What an awesome month of August we have had. Wasn’t Olympics 2012 just fantastic? All these great athletes from all over the world coming together for competitions and giving each other well deserved respect. So many records of all sorts were pursued, and many attained. Even 3 disabled athletes competed with the best athletes of the world. South Korean archer Im Dong Hyun, who has 10 percent vision in his left eye and 20 percent his right, set the first world record of the 2012 Games, and his team eventually won bronze. Polish table tennis player Natalia Partyka, who was born without a right hand or forearm appeared for her second consecutive Olympic Games. And, of course, we all know that Oscar Pistorius of South Africa competed in the men’s 400m run making history on Day 8 of the London 2012 Olympic Games by advancing to the semifinals.

Pistorius, known as “Blade Runner” became the first double-amputee to compete in the Olympics. (We talked about him in our March 2011 issue of Peak Performance.) Some say that he has an advantage over the able-bodied runners since he uses less energy than intact-limbed runners, that his leg swing is faster and stays on the ground longer than other sprinters, that his “cheetah legs” are lighter, and so on, and so on. In fact, in January of 2008, Oscar was barred from able-bodied competitions by IAAF, so he missed the previous Olympics. I would like to see one of those accusers try getting out of bed without using his legs from the knees down and see what sort of advantage they are talking about. How about running being top-heavy, without feeling when the prostheses hits the ground? How about going around the bend and not feeling the pressures on the sides of the feet? I simply cannot imagine Oscar even having enough drive to make it to this level of
performance. Every day living takes out of him just so much more then from those with intact limbs. Life is hard enough going through it healthy, now imagine what some other people have to face in their lives. I used to never think twice about getting up at night for you know what, until one day came that I couldn’t. Or, bending down to pick up whatever I dropped, until the day came when that became a serious issue. I can really connect with people that cannot live a normal life due to their body restrictions, can you?

Of course, we cannot leave the topic of Olympics without mentioning Stephan Feck of Germany. He is a world-class springboard diver who in the preliminary round of men’s 3-meter divingboard competition lost his grip with the board and landed flat on his back on the water, being the first diver to ever receive zero scores from all the judges. I can also relate to this man because I also had several opportunities to land flat on my back off the high dive, (but only while just learning new dives.) My partially sunburn body at a Florida’s outdoor pool screamed at me with anger when I subjected it to such a horrible ordeal.

Unfortunately Winter Olympiad is not until 2014. That gives us a little time to train, or perhaps to train others. We all probably wait with anticipation wondering what this coming winter weather will be like. It has to be better than last year, it can’t really be any worse, or can it? Skiing has been on my mind during all these summer days, and hunger for actually doing it is getting stronger and stronger. But, I don’t want to wish my life away. Cross-training is a good idea and can also be fun, and many of us are doing just that.

Our next issue of *Peak Performance* will be October and we will go monthly from here through April. I welcome all the returning readers as well as the new ones. Any and all your messages are welcome. All suggestions are appreciated. Please, write me at Kosmalaw@bellsouth.net. Also, check out all previous issues of *Peak Performance* that are posted and downloadable from my web page found at

www.mathsci.appstate.edu/~wak/.

Hope you enjoy this publication and find it useful. You are welcome to share it with your friends.

Peak Performance
Main Course

Elk Knob State Park – Been there yet?

By Doug Washer
PSIA-E Alpine, Level II
AASI Snowboard, Level I

If you haven’t been there yet, Elk Knob State Park offers some of the most outstanding, long-range, panoramic views in North Carolina. This state park, one of our newest in N.C., was begun in 2003, thanks to a purchase of the land by, and subsequent donation to N.C. State Parks, by the Nature Conservancy. The summit of the park is 5,520 feet, and according to the park website it the second highest peak in Watauga County (the adjacent Snake Mountain is slightly higher, but so is Calloway Peak on Grandfather Mountain, and I believe this is also considered to be in Watauga County).

Elk Knob is located less than 10 miles from Boone. Take Highway 194 north, to Meat Camp Rd. Turn left onto Meat Camp road, and travel about 5 ½ miles to the park entrance, on the right. It is an easy drive, on paved roads. Once at the park, you will drive a few hundred yards to a parking area for the hiking trail, or follow the sign to the nearby picnic area. The park has only basic facilities at this time, and there is not a visitor center, or camping facilities (but some backcountry sites are in the plans.)

The mountain is made primarily of amphibolite rock, and of a unique soil that results from decomposition of this rock. This rock at Elk Knob is very dark in color, which gives the terrain an interesting and different look than in other parts of our area. The information signs at the park told me that amphibolite rock is a type a “metamorphic” rock, which in this instance means originally was molten (igneous) rock, but later changed in composition due to continued heat and pressure. I would assume the park is very interesting for geologists and students to study.

The highlight of the park is the newly completed 1.9 mile trail to the summit, constructed over seven years, starting in January 2006 and dedicated on September 4th, 2011. Probably in summer 2007, I made my first couple of hikes up the mountain, on the original path, which was a very rocky and very steep “timber trail,” and was VERY strenuous. On a later hike, in 2008, I saw that the new trail was taking shape, and it ran for several hundred yards, and followed a much easier grade in the topography. The initial trail work that I saw on this hike was very impressive, and there were rock steps and borders that had obviously been designed and positioned very carefully.

It was on this hike that that I realized I could volunteer my time to help build the trail. The new trail was being built on Saturdays by a very small team of state park rangers and park employees, along with whatever volunteers showed up. I reported for duty one day in summer of 2009, and worked with ranger Andy Sicard (who now is a ranger at Grandfather Mountain State Park), and park employee Rex, and two other regular volunteers. What a day! We hiked about one mile up the trail, carrying several heavy tools, and our job that day was to build about 50 feet of trail from raw mountain terrain. I was shown the tools-of-the-trade: the “Pulaski,” which is a trail building tool that is a combination axe and mattock, for chopping roots and loosening soil. The other primary
tool was the “Fire Rake,” which is a super-heavy duty rake with teeth like a dragon, for ripping away the tangled mass of plant matter within the top soil, and for smoothing the dirt and gravel. Another useful tool was a long steel pry bar (or pick,) to move large rocks (I’d call most of them boulders) into position, to create steps or borders. We also had a supply of shovels, axes, and bow saws (most of the equipment was cached on the mountain, wrapped up in tarps).

