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In Motion

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Good Nutrition May Keep You Warm in the Cold Too

By Christopher J. Tucker, MD

With the changing of the seasons and the accompanying drop in the temperature outside, many athletes flock to the ski slopes, the ice rink, and the mountainside seeking outdoor adventure and fitness. Exercising in cold weather presents several unique nutritional challenges. Taking a few simple precautions can help maximize performance and keep athletes healthy and allow them to safely achieve their fitness goals.

What changes when the temperature drops?

When exercising in cold weather, your core body temperature tends to drop. In warm weather, it is generally easier to regulate body temperature, as excess body heat is removed through sweating. In addition, the body needs to warm and humidify the cold, dry air that you breathe, which requires even more energy (up to 23 percent of calories burned in cold weather exercise go towards warming inspired air). The caloric requirements of the athlete in cold weather are higher than what would be required during

a similar level and duration of activity in warmer temperatures. This is due to food being used to fuel the body's increased metabolism in addition to providing energy for the exercise itself.

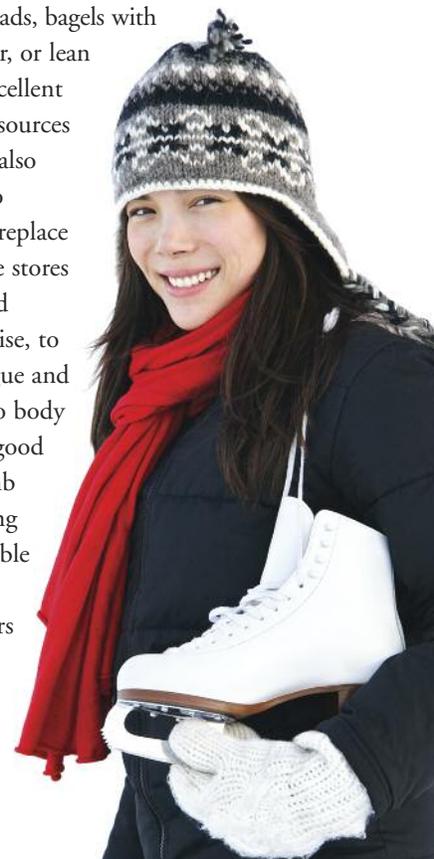
Can I drink less water?

One of the biggest nutritional mistakes that athletes make is to drink too little water when exercising in cold weather. Cold diminishes the body's thirst mechanism and athletes need to make a conscious effort to consume enough fluids. This is necessary to keep up with the demand of both exercise, as well as fluid lost when warming the body and humidifying inspired air. When exhaling during heavy breathing considerable water is lost during respiration. Dehydration leads to decreased performance, and physical endurance. It is commonly cited as the root cause of many outdoor winter sporting accidents and misadventures.

What should I eat?

Proper nutrition begins with planning ahead. Ideally, athletes should consume

complex carbohydrates two hours prior to exercise. Warm foods are ideal as they can help to contribute to heat preservation. Foods such as soups, chili, pasta, baked potatoes, breads, bagels with peanut butter, or lean meats are excellent pre-exercise sources of fuel. It is also important to continue to replace carbohydrate stores being burned during exercise, to prevent fatigue and contribute to body heat. It is a good rule of thumb to bring along easily digestible snacks such as energy bars and gels, trail mix, sandwiches, or fruit.



Cold Weather Nutrition Recommendations

Stay hydrated! Drink plenty of water. Wearing a personal hydration system can help keep your water close to your body and warmer than if it is carried in an external water bottle.

Eat warm food when possible to help maintain core body temperature.

Eat a variety of high carbohydrate foods before, during and after exercise to keep your muscles adequately fueled!

Snack every 30–45 minutes during exercise (100–200 calorie, easily digestible, quickly consumed snacks).

Minimize caffeine consumption (it is a diuretic).

Avoid alcohol consumption (alcohol dilates blood vessels and contributes to faster heat loss).

Always carry an emergency food source beyond what you plan to eat!

Stash an energy bar in your pack just in case something unexpected happens and you are stranded in cold weather.

You can “fuel the fire” and stay warm by simply eating!



