Some places in the US are already skiing and riding. Our turn will come soon. And so I ask again: are you ready? Did you pull out your boots from the storage yet? Did you put them on and start getting your legs accustomed to the pressures, (this is mostly good for skiers, you lucky snowboarders.) I don’t know about your skier’s toenails, but mine just started to look decent again, and here comes another ski-boot season and they will again get all discolored, cracked, bent and begin to grow funny due to all the foot pressures inside the boots. But, I do not regret it. Skiing is my passion. What about you? Are winter sports a passion for you, or are they a chore?

We continue stressing the preparation needed before getting on the slopes. That means we need to have the equipment up to par, we need to refresh our memories about technique, have our bodies ready to perform, and the proper mental frame of mind set again once more. Don’t forget – our lives might depend on all of these. In the last two issues of Peak Performance we stressed dry-land; last month we also shined some light on the new ski technology. In this issue we continue with the physical preparations and also bring you an article all the way from California pertaining to the importance of boots. Gordon’s article will make you think about technique. Now it is up to you to make the decisions.

Remember that all previous issues of Peak Performance are posted and are downloadable from my Web page found at:

www.mathsci.appstate.edu/~wak/

Please, send all your correspondence to:

kosmalaw@bellsouth.net

Can you guess when Sugar Mountain’s slopes are going to open? Last season it was Nov. 27, the previous season it was on the 17th and the year before it was on the 7th... whenever it opens, I will see you on the slopes!
The exercises and skill drills we use to help our guests move forward on their snow sport learning journey can be conceptualized in many different ways. PSIA/AASI’s Visual Cues to Effective and Ineffective Muscle Movements is one of the more recent ways to evaluate guests and give some consistency and internal logic to lesson planning. PSIA/AASI manuals and educational materials list other approaches to teaching our snow sports. Arguably, the best instructors are flexible in their approach to movement assessment and lesson planning and are not locked into any one learning model. The best just seem to teach those movement patterns and skills which this guest needs at this particular time in these specific snow conditions.

There is one conceptual dichotomy, however, which is helpful to me no matter which assessment or teaching model I am using in a specific class or private lesson, a dichotomy which addresses an overarching safety concern: will this particular exercise or skill drill be Developmental or Corrective? Is this a movement drill which is a natural “next step” in a guest’s learning progression; hence Developmental? Or, is this a drill or exercise meant to help the guest “break” a well established, but inefficient, movement pattern; hence Corrective? This dichotomy is partially based upon the thesis that skiers and riders rarely make unnecessary and inefficient muscle movements voluntarily. What they are doing right now with their arms, legs, feet, head, or any and all other body parts is being done because it is (or their kinesthetic sense thinks it is) necessary to keep themselves balanced and vertical on the slick snow surface! We as instructors may know their moves are unnecessary and maybe even counterproductive to further skill development. But for the learning guest, the current muscle movement patterns are “necessary” to ski or ride in the manner in which they now negotiate the slopes.

So, to continue with this thesis, we must be careful not to arrange lesson circumstances which block and take away these inefficient muscle patterns BEFORE WE HAVE GIVEN THEM SOME OTHER, MORE EFFECTIVE MUSCLE MOVEMENTS TO TAKE THEIR PLACE to accomplish the same desired snow-ski/board interaction!

Hence, Developmental vs. Corrective: Developmental exercises and skill drills are additive; they give the guest additional snow sport skills gradually and cumulatively. These drills and learning progressions generally present new movement patterns on familiar terrain, and if the guest does not perform them correctly, the execution error results in no great catastrophe. The learner simply reverts to the old, well-established, though inefficient, movements… the turn occurs in some fashion (e.g. wedge versus the desired wedge Christie), they come to a stop somehow, or whatever else you are working on with the guest and no disastrous fall or injury occurs. These type learning drills and exercises are very common with guests new to our sport.

With Corrective drills or skill exercises, generally you are trying to “break or disrupt” an inefficient muscle movement pattern which has become habitual with the guest, and your assessment is that it will, if continued, limit future skill growth. This scenario typically occurs with self-taught snow sport guests who have reached a plateau at an Intermediate level. With corrective drills and exercises there are not always alternative or fall back muscle movements if you teach the “habit breaker” drill on the terrain where the inefficient, limiting movement patterns show up most dramatically. In this terrain the drill you arranged is taking away THE ONLY MUSCLE MOVEMENTS THE GUEST HAS TO e.g. TURN, OR CONTROL SPEED; THEY HAVE NO ALTERNATIVE MUSCLE MOVEMENTS AND SKILLS TO TAKE THEIR PLACE YET.