It surprised me that the “professionals” solicited my input on where to direct the trail, and how to design the rock steps and borders. After our new section was roughed out, we unrolled some landscape fabric onto the trail, and covered the fabric with gravel, to create a finished path. Some of the gravel was carried in five gallon buckets from a pile that had been cached earlier on the timber trail (apparently brought up the mountain on a large tracked vehicle.) But we also had regular wheelbarrows, and some funny looking gas-powered wheelbarrows with a dump bed, made by Honda. These slow-moving, tracked wheelbarrows were easy to negotiate up and down the trail, but you could easily mash your hand if you brushed the handlebars up against a tree or rock (yes, it happened to me more than once.)

It was a tough day of work, but was entirely satisfying. I decided to commit to more work days, but it was the following year (2011) before I was able to schedule more time. And so last year, I put in three days’ work, working at different times with chief ranger Larry Trivette, ranger Kelly Safely, park worker Rex, and various small (and very dedicated) teams of volunteers. I was particularly impressed with the very hard work the rangers performed, and especially how they managed to keep their ranger uniforms so clean. Unlike them, I returned home each time covered head to toe in black dirt. But again, the work days were very satisfying, and it felt like I lost a few pounds with the effort. Needless to say, each successive work day required hiking further up and down the trail than the time before, and carrying heavy supplies.

The trail construction was approaching the summit by August 2011, and so a final “topping off” day was scheduled for Sunday, September 4th. The rangers planned a special, final work day, and all past volunteers, and general trail lovers, were invited to attend. I definitely made plans to be there for the final day. On the appointed day, a large team had shown up, and we worked a few hours to get the final 50 feet of trail completed. As the final step in the project, one of the volunteers who had worked just about every weekend since the project was begun was given the honor of dumping “The Last Bucket” of gravel onto the trail end. A group of about 50 people were on hand for the dedication ceremony, including dignitaries from the N.C. State Parks Dept. and other state government agencies. Park Supervisor Larry Trivette, who had envisioned and directed the trail building project, gave an emotional speech, thanking the hundreds of volunteers who had worked on the trail. We toasted with bottles of grape juice (the rangers were on official duty,) and also some cake. Larry is a super guy, and he deserves tremendous credit for this accomplishment. You’ll likely see him at the park, should you make a visit.
The finished trail, in my humble opinion, is a masterpiece. The trail is easy to hike, beautiful to look at, and I expect it will stand the test of time. But ongoing trail maintenance will be required (calling all volunteers!), and possibly some additional trails will be built.

So go and hike Elk Knob! I’d suggest picking a really clear day, to best enjoy the views. Make sure to keep the dogs leashed. Lots of info about the park is available online, so you might do a little pre-trip research. And consider putting in a day as a volunteer at one of the State Parks. I guarantee you’ll love it as much as I did!

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**It Took a Spiral Fracture of my Femur To Pass the PSIA Level II Exam**

By Mike Simmons  
PSIA-E Alpine, Level II

My saga began 12 years ago at a small mountain in North Carolina where I attended a ski-instructor camp and was hired for weekend teaching. I was great at the “snow-plow” which I learned had been changed to the “wedge.” I was determined to get better with my own teaching and skiing and started attending as many PSIA clinics as my wallet could afford. Sometimes I would ski brilliantly, and then the next time I could not repeat my performance. This became increasingly frustrating, coupled with the fact that what was being taught in the clinics was constantly changing. It started with lots of emphasis on “rotary,” then up and down movements, then stepping off the uphill ski, then “projecting your weight down the hill,” then inside leg steering, then using four edges, then shaped skis, and now we are supposed to ski in a wider stance. I can’t tell you how many hours I spent trying to throw my weight down the hill. It was a very elusive concept.

I was told that my performance was adequate to go for the level II exam which I embarked on. I passed the written and teaching with no problem, but I failed at the skiing. I was told by the examiners that they thought I had an alignment problem and that I needed to learn how to flex my ankles more. They suggested I put a heel wedge under my footbed. So I did and went home and practiced flexing my ankles in front of a mirror.

Next try at the exam, same result. I needed to flex my ankles more and they suspected an alignment problem. I showed the examiner my heel wedge and he suggested a larger one. I bought a larger wedge, practiced flexing my ankles more and went back for another try. You guessed it, the same result. I was told I moved up and down like the trees instead of projecting my weight down the hill. They suspected an alignment issue and that I needed to do exercises to promote ankle flexion. “Perhaps you should take up jumping rope,” one examiner said. I went home and had my wife watch me flex my ankles, first in socks, and then with my boots on. She thought I was flexing my ankles. I then went back to the ski slope and tried some more to flex my ankles and “project my body down the hill.” It continued to elude me.

That March, on a very icy day, I was making a turn to the left into some very large bumps that were as hard as concrete. I had a pre-release of a binding and quickly became airborne. I started to bounce from one bump to the
next, resulting in a spiral fracture of my right femur. Unfortunately, I was not put in traction and lost about 1.5 inches of length off my leg.

I had been so frustrated with my exam experience that I had set up an appointment to visit Harald Harb’s alignment center at Winter Park, Colorado, late the same month. Needless to say, I had to cancel my appointment. When I healed from my injury it was apparent that I really needed help to overcome the short leg deficiency if I was to ever ski again. That December, with a rod still in my leg, I made a new appointment with Harald. By now he had moved to Aspen. When I arrived at Aspen, Harald was unavailable, so he assigned Diana to my cause.

