a fun quiz-based format to stimulate some dialogue and conversation
- Who has torn their ACL?



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Q1 How many Cruciate ligaments are in the knee?

- A) 1
- B) 2
- C) 3
- D) 4



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Knee Anatomy



Answer = B



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Q2 How common are ACL injuries in Skiing?

- A) 1/100 ski days 4%
- B) 1/1000 ski days 0.4%
- C) 1/10,000 ski days 0.04%
- D) 1/100,000 ski days 0.004%



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How common are ACL Injuries in Skiing?

Am J Sports Med, 2007 Jul;35(7):1070-4. Epub 2007 Apr 27.

The incidence of anterior cruciate ligament injuries among competitive Alpine skiers: a 25-year investigation.

Pujol N¹, Bianchi MP, Chambat P.

- Professional skiers 4.2 per 100,000 ski days or 0.004% each day skiing
- 188 female 28% 191 male 27%
- Jordan, Alpine Canada - females 7% - males 28%
- Recreational skier 1,000/100,000 = 1in1000 or 0.1%
- 14000/day skiers in bow valley on a busy day (14 ACL)



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Q3 What is the most common mechanism of an ACL tear while skiing?

- A) Slow twisting turn
- B) High velocity crash / "yard sale"
- C) Landing a jump in the "back-seat"
- D) Hitting a tree while skiing



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Answer = A

- While A,B,&C are all mechanisms of ACL tears, the slow twisting turn is most common
- Hitting a tree usually injures the PCL



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Q4 Immediate surgery is optimal for an acute ACL tear in a skier

- A) True
- B) False



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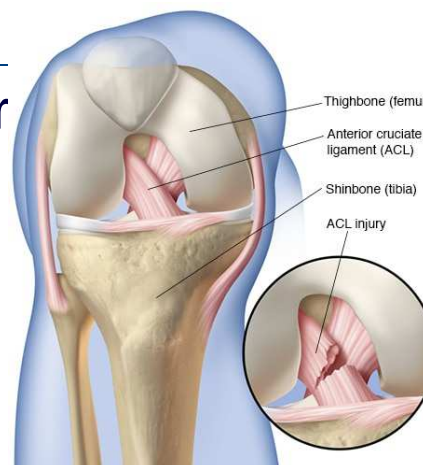


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Answer = False

- In most instances it is better to let the knee settle down, and to consider surgery when a normal range of motion and strength is achieved.



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Q5 ACL injuries are easy to diagnose

- A) True
- B) False



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Answer = False

- Acutely ACL tears can be difficult to properly diagnose. The knee can be difficult to examine due to pain, swelling, and muscle spasm.
- It is important to have a high index of suspicion based on the history and mechanism of injury.



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Q6 ACL Tears never Heal

- A) True
- B) False



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Answer = False

- Especially in skiing with a slow twisting injury, the ACL can “peel” off the femur and can subsequently scar down and heal.
- Many knees that are loose day-1 tighten up over the first few months.
- A complete in substance ACL rupture rarely heals



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Q7 Some Skiers can cope with an ACL deficient knee

- A) True
- B) False



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Answer = True

Rule of Thirds

- A third can cope (with or without brace) and continue to ski with no surgery
- One third pursue surgery
- One third change lifestyle and avoid twisting sports and activities, and don't have surgery
- Case Study



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Q8 The most common reason to have ACL reconstructive surgery is:

- A) To prevent arthritis in the knee
- B) To prevent a second injury and the damage to the meniscus + articular cartilage that often occurs with another knee injury
- C) To return an unstable knee to pivoting sports and activities
- D) To relieve pain



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Answer = To return to pivoting sport or activity. Surgery is a lifestyle decision.

- It has not been proven as yet that ACL reconstruction prevent osteoarthritis.
- It is true that preventing a second knee injury is a critical point in the decision-making process, especially in the young population.
- Surgery does not necessarily eliminate pain from from meniscal or cartilage injuries.



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Q9 Prevention: the following factor(s) are associated with ACL injuries

- A) Equipment
- B) Diet and Hydration
- C) Fatigue
- D) Fitness
- A and D
- All of the above



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Answer = All of the above

- All of the above are important factors to optimize, in order to prevent ACL injuries
- DIN settings, boot style, ski shape
- Snacking and hydrating
- Pre-season fitness
- Know your body and your limits!



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Q10 Research supports ACL exercise prevention programs to decrease rates of ACL injuries

- A) True
- B) False



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Answer = True

- FIFA 11+
- Prevent Injury & Enhance Performance (PEP)
- NCAA Volleyball/Basketball/Football/Soccer studies
- Selkirk College “Fit for Snow” for ski industry employees
- Lynne’s pre-season ski fitness
- Let’s do it!



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Q11 What are the Fundamentals of a pre-season Ski fitness program?

- A) Strength, Balance, Agility, Biomechanics and Alignment
- B) Balance, Extreme Flexibility, and Strength
- C) Strong Quads and Hamstrings



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Answer = A

- Strength
- Balance
- Agility
- Proper biomechanics and alignment
- Neuromuscular control



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Q12 Which muscles are most important for a healthy skier?

- A) Quadriceps and Hamstrings
- B) Core
- C) Hips and gluteals
- D) All the above



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Answer = D, all of the above

- For injury prevention all the muscle groups must work together with proper biomechanics.
- Weakness in one of the groups increases the risk of injury.



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Essential Exercises for your home program

- Double leg squats
- Single leg squats
- Lunges
- Lateral hops
- Jump down
- Planks
- Hip abduction
- Hamstring curl



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More examples



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Poor technique



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The next level for the keener



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Questions??



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Thank you



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