

Winter Wandering is Gaining Traction

by Ira Orenstein

Another wonderful year of spring, summer and fall hiking has gone by, preserved in memories and in the plethora of acquired precious images to be sorted and viewed during what for some is an upcoming sedentary winter. For many outdoor enthusiasts exploring the mountains is a seasonal activity that ends needlessly with the coming of the short, snowy winter days ahead. A visit to your favorite outdoor shop will confirm however that there is no shortage of equipment and supplies available to permit the hiker to explore and enjoy wilderness trails year-round. The focus of this article is to discuss how to select proper traction to remain vertical and prevent slipping while walking or hiking on ice and snow-covered terrain.

Let's start with the simplest form of traction. One winter day my family set out to climb Hunter Mountain in New York's Catskill Park. After pulling into the parking area I realized after taking my first step out of the car that I was atop glassy smooth ice. Snow or ice in the lot had melted the day before and re-froze overnight into water-ice, which can make for extremely slippery conditions that can be even more challenging if the ground is sloping (we can also throw in a coating of fluffy snow to obscure the underlying ice for good measure). In this instance even with the parking lot being flat I couldn't gain enough traction to stand up, let alone walk to the trunk where our snowshoes and crampons were located. I had two choices – move the car onto less icy terrain, or attempt to crawl to the trunk. Choosing the latter option, I slowly inched my way to the back of my car on hands and knees with effort until I finally reached the trunk to retrieve our equipment. After that experience I now keep some sort of simple traction device inside the passenger compartment of my car. We can call these products "Very Light Traction" devices, or VLTs for short. There are many products that fall into this category, as for example Yaktrax®, Stabilicers™ Walk, Implus LLC ICEtrekkers and Kahtoola NANOsPikes™. These products are usually suitable for light duty venturing outside on frozen surfaces to do household chores, walk, jog, etc. They generally have a very low profile and therefore do not significantly hinder stability. Placement and removal on a variety of shoe and boot types is usually accomplished quickly and easily with an elastic harness that stretches into place. Since they are not one size fits all, proper selection is necessary to achieve a secure fit. VLTs should be removed before going indoors and before driving, and should not be worn on snow-free or ice-free surfaces. They are generally not rugged and are not suitable for wandering in the hills.

Tackling hilly or mountainous terrain usually calls for the selection of a traction device that is a bit more durable and aggressive than the VLT. In mild-moderate terrain during the fringe seasons or in winter when snow cover is less than approximately 8 inches in depth a popular option is what we can term the “Light Traction” device, or LT for short. One popular example in this category is MICROspikes®, by Kahtoola. This product has 10-12 1 cm (just under one-half inch) long steel points that are adjoined to metal chains and an elastic harness that stretches onto a variety of footwear. The Hillsound® Trail Crampon, with longer 1.6 cm steel points, is another more aggressive similar product. LTs are the most commonly worn traction devices on frozen terrain in the Catskills when snowshoes are not being used. These products are easy to adapt to and have a relatively low profile so that compromise to stability is minimal. A major consideration when choosing a brand should be the sizing/fit on your preferred boots. The traction device should be quick to get on and off and should fit securely. Loose traction systems can compromise performance by slipping or even dislodging from footwear. VLTs and LTs are generally intuitive to use without professional instruction.

Some conditions occasionally call for the use of crampons that have higher levels of performance/aggression. Full crampons (we can place these products in a general category called “crampons” or simply “traction” as they are often referred to on hiking forums like “New England Trail Conditions”) come in a variety of styles and types and are categorized as Class 1 (flexible), Class 2 (semi-rigid) and Class 3 (rigid). The more rigid the crampon and boot are, the more technical is the terrain that the experienced user can manage. Our discussion will be limited to walking crampons that are suitable for moderate terrain. Examples of walking crampons include the Grivel® G-10 and the Black Diamond® Contact, both having 10 steel points that are each 3 cm long with the 2 front points facing forward to gain better purchase on steeper inclines. Both products have strap on designs as well as a front strap/rear clip version that requires rigid boots that have a heel bail (groove) for the crampon to secure into. While soft winter boots work OK with flexible crampons, the user will generally fair better with boots that are of a more rigid construction. Boots and crampons need to work in concert for maximum performance.

Crampons usually come with anti-balling plates that prevent snow from compacting and getting stuck underfoot. Balling is a potentially serious problem that occurs when cold snow (maybe from previous cold days and nights) is exposed to warmer daytime temperatures and strong sunshine that causes the surface to liquefy. As the crampon points contact the thin film of surface liquid and are wetted, they penetrate into the underlying cold snow that freezes onto the moistened metal points on contact (think of wetting your fingers and the grabbing ice from your freezer – the ice sticks to your skin). This process repeats itself until the user is literally walking on snowballs. Crampon points are no longer able to do their job as they are propped up

by the balling, and the user loses traction and is also more vulnerable to turning an ankle. The compacted snow can usually be knocked off with an ice axe or by hitting the side of your boots against a rock or tree. The cycle generally repeats itself in short time, creating a chronic nuisance. Anti-balling plates are designed to minimize this occurrence. Another consideration is to remove crampons as they are often not needed or advised in the softer snow usually associated with balling.