Under Diana’s care, I discovered that not only did I have a short leg, I was knock-kneed, a pronator, and was wearing the worst possible boots for my anatomy. The increased wedges that were put under by footbeds had greatly exacerbated my difficulty to ski. I was so far out of alignment, it was a miracle that I could even ski to a Level I.

After changing boots, getting new footbeds for the pronation, and compensating under the bindings for the alignment and short leg it was time to see how it felt on snow. The immediate sensation was nothing short of incredible. For the first time in over 25 years of skiing I could really feel my edges! Prior to this, sometimes I would have edges, and sometimes not. I could never find a consistent pattern to feel them.

Then it was time to try and undo my wedge entry turns and dependency on the big toe to initiate my turns. After so many years, I had learned too well. It took a lot of diligence on Diana’s part to erase that from my memory pattern. We are still working on it.

Needless to say, this was the answer to finally passing the Level II PSIA exam. It took proper alignment and learning PMTS (primary movements teaching system) to bring my skiing up to the Level II, I was so desperately trying to achieve. Had I not fractured my leg, I would still be chasing that elusive goal!

The Art of Climbing Ice

By Jennifer Pinkus

I was initially attracted to rock climbing while living in Switzerland, where I met a French climber named Frederick. He brought sausage, wine, and cheese on every climb. Each trip included an espresso in the morning and a glass of wine in the afternoon. I was sold! When I moved back to Vail, Colorado, it was easy to build upon the skills that I had acquired abroad, especially now that the commands were in English instead of French. One day, I was climbing at Independence Pass, in Aspen, and met a climber from Estes Park. He became my partner in crime. He had more experience then I did, and took me on adventures in Rocky Mountain National Park, that were way above my ability levels at the time; Sykes Sickle, Petit Grepon, The Diamond. These were climbs that I look back on and wonder how I ever made it back in one piece, and wonder why he trusted me to be his partner. I suppose ignorance is bliss and I got lucky. However, I did improve quickly. After many cracks, off width chimneys, and scary multi-pitch routes, I discovered ice climbing. It was right out my back door and would be perfect cross training for skiing. It was cold, but worth it. I loved the workout, the cool gear, the eclectic people that I met, and most importantly the mental rush from the combination of extreme focus and fear.

Ice climbing evolved out of rock climbing and other mountaineering activities. You can trace the birth of ice climbing back to 1908, when a climber named Oscar Eckenstein designed toothed claws, called crampons, that fit onto the bottom of his boot. These crampons allowed climbers to gain traction on slippery ice. Climber Laurent Grivel made another significant advance in the 1930’s. He added sharp fangs that jutted out in front of the crampons. These fangs allowed climbers to navigate even steeper ice. Then, in the 1960’s, Yvon Chouinard, who went on to create the Patagonia clothing line, revolutionized the design of ice axes. He shortened the traditional 25-inch (63.5 cm) mountaineering axe down to 22 inches (55.8 cm). Next, he changed the shape of the
traditional pick, which at that time was straight at a shallow angle to the axe's shaft. This shallow angle was fine for regular snow climbing, but wasn't effective on steeper snow and ice. So he created a curved pick that entered the ice more easily, and was simple to remove. We now have a multitude of crampons and axes to choose from, that come in a variety of lengths and shapes. They boast of features like being 16.1 oz., made out of Cro-Moly steel, and designed to help one reach the top of the world. Companies like Grivel, Petzl, and Black Diamond sell Turbo Stream ice screws, 10-point crampons with anti-balling plates, and climbing carabiners with grid lock screw gates. The gear comes in various colored metals, with patterned slings, weighing less than one ounce. Needless to say, climbing has come a long way!

After sixteen years of teaching skiing, Saturdays on the hill no longer seemed that appealing to me, especially this year as we had anywhere between a 20 and 40 inch base (not very good). Ice climbing was a perfect alternative. It was easily accessible from my home, involved clothes that I already owned, and would be great cross training for skiing. Mark Synnott, a member of the North Face climbing team talks about how to get in shape for ice climbing and some of its physical benefits. Synnott has pioneered new routes on Canada’s Baffin Island and the Bugaboos and in Karakoram, Pakistan. He calls Jackson, N.H., home, as it is the base of his decade-old guiding outfit, Synnott Mountain Guides. In an article by Patrick Bagley, Synnott talks about the approach and all the gear that you carry on your back to a climb, stating “Add a few miles of hiking to the cliff, and your legs could be toast before lunch. Climbing is not all about your hands, arms, or biceps…”. He suggests it uses every part of your body. He recommends a regular routine (two to five times a week) of walking with a loaded pack to get your cardio and muscular endurance up to speed before your first climb. He says it would be even better to log miles on a road bike. Trail running, Synnott advises, “is the single best cross-training for climbing because the variable terrain engages the same stabilizing core muscles that will keep you balanced while teetering on crampon points.” I know from my personal experience that ice climbing does encompass using all of these physical aspects and more. It is the one sport that I come home from fully exhausted. Every bone in my body screams at me; from hiking with gear on my back, hanging from a pick upside down on a piece of ice or rock, and from setting up and pulling down ropes. Ice climbing keeps your legs and core strong, your heart and lungs healthy, and your brain mentally on top of it!

This brings me to my third reason to climb; the friends that you make. Ice climbing introduces you to a group of really adventurous and eclectic people. You get the long-haired camper living in his Volkswagen, the ER doctor who loves the adrenaline rush, and the window washers that just like to be up in the air. Regardless of whom you are climbing with, you are bound to bond with them. It is a small few who enjoy hanging out in 0
degree weather, bundled up in every piece of warm clothing they own, having ice pieces fall at them from the sky. It might not be a good trait to have in common, but the bond grows. It grows when you find that you are all willing to screw metal pieces into chandeliers of icicles that make a shattering noise as you swing your pick at them. This often causes multiple pieces of ice to shatter and fall towards the belayer. You also know you have bonded when you yell ice, and continue to whack at the loose pieces, because they are eventually going to fall, and everyone is OK with the process. You have bonded when you can sense your partner sending mental vibes to you because you are both hoping that your screws will hold, and know that gear ripping out on an ice climb could mean large chunks of ice breaking off, and possibly hitting the ground and loosing body parts, or even death. These relationships are ones that just can't be found everyday.