What to Know About Ankle Injuries in Snowboarding

By Alexander Golant, MD

Despite being a relatively young sport, snowboarding has rapidly grown in popularity in recent years with an estimated 8.2 million people participating.

Most common snowboarding injuries include those to the upper extremities, specifically to the wrist and hand. In terms of lower extremity injuries, compared to skiers, snowboarders sustain fewer knee but more ankle injuries. It has been proposed that this is due to the less rigid boots used in snowboarding, which provide minimal protection to the ankle joint.

Ankle injuries make up approximately 15 percent of all snowboarding injuries, with most affecting the lead leg. Approximately half of all ankle injuries in snowboarding are fractures. The “snowboarder’s fracture” occurs because of sudden upward movement of the foot, combined with the foot turning inwards. This injury typically occurs when landing from a jump. Pain is present on the outer side of the foot and ankle, and is often associated with swelling, bruising and significant tenderness to touch. Unfortunately, this injury is often missed, because regular X-rays do not always show the fracture very well. A CT scan may be helpful in making the diagnosis.

Treatment of the snowboarder’s fracture depends on how big and how displaced the broken fragment is. Minimally-displaced or non-displaced fractures can be treated non-surgically, with 4 to 6 weeks of cast wearing and no weight-bearing on the leg. Large and displaced fractures are typically treated with surgery—the fragment is reduced into its normal position and screws are inserted to hold it in place. Small fragments which are broken into many little pieces may sometimes be removed. Recovery after surgery also includes a period of non-weight-bearing, followed by gradual restoration of motion, strength, and function of the ankle joint.

Outcomes of snowboarder’s fractures are typically good if the injury is diagnosed in a timely fashion and appropriately treated.

The “snowboarder’s fracture” occurs with sudden upward movement and turning inwards of the foot.



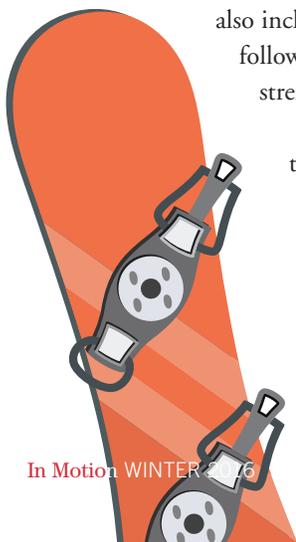
Most athletes are able to get back to physical activity within 4 to 6 months. However, significant complications may result if this fracture is missed and appropriate treatment is delayed. These include non-healed bony fragments causing pain and dysfunction, as well as early arthritis of the joint, which can significantly limit movement of the foot. When a snowboarder presents with acute pain on outer side of the foot or ankle after an injury on the slopes, it is imperative that a careful physical examination is administered by a trained medical professional, and appropriate diagnostic imaging is ordered, so as to avoid missing this injury.

The other ankle injuries in snowboarders include ankle sprains, as well as soft-tissue inflammation due to repetitive friction between the boot and the ankle, or from compression by the binding straps. Most sprains can be treated with a period of protected weight-bearing (using an ankle brace or a special boot), combined with a rehabilitation program to gradually regain motion and strength. Non-traumatic soft-tissue inflammation typically resolves with a period of rest and abstaining from snowboarding, but if it persists or recurs, surgical treatment may be necessary.

For more information on preventing skiing/snowboarding injuries visit www.stopsportsinjuries.org/skiing-and-snowboarding-injury-prevention.

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Want to Try a New Sport? Give Pickleball a Whirl

By Robert Gray, ATC

Pickleball is a racquet sport that combines elements of badminton, tennis and table tennis. The game was started in the summer of 1965 in the state of Washington by Joel Pritchard and a group of his friends. They attempted to set-up for badminton but were unable to find the shuttlecock. Instead of using a shuttlecock, they used a wiffle ball, lowered the badminton net, and improvised the paddles, making them out of plywood.

The pickleball court is very similar to a doubles badminton court. The pickleball court is 20 feet by 44 feet for both singles and doubles competition. The net is hung at 36 inches on the end and 34 inches in the middle. The markings on the court are similar to a tennis court, with no alleys; but the outer courts (not the inner courts) are divided in half by service lines. The inner courts are non-volley zones and extend 7 feet from the net on either side.

