

## **Let's hit the slopes**

Preparation is the key to avoiding ski injuries

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In most areas of the modern world, winter sports have become major recreational and competitive activities.

This is directly related to an increase of leisure time that is used for recreational activities. Despite an individual's choice of winter sports, whether it is ice hockey, skiing or curling, pre-season preparation is an absolute necessity. When undergoing such scrutiny the areas that should be emphasized are:

1. Flexibility
2. Muscular strength
3. Neuro-muscular co-ordination (motor control)
4. Cardiovascular fitness
5. Body structural integrity (physical build)
6. Proper warm-up
7. Knowledge of the sport
8. Knowledge of the equipment

Attending to such issues will not only improve the leisure sportsman's performance, but also acts as an important factor in preventing unnecessary injuries which eventually hinder ultimate pleasure.

Skiing is probably the most prominent winter sport and its popularity is ever increasing. It dates back more than 400 years for the ever-growing population of weekend skiers who make their way down the slopes with varying degrees of ability.

Cross-country or alpine skiing can be performed by virtually anyone at any level of proficiency. This includes a great number of disabled persons with various types of neuromuscular disability or even total sight or hearing loss. It does not matter if an elite athlete is going down the slopes at 90mph or a leisure skier at 40 mph.



Preparation is an absolute necessity because:

1. You do not want to disrupt your vacation because of physical injury.
2. You want to reach your peak performance and avoid risk of injury that turns your vacation into an expensive disappointment. Training should begin two or three months before hitting the slopes. However, it's never too late to prepare. Some form of conditioning is better than none.

Fitness should be an athlete's pre-season goal. Fitness training increases muscle strength to fend off gravitational forces that break against the body when you experience terrain changes. The primary muscle groups are the thigh muscles, shoulder girdle muscles and chest muscles. Another important group of muscles, which are involved, are called the secondary group. Without these, the primary group could not function. The secondary group forms the supporting muscles, which are the hamstrings, the stomach muscles, and the wrist muscles.

In addition to increasing muscular strength, training can increase aerobic endurance, which increases the flow of oxygen to the muscles. An increase of oxygen to the muscles assists them in adapting to performance at high altitudes where skiing is done.

Physical activity at an altitude of above 4,000 feet can put excessive stress patterns on the body for the first few days, especially for flatlanders. Before training commences, an individual should remember to start slowly and pace themselves.

Warm-ups will limit body discomforts, stress fractures and shin splints. High altitude acclimatization should always be a priority.

Motivating an individual to become involved in exercise can also be a task. Individuals should focus on the positive benefits (recreational, feeling of oneness with nature, increased energy levels, increased cardiovascular capacity) that can be achieved.

In order to keep motivation levels up try doing a variety of exercises and try not to do the same activity everyday. Then do aerobic and coordination exercises for the next three days. As an alternative you can enroll in a training program or a ski school. Also use the benefits of modern technology (i.e. educational skiing videos).



The purchase of proper equipment is absolutely imperative in helping to decrease the incidents of ski injuries. Be sure to seek professional advice in this area. The discussion below outlines some safe tips on choosing bindings.

### **Binding safety**

Cross-country skiing training program.

There is an exceptional amount of work involved in cross-country skiing. It covers more distance than jogging, 3-6 times more because of glide as compared to stride in jogging, hence, predisposed to strain. Muscles involved are: shoulder girdle muscles, quadriceps, Para spinal (back) muscle, gastrosoleus complex (calf) and anterior tibial muscles.

A flexibility program should target areas such as the back, lower leg – Achilles, shoulder and quadriceps (thigh). An endurance program should be a minimum of 15 minutes of aerobic activity and 80% of the heart rate (i.e. heart rate 190 minus age).

Equipment: using flat heel plate will decrease injury as compared with ridged heel plate and allows you to gain better control of your skis.

### **Alpine skiing**

This demands good neuro-muscular reflexes, cardiac endurance and muscle strength.

Alpine training program.

This should focus on: stimulation skiing condition during off season; year round jogging program with strength and gymnastic training added one or two months before the start of skiing; this will help increase motor co-ordination and control as well as strength and endurance.

### **Binding self test**

The self-test ensures a safe lock setting for binding when competent safety inspection by a qualified shop is not available. With your ski boot buckled; Insure that there is no ice or debris on the boot sole before placing it in the binding.

1. Put on one ski only!



2. Step into the binding
3. Toe test - bend your knee slightly, and twist the foot inward, with a smooth twisting motion (not a sudden jerking motion). Your boot should come out of the binding. (The outward twist is hard to do).
4. Heel release – place boot in binding. Bend knee forwards and try to kick up your heel at the same time. (Do not have anyone stand on back of the ski!). The heel of the boot should come out of the binding.

### **Safety tips for beginners**

1. Studies have shown that the most expensive bindings produced by each manufacturer have resulted in the lowest injury rates. Therefore it is false economy to buy an inexpensive binding model. This especially holds true for children.
2. Don't presume that a binding will function properly simply because it is present on the ski.
3. Have binding service checks by a qualified ski shop at the beginning of the ski season. Have the bindings tested and maintained frequently thereafter especially if you're doing lots of skiing during the season. This is your responsibility.
4. Be certain that the ski shop you select has a certified technician (Their diploma should be on the wall).
5. Try using soft covers for your bindings while they are on your car ski rack. This will help keep out salt and debris which can cause corrosion and malfunction.
6. Get new bindings every few years to keep up with the state-of-the-art.
7. The more attention you pay to the details of proper binding function, the less likely you are to sustain an acute lower extremity injury.
8. All bindings function best when set at their mid-range. Ask your ski shop technician what settings would be right for you and your bindings.
9. Have "A.F.D.'s" replaced yearly (at a minimum). These are the "anti-friction devices" or plates behind the toe piece of the bindings.

### **Classification of skiing injuries**

Injuries depend on the type of skiing; downhill skiing having far more injuries than cross-country skiing. Skiing injuries can be classified as primary (sprain, strain or fracture) and secondary (abrasions, contusions). The lower and upper extremities neck and back are areas most commonly injured areas in the extremities. Knees, ankles, wrist, shoulder and thumb are most commonly injured areas. Falls and collisions are the two basic types of skiing accidents.



Collisions can produce a wide variety of injuries to any part of the body and can be caused by almost an unlimited number of factors.

The incidence of skiing injuries can be reduced by:

1. Do not go skiing with unprepared muscles and joints.
2. Undertake an adequate pre-season training program.
3. Do a 10-15 minute warm-up of major muscle groups before skiing.
4. Use up-to-date equipment that is properly maintained.
5. Do adequate stretching of major muscle groups after a day of skiing.
6. Do not ski on terrain that is beyond your skiing capabilities – ski smart with caution.