And finally, the mental cross training that I find to be the most addictive piece of climbing. It is addictive because climbing is the only sport that fully channels thoughts into their proper compartments, and forces one to focus solely on survival, solely on the next clip, the next move. This mental discipline, not only makes you a better climber, but can transfer into your daily life. I grew up on the east coast and my family was anything but laid back. I was an anxious beginning climber. Every move produced anxiety, every clip relief before another bout of anxiety. Over the course of my growing passion for the sport, I have learned to slow down, stay calm, not panic, as it really does no good. I have learned to breath, be in the present, and not over analyze the route, but feel the next motion required. Just like any activity, you have good days and bad days. You can stress about the bad ones or just move on and enjoy the good ones. My friends would probably still not label me as a calm person, however, it is relative. Climbing has become my yoga, my escape. When I need to slow my brain down and just be, the rock or ice is the one place that I am able to do that.

Every year I continue to add to my list of gear, surfing the internet for the latest and greatest, collecting pieces my friends are selling, and going to outdoor trade shows. In the summer I try to get out on the rock as much as possible and ride my bike to stay in descent cardiovascular shape. I have opted not to carry heavy backpacks on hikes unless they are filled with necessary gear. I try to stay in touch with all of my winter friends and always look forward to meeting new people who might want to be introduced into the crazy world of ice, those with tough brains and big puffy jackets. I continue to strive every day to be a more calm and relaxed person, to not think about the “what-ifs and I shoulds,” and enjoy what the moment presents. I have a long way to go, but get a bolt closer each season. I look forward to hanging from as many frozen waterfalls as possible and inching my way up to longer, smoother, more focused days. As Walter Bonatti said, “Climbing is not a battle with the elements, nor against the law of gravity. It’s a battle against oneself.” Alex Lowe states, “The best climber in the
world is the one who’s having the most fun.” He continues to say “I strive to have a stronger mind while having a really *****good time.”

Jen lives in Vail, Colorado with her dog Lucy. She teaches skiing in the winter and guides mountain biking and rock climbing in the summer. In her spare time she likes to take pictures and write children’s books about her adventures.

Clean Up Your Act

By Gordon Carr
PSIA-E Alpine, Level II

It all started with a call to the Patagonia Technical Rep Call Center in Casablanca. It was a raw, blustery day in March. Dark threatening clouds scudded from mountain tops in the west across Bamboo Valley to the peaks on the eastern escarpment of the high country. Billowing, lifting, churning, threatening in manner as if one wrong word or move on my part would send them hurtling down upon the unsuspecting Innocents of Wilkesboro. Remnants of fog lingered in the surrounding forest, shyly, or perhaps more accurately, fearfully dodging between faint trees. Watching this all unfold from the safety of my study while I waited through endless elevator music, I mused, “Of all the gin joints in all the towns in all the world, she walks….” Whoa! Something is dreadfully wrong; my brain has slipped a cog or two (again)!

But it did all start with a call to Patagonia. This article, as with most of my articles, started with a desire to better understand something. In this case I wanted to better understand how to clean, restore and maintain the: a.) waterproof properties; b.) water repellency; and, c.) breathability of my Patagonia shell parka, a long time favorite (Liquid Sky, circa 2002). Fortunately, once connected, it was a slow day at the Patagonia call center and Josh was more than helpful. To my question, “How do I launder to remove dirt and grime and then restore the waterproof properties of my shell (me basically asking, “What time is it?”), he told me how to MAKE A CLOCK!! What a knowledgeable guy. To my question, he said that that answer is easy (and I’m sure all you folks know all this.). “First of all,” he said, “unless the fabric is ripped or torn, the Gore-Tex fabric of the shell IS waterproof even now! What you’ve probably lost is the shell’s Durable Water Repellency (DWR).” To restore the DWR he told me to: 1.) launder in the washer on the gentle cycle using ONLY a high tech product made specifically to wash hi-tech waterproof, breathable fabrics or use POWDERED TIDE, Original, with NO additives or fabric softener and NEVER use any LIQUID laundry product! The additives, fabric softener, and liquid detergent do not rinse thoroughly out of the fabric, and then clog the micro pores and interfere with and
neutralize your next step; 2.) after washing, while the fabric is still damp, spray thoroughly with a hi-tech product to renew the Durable Water Repellency (DWR) of the surface; and then, 3.) dry on medium heat for 1 hour to molecularly disperse and chemically bond the DWR molecules of the spray with existing DWR molecules on the fabric. Special attention in spraying should be given to the shoulders, upper back, and sleeves, and any other high exposure area. There are several hi-tech sprays on the market, but I’ve had good results with ReviveX, a product apparently not available locally, but easily obtained on the internet from Amazon or Campmor. There is a newer “air dry” ReviveX, but I like the original which requires the 1 hour in the dryer. Also reputable products are available to restore DWR under the brand names NikWax and Grangers. All these products are probably analogous to ski brands… they all work very well… it is hard to buy a “bad” ski today; it is mostly familiarity and experience with the product.

Josh then explained that the number one reason they get calls from dissatisfied customers complaining about their Patagonia “waterproof/breathable” garment is that customers say the fabric “leaks”. When ask, “When is the last time you washed your shell (parka… etc)”, invariably the customer says “I never have washed it! I don’t want to ruin the water proof coating!” Gore Tex and other modern waterproof/breathable fabrics essentially NEVER lose their waterproof property; it is the nature and microscopic weave of the fabric which resists the larger molecular size of water droplets. But, when the fabric, through use (and misuse), loses its Durable Water Repellency (DWR), the fabric “wets out”. At this point the microscopic fabric pores, which are smaller than water droplets, but bigger than water vapor (sweat), become clogged, and no longer permit the water vapor to escape from inside the shell. You get wet from the inside, essentially from your own perspiration!