Companies also offer aluminum crampons that are lighter than their steel counterparts at the expense of durability. Saving weight is an attractive feature since winter hiking is of necessity associated with hauling heavier packs. Many companies like C.A.M.P.[®], Grivel[®] and Black Diamond[®] manufacture aluminum models. Aluminum crampons require more frequent sharpening and are intended to be used in regions where snow and ice cover is uniform or when they will only be used for brief periods. For longer mixed terrain routes where the user is likely to encounter exposed rock, the steel crampon is usually the better choice.

There is a steep (no pun intended) learning curve associated with the use of crampons and it is therefore prudent to seek instruction from a professional mountain guide. With that said, some general principles follow. The long points of crampons offer significant purchase on frozen terrain at the expense of stability since the user is raised higher off of the surface (flexible boots further compromise stability). Care must be taken when walking to raise feet a bit higher off the ground to avoid tripping on irregular terrain. Feet should be slightly further apart with toes pointed slightly outward (duck walk) to avoid catching a sharp crampon point on the opposite leg. Gaiters should be worn to protect legs from the points and to contain blousy pants material. Walking stride is not as natural as with LTs. Traction is maximized when most of the points are simultaneously in perpendicular contact with the ice/snow. Doing this requires the user to walk with deliberate flat steps. As terrain steepens it becomes more difficult to keep the crampons flat with the surface as ankles reach their limit of flexion. The user now exaggerates the duck walk (the French term for this is *piéd en canard*) to keep the crampons flat against the incline. As terrain steepens further more advanced techniques are employed generally coupled with the use of an ice axe that provides a third purchase point. Crampons should be removed when butt sliding, or if you prefer, glissading down a mountain. Catching crampons points on the frozen surface during this activity is potentially very dangerous and can cause the user to flip and/or generate orthopedic damage. Similarly, a person who falls and accelerates downward should not attempt to stop and brake by placing crampons into the snow. Rather, techniques can be learned to minimize and arrest falls. Hence it bears repeating that the user who wishes to properly employ the use of crampons (and ice axe) should invest in training offered by a professional.

There are many other crampon styles that blur the distinction between LTs and traditional crampons. My first pair of crampons was a 6 point steel strap on model made by Grivel® that is placed in the mid-foot region. They provided many years of service with their 2 cm long points and still appear to have a lot of life left in them. Six point crampons have seen less popularity in the Northeastern United States with the development of LT traction devices like Kahtoola MICROspikes® mentioned earlier that permit a more natural walking stride as the points cover almost the entire foot bed. There is also now a variety of lower profile 10 point crampons that have 2 cm points that again cover the entire undersurface of the foot for a more normal and stable gait. Examples include Kahtoola KTS® and the Hillsound® Trail Crampon_Pro (not to be confused with the previously described Hillsound® Trail Crampon that is more like Kahtoola®MICROspikes®).

When there is uniform significant snow accumulation on the ground snowshoes are generally the foot traction of choice. Snowshoes reduce the depth to which the hiker will sink into the snow. This is accomplished by distributing load over a greater surface area, thus facilitating travel particularly when unconsolidated snow accumulations are considerable. Very deep snow and drifting can sometimes be found at higher elevations that can conceivably immobilize, exhaust, or induce hypothermia in the unprepared hiker.

Most good snowshoes have built in traction aids that are usually capable of managing the occasional icy patch. There are times, however when more aggressive traction is prudent. With that said in deep snow snowshoes are most often the gear of choice. Snowshoes come in different sizes. Larger snowshoes have better flotation in deep fluffy snow due to their greater surface area, but are generally heavier and less nimble. Proper snowshoe selection should consider user weight (including pack) and application. There are many brands and styles to choose from. My MSR Evo™ Ascent snowshoes have been serving me well in the Catskills for many years.

The use of snowshoes optimizes trail conditions by minimizing "post holing" and by flattening out and consolidating the trail. Post holing most commonly occurs when someone walking on a trail breaks through the snow surface thus creating a deep footprint. As the season progresses the freeze/thaw/freeze cycle solidifies the resulting irregularly surfaced trail (now the equivalent of a potholed road), making travel slow and potentially injurious. In New York's Adirondack High Peaks, where carrying snowshoes or skis is required when ground snow accumulation reaches 8 inches, trail conditions generally continue to improve as the season progresses. There is an expression that a trail is "set" once a group has broken through with snowshoes. While it is certainly often laborious to be the first to "break trail" the usage of snowshoes usually facilitates that process and the lead group can be proud knowing that it made the trail more user-friendly for those in the hiking community who follow.