Play and Scoring

The ball is served with an underhand stroke and is directed diagonally to the opponent's service zone. Points can only be scored by the serving side and occur when the opponent faults. Faults are classified as failure to return the ball, hitting the ball out of bounds, or stepping into the non-volley zone. The return of service must be allowed to bounce by the server (the server and partner in doubles) and cannot be volleyed. Consequently, the server



or his partner usually will stay either on or near the baseline until the first return has been returned and bounced once. The first side scoring 11 points and winning by at least 2 points is the winner. In tournaments, games may be played to either 15 or 21 points with the players rotating sides at 8 or 11 points respectively.

Injuries and Prevention

Pickleball is an excellent way of increasing your cardiovascular fitness level. With any physical activity, comes the risk of injuries, especially sprains, strains, and the more serious fractures. Injuries to the knee, ankle, and Achilles are the result of either pivoting or lateral movements on the court and injuries to the shoulder can be caused by the overhead swinging movement of the racquet.

If you are hurt playing pickleball, utilize RICE (Rest, Ice, Compression, and, Elevation) for the first 48 to 72 hours. If improvement is not noticed within that time span or if you have decreased range of motion or increased swelling, consult a sports medicine specialist for a definitive diagnosis and course of action.

The best form of injury prevention is for the athlete to start a general warm-up and stretching program prior to participating. Increasing the blood flow and stretching out shoulders, neck, back, hips, knees, and ankles is the best method to prevent injuries!

The one thing that any athlete should do prior to starting up this or any other physical activity or event is to consult a physician to ensure that they are medically cleared to participate.



About AOSSM and *In Motion*

As a world leader in sports medicine education, the American Orthopaedic Society for Sports Medicine (AOSSM), we have designed the publication to highlight relevant information for multiple age groups from exercise and rehabilitation to nutrition and psychology.

This important educational tool is published quarterly and distributed electronically.

AOSSM members can add their practice name and logo to *In Motion*. Personalizing *In Motion* is an easy way to get pertinent, patient-friendly sports medicine information to your patients with just a click of a mouse. For more information, please e-mail Lisa Weisenberger at lisa@aossm.org or contact the Society at 847/292-4900.

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Speed Skating Keeps Injuries to a Minimum

By Robert Brophy, MD

Speed skating is a popular winter sport in areas such as the northern United States, Canada, the Netherlands, and Japan. Speed skating includes traditional long course events, as well as short track speed skating.

Data from the recent Olympics in Sochi (2014) and Vancouver (2010) suggest that speed skating is a relatively safe sport. In Sochi, the rate of injury was 4.5 per 100 athletes in speed skating and slightly higher in short track speed skating (8.5 per 100 athletes).¹ These were among the lowest rates of injuries for all sports at the Sochi games. All of the athletes recovered within seven days of injury and all but one recovered within seven days of injury in short track speed skating. Injury rates were similar for male and female speed skaters.

Injury rates at the Vancouver Olympics were similar for speed skaters with an overall injury rate of 3 per 100 athletes.² Interestingly, no male speed skaters were injured at the 2010 Olympics.

Although speed skaters are known to have a high incidence of low back pain, there is relatively little data on the types of injuries that are likely to occur in speed skating athletes. A study of injuries among short track speed skaters reported that an incidence of injury of 64 percent during the course of one season of competition.³

The average time loss per injury was 30 days, with an additional 20 days of reduced intensity training. The knee was the most

common location for injury, followed by the ankle, spine, leg and groin. The most common injuries types were cuts (25 percent) and fractures (25 percent). The most common injuries during competition included shoulder dislocations/separations, groin strains, concussions, and knee contusions. In a recent study of young speed skaters, approximately 5 percent demonstrated muscle tightness while 15 percent had generalized loose ligaments.⁴ Muscle tightness was associated with ankle sprains and knee inflammation while loose ligaments were associated with lower back pain in male skaters.

The relative lack of data on injuries in skaters likely reflects the focused participation and interest in the sport as well as a relatively low injury rate. Short track skating does appear to put participants at higher risk than traditional speed skating.

For more information on preventing injuries on the ice visit www.stopsportsinjuries.org.

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