All waterproof/breathable fabric garments, whether made from fabric with a coating applied to a common fabric like nylon or made from a specially woven fabric with waterproof properties woven into the fabric, share four main properties to varying degrees: a.) water repellency; b.) water resistance; c.) breathability; and, d.) garment seam sealing. Repellency, discussed above, is the ability of the fabric to “bead” up liquid moisture from an external source (rain, snow, fog). The industry standard is for a fabric to maintain 80% repellency AFTER 20 HOME LAUNDERINGS! And I worry about a washing or two in 10 years? For the entire system to work properly, the repellency must be maintained. Any time your parka or shell “looks” wet, the repellency is gone and the fabric needs laundering and the DWR restored. Dirt and grime from ordinary usage is one factor which destroys DWR, but SMOKE, of any kind, is a big killer…. campfires, smoky rooms (one hour is enough to trash the DWR), etc, and spray insect repellent is “death in a can” to DWR. When DWR is working effectively, external water beads up and runs off the garment and your parka, shell, pants etc. can breathe effectively and permit interior moisture vapor to escape. Everybody is happy. New products are in development which will maintain 80% DWR after 10 launderings! (But don’t wash daily, the ReviveX necessary to restore the DWR to the clean fabric would “break the bank”!

Water resistance is the property of the actual fabric to resist penetration of liquid water droplets. And that can be the “Gore-Tex” or other proprietary fabric’s woven-in properties, or as mentioned above it can be coating bonded to more common fabrics like nylon or canvas. Sierratradingpost.com lists many common proprietary fabrics and their waterproof and breathability numbers explained below. Ski-adventure-guide.com lists 30 common proprietary fabrics, and their numbers, available in outdoor clothing. According to backcountrybeacon.com two of the best fabrics in the current market for extreme conditions of maximum wetness over prolonged time are Gore-Tex Shell and eVent, both expensive and eVent being a bit less available. Resistance to water is also frequently the first number listed in all the advertisement blurbs to promote a particular shell, parka, or pant. Typically products are labeled as “5000/5000”, or “20,000/20,000”, or other combinations of numbers. The first number is the waterproof (water resistance) number, and this one has an industry standard test associated with it and is therefore kind of comparable between products when shopping. Testing applies pressure, by water, until the fabric begins to leak. The high hydraulic pressure test (JIS 1 1092 B, if anyone is interested (and the JIS stands for Japanese Industry Standard)) measures from 2,000 to 30,000 mm of resistance. Two thousand (2,000) mm is a column of water 2000 mm tall in a glass tube above the fabric producing a total force on a fabric of about 3 psi. “Waterproof” is considered something above a 5,000 mm rating, without stress, but this is highly dependent upon actual usage in the field and construction details of the garment. Stress on the fabric is like sitting on a wet chairlift with wet britches for a 10 minute chair ride which can produce a water penetration stress.
of upwards of 30 to 50 psi. Slogging with a backpack all day in the rain can produce a stress rating of 70 psi under the backpack straps! Also remember, the numbers relate ONLY to the fabric and NOT to a finished shell or parka etc. Incorrectly sealed or unsealed seams can reduce the garment to almost zero waterproof.

Breathability is the measure of amount of vapor or perspiration moisture transported through the barrier (water resistant) layer of fabric. This is usually the second number listed in the promotional advertisements for garments. One measure of breathability is number of grams of water vapor passing through one square meter of fabric in 24 hours (gms/24 hrs/m2). Another rating of breathability is Resistance to Evaporative Heat Loss (RET). Unfortunately, there is no unified and agreed upon industry standard of testing for RET or breathability in general. The testing varies trying to approximate the actual sport usage of a garment which includes “body heat” and various approximations of the chemical composition of sweat. Sweat isn’t plain old water! In the “big number system”, 10,000 gms/24 hr/m2 rating is considered very breathable. I absolutely don’t understand the RET system. In one article < 50 RET was considered “breathable” and the tests talked about RETs of up to 120. Another article discussed RETs in the 1-30 range and anything over 20 RET was considered NOT acceptably breathable in actual usage. Obviously these articles were based upon different testing strategies, which speak to the fact that “breathability” hasn’t a common, accepted bench test. But whatever testing system, with RET, the lower the number, the less resistance to evaporative heat loss and hence the more “breathable” the fabric. With the gms/24 hrs/m2 rating system, the greater the number the more breathable the fabric. Notwithstanding that, just think about skiing and riding… relatively brief periods of high exertion and sweat with long periods, in the cold, of inactivity (lift lines and chair rides). We ask our parkas to do two very complicated functions… breathe to release sweat moisture during high activity times, and then also be wind proof and warm during inactive times. As you can see, waterproof and breathable are a compromise on a continuum. Thick rubber suits are 100% waterproof but zero breathable, and a fishnet fabric is 100% breathable but zero waterproof… neither is much fun on the slopes!

These are just some of the high points about this far more complicated topic than I realized when starting research for the article. In summary, generally the higher the numbers are 25,000/25,000 versus 10,000/10,000 in an outdoor garment the better it will function to your satisfaction. But also, the higher the numbers the higher the $$$ costs! As new technology improves the fabric construction the costs of all waterproof/breathable garments will tend to come down (think of computer memory or laptop costs). A topic I have not discussed is seam sealing. A parka without sealed seams is like a tent without seam sealing in the tent floor! Sealing technology is beyond the scope of this article (read “beyond my understanding”). But again generally “You get what you pay for!” If a deal on a waterproof/breathable parka looks too good to be true, it probably IS too good to be true. I’ve always stuck with brands that have a long history in outdoor clothing, a good reputation, AND brands who have a guaranteed satisfaction and return policy. Within these caveats there is a huge price range between really effective products. Many times the tiny sewn on label “costs” hundreds of dollars; LLBean vs. Karbon for example.