With all of these foot traction options, how does one decide what to bring along on any given winter day? One caveat is to not make your decision solely based on observations in the parking area or

trailhead as they may bear no resemblance to conditions up high. New York's Catskill 3500 Club requires that all participants in organized winter group hikes bring snowshoes and full crampons to the trailhead.

If it is certain that snow cover will be thin (as often occurs during the fringe seasons), I forgo the snowshoes. If I am familiar with the terrain and it will be of easy to moderate grade with icy areas but minimal snow I may consider just bringing LTs. Trails tend to ice up before the surrounding surfaces due to the repeated compaction of the snow created by the footsteps of hikers, making LTs often a good choice of traction. Bear in mind that the quality of ice varies considerably depending on conditions such as temperature. I have had occasion to be walking on completely flat terrain where LTs were not effective in very cold conditions where the points could not penetrate the ice, or where a layer of snow covered the ice thus preventing penetration of the short points. I also recall in New Hampshire's White Mountains coming down Mount Eisenhower in the Presidential Range wearing cleated snowshoes on what was a very gentle grade. There were several exposed icy patches in this terrain that were repeatedly subjected to extremes of cold and wind. The scoured ice was virtually bulletproof and it became apparent rather quickly that it was time to switch to crampons. Needless to say it would have been safer and more desirable to have made this hand numbing transition earlier and in a more protected environment below tree line. Successful penetration of foot traction into ice is audibly corroborated by a characteristic reassuring "biting" sound.

The discussion of traction would be incomplete without mention of trekking poles and ice axe. Today's modern version of the alpenstock, trekking poles can usually be adjusted in length to accommodate to the height of the user and to the terrain (shorter going uphill, longer in deep soft snow). In addition to aiding with balance (which enables better foot traction performance), trekking poles recruit the upper body to share in the often arduous work associated with winter ascents. As well, long descents in winter with crampons afoot can be a bit jarring to the knees, making the use of trekking poles a welcome adjunct. There have been countless occasions where I used one of my poles as a probe to "check the waters," for example before crossing a stream to get a sense (at best) as to the solidity of overlying ice. Trekking poles should not be used as reliable "third and fourth points of contact," onto which the center of gravity is shifted. They are not traction devices as they can easily slip out, making it prudent for the hiker to always be centered over the feet that are the primary sources of traction. I prefer to forgo the use of the wrist straps so my arm can be freed from the pole to minimize the risk of a shoulder injury in the event of a fall. The ice axe is another item that can be employed in more demanding steeper or open terrain. This tool can be used as a third stabilizing point in many applications, as well as a means of preventing or stopping a fall. The ice axe has a variety of ancillary applications. As with full crampons, the user should learn proper technique by seeking training from a professional guide.

Ultimately, the choice of traction we use or anticipate the need for at any given time is an ongoing learning process as we are all students of the mountains. We try to get it right the vast majority of the time, hopefully guided by no more than the occasional gentle slight "proprioceptive near-slip" that provides the feedback we need to better our understanding and further tweak our system and

technique. And remember that when the hike is over and you leave the trail, you are not yet “out of the woods,” so keep those VLTs within reach.

See image and sidebar below



Increasing levels of traction from left to right: Kahtoola NANOSpikes™, Kahtoola MICROspikes®, Hillsound® Trail Crampon_Pro and Grivel® G-10.

A colleague and his wife, both very proficient skiers, were in Vermont carving their way down black diamond trails all day. For their après ski that evening they went to a local restaurant. Upon leaving the premises the woman slipped on ice, fell and shattered her leg, necessitating that she remain in a cast for several months. Ice does not distinguish between mountains and sidewalks; ice is ice! We as hikers prepare for the mountains by carefully attempting to predict what type(s) of foot traction we should select from our quiver to bring along. Some, however, neglect to address potential ice hazards as we leave our abodes for everyday activities.

Needless to say, the general population is largely remiss in this regard as well. It is very rare that I see people using ice traction when conditions warrant in everyday life. This may be attributed to lack of product awareness, vanity and/or laziness (having to don and remove a traction device may be a turn-off). Maybe we as hikers who are more knowledgeable about moving on icy terrain should play more active roles as ambassadors pursuant to this effort. We can help cultivate awareness and acceptability about the use of these ancillary devices. Hey, if we as hikers who climb precipitous slopes with impressive daggers jutting from our shoes are willing to strap something on to get to the mailbox, then maybe traction will be viewed as a “cool” thing. So spread the word. By doing so, you may be keeping your family and acquaintances more active and safer in winter.