



Know Your Limits on the Slopes to Stay Safe

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Skiing and snowboarding are popular, yet dangerous recreational winter sports. The large number of participants come with a wide range of age and skill levels which result in a variety of types of injuries. Beginners are more likely to sustain injuries than advanced level participants. For example a beginner snowboarder is more likely to have a low-impact related injury with a slower fall to the ground, whereas with an advanced snowboarder the injury is more likely to be high-impact and related to jumps. 1,3

Learn Slope Safety Recommendations

Staying safe on the slopes has recently been improved with several ski areas nationwide updating their slope safety programs to include established family ski areas and encouraged instructional lessons for beginners. The National Ski Areas Association (NSAA) and the National Ski Patrol (NSP) also emphasize knowing your limits. It is important to learn proper ski and snowboard technique to maintain control and avoid injury.

Train Ahead

Although alpine skiing and snowboarding are vacation adventures, one must remember that these are demanding winter sports. Most winter participants have not used the ski and snowboarding muscles for several months and attempting to ski or ride into shape may only lead to injuries. The NSP recommends building a cardiovascular base with aerobic exercises such as running, cycling, or stair climbing. In addition, it is recommended to perform plyometric (jump) exercises, interval training like sprints, and weight room exercises to improve overall strength. Finally, incorporating daily stretching will allow for a smooth transition into ski/snowboarding season. The NSAA and NSP physical preparation recommendations are important regardless of ability level so you can fully enjoy your time on the slopes and

decrease your chance of getting injured.

Check Your Protective Gear

Several of the safety campaigns promote on-slope skier and rider awareness but maybe two of the most effective ways to prevent injuries is to wear helmets and wrist guards.^{9,10} The “Lids on Kids” campaign was introduced in 2002. The NSAA Helmet Usage Safety Fact Sheet in 2014 reported that 73% of all skiers and snowboarders wore helmets during the ski season across the United States. ^{9,10} However, it is not only important to have the proper gear, but also important that the equipment fits and is in good condition. If you are borrowing or renting skis or boards, make sure the bindings and helmets are adjusted properly and do not have excessive wear and tear.

Conclusion

It is important to understand the risk associated with winter recreational sports as well as to adhere to the recommended safety guidelines. ^{9,10} Participants should not avoid or discount equipment education and safety evaluations. Additionally, it is recommended that protective gear be a requirement and not optional for participation.

References

1. Gomez AT, Rao A. Adventure and Extreme Sports. *Med Clin North Am.* 2016. 100(2): 371-391. doi:10.1016/j.mcna.2015.09.009.
2. Basques BA, Gardner EC, Samuel AM, et al. Injury patterns and risk factors for orthopaedic trauma from snowboarding and skiing: a national perspective. *Knee Surg Sports Traumatol Arthrosc.* 2016.26(7):1916-1926. doi:10.1007/s00167-016-4137-7.
3. Ogawa H, Sumi H, Yasuhiko S, Katsuji S. Level-Specific Differences in Snowboarding-Related Injuries. *Am J Sports Med.* 2010.38(3). doi:10.1177/0363546509348763.
4. Stenroos A, Handolin L. Incidence of recreational alpine skiing and snowboarding injuries: six years experience in the largest ski resort in Finland. *Scandinavian Journal of Surgery.* 2014.(104):127-131.
5. DeFroda SF, Gil JA, Owens BD. Epidemiology of lower extremity injuries presenting to the emergency room in the United States: Snow skiing vs. snowboarding. *Injury.* 2016. 47 (2016):2283-2287. doi:10.1016/j.injury.2016.07.005.
6. Yamauchi K, Wakahara K, Fukuta M. Characteristics of upper extremity injuries sustained by falling during snowboarding: a study of

1918 cases. *Am J Sports Med.* 2010.38(7):1468.

doi:10.1177/0363546509361190.

7. Floyd T. Alpine skiing, snowboarding, and spinal trauma. *Arch Orthop Trauma Surg.* 2001.121(8):433-436.

8. Wakahara K, Matsumoto K, Sumi H. Traumatic spinal cord injuries from snowboarding. *Am J Sports Med.* 2006.34(10):1670.

doi:10.1177/0363546506288113.

9. National Ski Areas Association. Facts About Skiing/Snowboarding Safety: Updated March 2006. 2011.

10. National Ski Areas Association. NSAA Fact Sheet [Internet]. 2012. 2017.