If you want to dig into this topic yourself, a good starting point is www.backcountrybeacon.com. I could have just given the title of this article and the above web address, and you would have gotten all the info and probably gotten it more accurately. But I wouldn’t have had as much fun! See you all soon.

THINK COLD AND SNOW

From Cars to Skis

Oversteering

By Witold Kosmala
PSIA-E Alpine, Level III

There is an amazing connection between driving a car and skiing. They both turn in front, they both have outside and inside wheels/edges, they both go on a surface, they both accelerate and slowdown, they make turns, they
slip and slide, oversteer, understeer, and so on. And, you can race them both. But for some reason people can relate to driving a car much easier then to skiing. So, I thought that for the next few issues of Peak Performance I will bring up different things that we do, or at least we should do when driving a car that translate directly to skiing. Since it will be the optimal performance of the car in interest, we will think about car racing. In the previous issue we briefly discussed smoothness. Here we will discuss oversteering.

Oversteering is the tendency for the rear end of the car to slide out or fishtail. In everyday driving there is no reason oversteer should be a concern. In rain, snow, ice or mud, and on gravel roads however, the rear end of your car can creep out on you.

The term oversteer is used to describe the sensitivity of a vehicle to steering. Simply put, oversteer is what occurs when a car turns by more than (over) the amount commanded by the driver. Conversely, understeer is what occurs when a car steers less than (under) the amount commanded by the driver.

In different words, oversteer occurs when the rear tires reach the limit of adhesion in a corner before the front. This causes the back to come out. Once I was told that: “the good thing about oversteer is that you normally go through the hedge backwards, thus preventing expensive repairs to the front of your car.” Skilled drivers can perform sustained, controlled oversteer known as drifting.

Oversteer results from a number of factors, some of which involve the natural handling characteristics of the car, and some result from the way it’s being driven.

The built-in natural properties of the car that can cause oversteering (passive causes):

- Weight distribution (front or rear bias)
- Engine and drive layout
- Suspension & chassis setup
- Tire type, wear and pressures

The way the car is being driven (active causes):

- Cornering speed
- Throttle
- Braking

Peak Performance
• Steering inputs
• Weight transfer

You can recognize oversteering coming on if:
• The rear of the vehicle becomes unstable and light due to lack of grip.
• The car starts to rotate so the driver begins to face towards the inside of the corner.

Common active causes for oversteer. There are four major active causes of oversteer.
1. Entering the corner too fast.
2. Accelerating into the corner.
3. Braking into the corner or mid corner.
4. Lifting off the throttle mid-corner, known as lift-off oversteer.

Lift-off oversteer phenomenon does not only happen to less experienced drivers who do not fully know how fast their car can actually take a corner, and back off the gas in fear. Front wheel drive cars can be especially prone to lift-off oversteer due to the heavy front end and light rear. Reducing the throttle input results in a forward weight transfer, which increases the grip at the front tires but lifts the rear off the surface. If this forward weight transfer occurs during cornering, the combination of the heavy front end and the reduction of grip in the rear wheels causes rear wheels to break traction and start to slide towards the outside of the corner. This type of oversteer can be likely corrected by reapplying the throttle.

Preventing and correcting oversteer.
1. Entering the corner too fast is never good. It is not the quickest way to take a corner and leads to increased risk of oversteer. If you have entered a corner too fast, be extremely smooth with everything you do and follow the easiest way out of the corner.
2. Accelerating into the corner. If you manage to break traction at the back when applying throttle, you’re probably in a powerful car and need to be less aggressive. If you’re spinning wheels, the power is not transferring to the road and you’re not benefiting from the many horses you have sitting under your hood. You need to gently ease off the gas.
3. Lifting off the throttle mid-corner. If you are close to the limit with foot on the gas, do not lift off the throttle. The resulting forward weight transfer can upset the balance of the car and allow the rear wheels to break loose.
4. Braking into the corner or mid corner. You should avoid braking when cornering. But, if you must, be very smooth, gentle and progressive. If when taking a corner a small animal runs out into the road, try steering around rather then hitting the breaks.
5. Whatever the cause of oversteer it is imperative that you keep the front wheels pointing in the direction you’re hoping to go. If you don’t do this quickly enough, you will most likely spin. This technique is known as counter-steering or applying opposite lock (see the diagram.) Too little and you’re likely to spin as the back continues to come round, too much and the car will rapidly over-correct, often resulting in a spin in the opposite direction due to the resulting pendulum effect.

Counter-steering, applying opposite lock.
Simple modifications to make a car less prone to oversteer

If you have a car with oversteering being a problem, you can make some relatively easy modifications which can make the handling more neutral, such as:

- reducing the rear tire pressure.
- softening rear springs or anti-roll bar.
- use softer rear tires.
- increase rear down force, maybe a rear spoiler.

Now, of course, the question is: what does all this have to do with skiing? Naturally, oversteering or understeering tendencies can be built into your equipment, like dull edges on the skis and improper canting in your boots. But, usually oversteering is most often caused by the skier. Your car’s oversteering can be translated to skier’s skidding (or an abrupt decambering of the ski tips.) This is when the tails of your skis make a larger arc then the tips. The sensation of car’s oversteering or skier’s skidding is very similar to that of driving a forklift, like the one pictured here.

Amazingly enough skiers feel comfortable pushing their tails around, but dread their car oversteering when taking a corner. If you look at the ski slopes, skidders are everywhere. Forklift drivers are everywhere on every hill. There should be signs posted similar to those below.

There are many things that skiers can do to create a skid. Here is a partial list.

- Edge angles are too small.
- Platform angles are too big.
- Too much pivoting and not enough steering.
- Too mush weight forward making shovels flex excessively.
- Too much weight on the tails and the ski cannot withstand all the pressures causing tails to slide out.
- Skier’s balance is not correct. Perhaps there is too much lateral lean toward the hill.
- Skier has too much inclination and not enough angulation.
- Skier pushes heel of the boots out more then pulling the toes in.
- Skier does not have enough pressure on their toes and balls of their feet.
- Skier has too much pressure on their toes.

You should not misunderstand me. For all skiers there is room for skidding. Skidding is not a bad thing. In fact, it is almost impossible to ski with absolutely zero skidding. Even making a turn tighter then the ski’s sidecut radius, tails of the skis physically have to make a wider turn then the feet. The question is, can you control your skids, make them smaller or bigger, or even totally eliminate them for a small portion of your run?

Since there is still no snow on the hill, get in your car, go on an empty parking lot with some sand on it and burn some rubber. Or, get on a bike and make some turns on a pavement with some sand on it. Just be careful or you will leave some skin behind.
Health Course

Battling Fatigue

By Bonnie Church
Certified Life and Wellness Coach

Fatigue by definition is exhausted energy. It can be a ‘red flag’ warning of a potentially serious health condition such as anemia, thyroid malfunction, heart disease, infection, or a chemical imbalance. But for most, according to the National Institute of Health, fatigue is related to a poor diet and lifestyle.

Once fatigue-producing disease is ruled out, it is time to connect the dots between your fatigue and your diet and lifestyle choices. To reverse it, you need to replace energy-exhausting behaviors with energy-stoking alternatives.

There are 4 energy sources in your life: physical, emotional, mental and creative. Each one needs to be addressed to optimize your energy level.

TO MAINTAIN PHYSICAL ENERGY – BALANCE YOUR BLOOD SUGAR

Blood sugar is the body’s fuel. A car without fuel or filled with the wrong kind of fuel will sputter to a halt. This is also true of your body. Not eating enough, eating too much or eating unhealthy food will zap your physical energy and pack on the fat. Here are some helpful hints to optimize your physical energy.

- Eat a healthy breakfast within 60 minutes of rising.
- Eat small meals and snacks every 3 hours.
- Drink 2 quarts of purified water each day.
- Reduce the white stuff: sugar and flour and refined grains.
- Sleep 6-8 hours a night.
- Take brief ‘movement’ breaks throughout the day. [2 minutes of stretching or walking up stairs]
- Exercise 30 minutes a day.

TO MAINTAIN EMOTIONAL ENERGY – RESPOND RATHER THAN REACT TO FRUSTRATION

When we become reactive, striking out at life’s frustrations, we create chronic stress in our lives. This not only destroys relationships, but it destroys our health. Here are some helpful hints to optimize your physical energy.

- Defuse negative emotions with deep abdominal breathing.
- Fuel positive emotions through positive affirmations.
- Make it a habit to express appreciation and encouragement to others.
- Develop an action plan for overcoming challenges. Example: If debt is draining your emotional energy, develop a debt reduction plan and stick with it.
- When challenged by a person or circumstance, instead of viewing yourself as the victim, use a different lens.
  1. A reverse lens – What can I learn and how can I grow from this challenge?
  2. A long lens – How will I likely view this challenge a year from now?
  3. A wide-angle lens – What positive outcomes in my life can result from this challenge?

TO HELP YOU MAINTAIN MENTAL ENERGY – MANAGE YOUR TIME AND ATTENTION

Energy can be dissipated through lack of focus or being overwhelmed by mounting demands. Inefficiency drains your energy stores. Here are some helpful hints to optimize mental energy.
• Reduce interruptions by performing high concentration tasks away from the phones and email.
• Respond to voice mail and emails at designated time during the day.
• Every night identify the most important challenge for the next day. Then get it done first thing in the morning.

TO MAINTAIN CREATIVE ENERGY – SCHEDULE JOY INTO YOUR LIFE.

Drudgery depletes us. Doing what we love to do, energizes us. Here are some helpful hints to optimize your creative energy.

• Identify activities that give you a feeling of effortlessness and fulfillment. Do more of these.
• Delegate the things you do not like to do to people who do like to do them.
• Review your day and ask the question, “Did my activities reflect who I am and what I want to accomplish in life?”
• How can I reduce activities that take me away from my life purpose and increase activities that move me toward it?

Forming these new habits will not only stoke the energy you need to get through the day, but they will also stoke the passion and sense of purpose you need to live a life without regret.

Bonnie Church, CNC, CTL, CLC – Bonnie is a wellness columnist for All About Women Magazine, a Certified Life and Wellness Consultant and certified Trainer for the TLS Weight Loss Solution. Bonnie has conducted wellness and motivational seminars throughout the US. She served as a writer/consultant for an internationally marketed weight loss system for kids. She recently co-authored, with Lydia Martinez, “Coach Lydia’s No-nonsense Guide to Getting Off your Butt, Out of your Rut and On with your life.” Please, visit www.alifenow.com for more information.

Turn to Wisdom

• The best way to forget your own problems is to help someone solve his.
• Do what you like, like what you do.
• A road to success is always under construction.
• Give a person a fish and you feed them for a day. Teach a person to use the Internet and they won’t bother you for weeks.

Thoughts for the Month

• The Blue Ridge Parkway practically passes through our backyards. So, if someone asked you to tell them a few things about the Parkway, what would you say?
• What is your life all about? What consumes you?
• Try filling in the blank. “For me life is ______________ .”

Elaborations on last month’s Thoughts for the Month.

Since we are located in Appalachian Mountains, are we pronouncing the name correctly? What is the correct pronunciation of “Appalachian?”
**Answer:** The “Appalachian Mountains” were given their name by De Soto, who named them after the American Indian tribe known as Apalachee, pronounced Apala-chee. To stay consistent with pronunciation of their name, one should say Appal-atch-yuhn instead of Appal-ay-shuhn.

**Is crawling important in child’s development? In skiing development, what skill would you say crawling is equivalent to?**

**Answer:** Here is what researchers say about crawling. “Most babies learn to crawl sometime between the ages of 6–10 months. Some children bypass crawling and go straight to walking, but is that such a good thing? Research varies, but most therapists will agree that crawling is an important developmental milestone which should not be skipped, as it relates to other areas of development like eye-hand coordination and even later reading & writing. Children use binocular vision when crawling, which means they look forward to where they are going and then back down at their hands again. Much later children will use this skill in school, by looking up at the blackboard and then back down at their papers to write something. There has been some recent research relating a lack of crawling to some diagnoses such as ADD/ADHD and also autistic spectrum disorders.”

**What does child’s crawling compare to in skiing?** In my opinion, it is a wedge, and here is why. Wedge is a skill that every skier should possess, so might as well learn it right to start with. More advanced skiers might feel funny learning how to wedge later in life. Wedging is an instinctive move for most people. It is easy to learn and it will give a skier a sense of security and reduce panicking. If bypassed, and skier moves to skiing parallel too soon, skier will rely on big skidding and sideways movements to control speed.

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**This and That**

**COC HONORS SARAH BURKE**

On September 21 the Canadian Olympic Committee (COC) will be inducting X Games freestyle ski champion Sarah Burke into the Canadian Olympic Hall of Fame. We talked about Sarah in our July issue of *Peak Performance*. Here is what Mike Doyle said on his About.com skiing on June 16: “I was as stunned as everyone else to hear that Sarah Burke had passed away. We all knew her injury was serious, but not that it was so severe that all modern medical care and procedures wouldn’t be enough to save this vibrant, beautiful and happy woman who was an extraordinary skier at the top of her game. I never met Sarah, but like so many of us I fell in love with her smile, her energy, her skiing and her dedication to promoting our sport and her efforts to get halfpipe skiing competition onto the Olympic stage.”

**THE SECOND BEST THING: ANSWERS**

The answers to my questions in the July *Peak Performance*:

1. **What very famous alpine race had a modern binding, invented in 1929 with significant innovations, named in honor of the race?** **ANSWER:** The Kandahar Binding. With the Kandahar, the eccentric cam tensioning lever was forward of the toe piece, there were clamps on the side of the ski near the boot heel which could hold the cable and thus hold the heel down on the ski for alpine conditions, the cable could be released from these clamps thus permitting the heel to raise up for Nordic skiing conditions and technique, and there was a very strong coiled spring centered in the cable which went around the heel of the boot, which combined with the forward throw eccentric cam held the toe of the ski boot securely in the front toe binding. This binding was still common in the mid 1960’s, especially on rental skis.

2. **For what series of activities is Snowshoe Thompson actually famous?** **ANSWER:** Thompson successfully delivered the mail over the Sierra Nevada Mountains to California throughout one Winter! It had not been done previously.
3. *Why did Zdarsky’s system of skiing and teaching skiing not survive the test of time?* **ANSWER:** In spite of many modern sounding skiing and teaching features such as the “snowplow basis of turns” “continuous serpentine turns to control speed on steep slopes”, and “the use of photography to illustrate body and ski positions in his instruction book” Zdarski’s method also utilized some uniquely inefficient maneuvers. Of course “inefficient” is from our current perspective of ski technique which owes its historical roots more to Hannes Schneider and his Arlburg Technique, which was contemporary with Zdarsky. Zdarsky’s system used a SINGLE pole, up to 12 feet in length, with a spike on one end to “push off” and avoid obstacles and a long barb or hook on the other end to “snag” the snow and become the central anchor around which the turn was developed. Zdarsky was very authoritarian and unbending in his insistence on this single long pole and snagging the snow at the very time when two poles had become popular and Hannes Schneider had developed linked turns based upon Stem Christies for speed control. Somehow I’m glad Schneider’s system prevailed. Can’t you just see 12 foot poles with sharp points on one end and stout hooks on the other on Magic Carpet or Easy Street trails during Christmas Week?

**HAVE A GREAT FALL**

**YET ANOTHER CELEBRATION**

*Krispy Kreme* is an international chain of doughnut stores that was founded by Vernon Rudolph in 1937 in near-by city of Winston-Salem, North Carolina. *Krispy Kreme* celebrates 75th birthday.

**WHAT IS WRONG?**

Last month we shared this photo with our readers and asked what are some mistakes that I am doing. One of you asked me if the photo was taken in California. It was indeed, but that is not necessarily a mistake. I am curious how this person knew, is it by the vegetation in the background? OK, so here, in my opinion, are some mistakes. Note that it does not look like I am reacting to any particular situations, so all the moves are totally voluntary.

- I have no helmet, and no other protection, like glasses, gloves, knee and elbow pads.
- I am looking too far down. That pulls my shoulders too far over to the inside. (Perhaps I was looking to see if there was something on the pavement.)

*By Witold Kosmala*
• My hips did not move enough into the inside of the turn.
• My left knee is locked up.
• My right knee may seem to be tipped too much into the turn. This is actually not the case. It points in the direction of travel. The turn is tight and pretty fast. Also, remember, on the Trikke there is no way to slide the inside foot forward.

MORE ON HELI-SKIING

Chris Anthony (far right on the photo) is a guide in Chugach Mountains, Alaska. The photo was taken in April, but the idea is current. At present, Chris guides heli skiing trips in Chile. Some of our own Sugar Mountain instructors will be out there as well. Others, like myself will be only dreaming about it. See www.chrisanthony.com.

COLORADO FIRES

Our issue of Peak Performance would not be complete if we did not even mention how bad we all feel for those effected by Colorado fires of late June. There is not much more on this in the national news, and the event might even be forgotten by many, but that’s not the case for those that were directly touched by these fires. May you all know that our prayers are with you.
Announcements

• The Educational Foundation (EF) of PSIA/AASI provides support to members in their endeavors to further their education and certification. More than $15,000 in scholarships will be available for all disciplines. If you want to apply for an event scholarship for the 2012/2013 season, please wait until the Event Schedule is available. Start working on your applications now and get them mailed to the office by the September 30, 2012 deadline. For more information go to www.psia-e.org.

Pet of the Month

This parrot was my pet for a very short time. He packed all my hair out and made holes in my shirt. But his Polish language was superb.

Witold