Of course, these are not mutually exclusive concepts and like so much else in snows sports the concepts, Developmental and Corrective are anchor points on a fluid dimension. Reality is probably always a degree of blend. What may be Developmental to one guest may be Corrective to another skier/boarder who is skiing at a lower skill level. A very typical example of the extreme Corrective end of this conceptual dimension is working with an intermediate skier or boarder who is only able to make turns with whole body or shoulder twisting movements, combined with heel (skiers) or back foot (boarders) pushing out, resulting in the linked, jerky, “thrown” Z shaped turns (not uncommon turns by self...
taught intermediates.) If you, as an instructor, attempt to intervene in this movement pattern on the terrain where it is most vigorously applied and you then demonstrate rounded turns and insist forcefully that the guest make ROUNDED turns, you have arranged a corrective intervention. You are asking the guest to do the very thing they fear: stay in the fall line longer and pick up speed! The reason why they throw the Z shaped turns in the first place is to scrub speed and with this learning exercise, you are asking them to stay in the fall line and pick up “scary speed!” If they don’t complete rounded turns fully and correctly and you are on a trail which is at the top edge of the comfort zone for the guest, they can panic, freeze up, and, in fact, pick up “scary speed” leading perhaps to a dangerous fall! Here is where “challenge with technique not terrain” becomes critical. Sure, go to blue terrain if this is where the guest is comfortable in their “typical” skiing to assess their movement skills. Use this terrain to analyze the “hurdles” they must overcome and then formulate next steps for their learning progression. You might even demonstrate “Z” shaped, skidded turns and then rounded turns YOURSELF and help the guest to verbalize and understand the difference. But, also explain to the guest that you’ll be going to more gentle terrain to introduce ways to make rounded turns, practice them, and take some ownership of the muscle movements which lead to more rounded “C” shaped turns. You will not get perfection right away: remember Witold’s article in the July, 2009 Peak Performance: it takes at least 300 correct repetitions of a muscle movement pattern for it to become automatic and habitual. What you want the guest to discover is “that there is a difference;” you want them to “feel” the difference in muscular efficiency, yet increased effectiveness of the rounded turns to control speed. Here on more gentle terrain if the new patterns of the muscle movements which lead to the first efforts at controlling speed through turn shape don’t work, disaster and wipe outs won’t happen. Also the terrain is gentle enough that it empowers the guest with comfort and allows exploration of new maneuvers. Additionally, your behavior in dealing with this scenario in this manner is a great “trust builder.”

Of course you’ll get the guest back to the Blue trail, hopefully, during the same lesson to practice, albeit hesitantly, the newly developed round turns, and take ownership of them. It is also a good idea during these “corrective” moments of a lesson to give a guest “permission” to use the old “Z” shaped, skidded turns if they get into a pickle. In recreational skiing and riding don’t we all skid most of our turns just a bit? Really, most every turn is a combination of carve and a little skid! Who purely carves all the turns down Whoopedoo? Anyhow specific to this example, there is nothing wrong with having the skills to make “check” and “hop” “Z” shaped turns especially on very steep and narrow chutes. (Of course our turns are not done with “whole body or shoulder rotation” which typically goes with terminal intermediate level skidded turns. We (skiers) have a stable upper body facing down the slope and the turning and hopping is done with the leg rotation occurring in the hip sockets, right?), but for the intermediate skier or boarder who is stuck in a rut with skidded turns, cruising on blue and black terrain will become more fluid, the ride so much less tiring and the flow much safer if the turns are rounded and the ski or board tool is being used to its designed advantage.

An excellent example of a Developmental drill at the other end of this dichotomy is using “railroad tracks” as a way to introduce the “feel” of carving. When green terrain is the arena, if the student doesn’t do railroad tracks correctly and effectively, they simply resort to their usual turns with rotary muscle movements and no great disaster occurs (except perhaps feelings of “not getting it.”) Railroad Tracks on steep terrain is not for the faint hearted, and serious terrain should never be the arena for the first introduction to this drill.

An exercise which can become a Corrective drill if done on too challenging of terrain for the guest is teaching “tuck turns.” Tuck turns, when done correctly, promote development of very high, early, edge angles, magnify the “feelings” of cross-under associated with exaggerated leg retraction and extension, and most importantly tuck turns produce the kinesthetic feelings associated with having the skis move out from under the body. The greatest “angles” occur when the skis are in the fall line, typically a new feeling for intermediate skiers. (Hey! Boarders! Does this apply also to riding? Is
there the same extension-retraction and cross-under sensations? I’m just going to have to give snowboarding a whirl.) If this exercise is not done correctly and you are on steep terrain, a rolling fall and serious injury might well result. Interestingly enough on too gentle of terrain at very slow speeds, this drill is almost impossible to perform at all (try it sometime.) If attempted too slowly and performed unsuccessfully, again a rolling fall will result, so terrain choice is critical in turning this into an effective Developmental exercise to promote more dynamic skiing.

A topic for another article someday is this whole notion of performing skill drills on very gentle terrain at very, very slow speeds. Many trainers believe muscular execution of drills has to be even more precise and exact at slow speeds and is more difficult to perform. For us in the Geritol Crowd, who have seen the video clips, you will remember being overwhelmed and impressed by Ingmar Stenmark (the skier with the all-time most World Cup Gold medal podium results: 86!!) performing basic skiing exercises before World Cup races at an incredibly slow speed, but with absolute perfection of form.

There are several points for summary. First, the conceptual dichotomy is not “either-or.” Developmental drills can easily become Corrective if your terrain choice is not sensitive to the guest’s ability, learning stage, and confidence level. Second, a sound principle is always challenge with technique, not terrain. Third, when teaching, introduce and perform difficult skill drills on easy terrain; teach simple muscle movement patterns and introduce easy tasks on difficult terrain when the guest has alternative fall-back moves in their skill quiver. Last, the attributes of Developmental vs. Corrective do not reside in the skill drill or exercise itself. This dimension is a conceptual framework through which you, the teacher, view this guest’s learning progression. There are many other exercises and drills, which can be analyzed within this dichotomy, but it is time for me to become SELF corrective and quit typing! See you all shortly.

**CHALLENGE WITH TECHNIQUE NOT TERRAIN**

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**Snow: A Discussion on Understanding the Basics**

*By Konrad Kosmala*

*Univ. of North Carolina, Chapel Hill*

*Editor of Peak Performance*

How many times would you say that you’ve gone skiing? If you’re an instructor, that number is probably quite high (and still probably less than what you’d like…), but how many times have you actually tried to understand what it is that you’re skiing in? Sure, there’s much discussion about how the conditions are (“oh man greeeeeat skiing! It’s pure powder out there!” or “Ugh, it’s like skiing through sludge”), but how many instructors or just ski/snowboard enthusiasts know exactly what makes that “heavenly” powder?

So here’s where the discussion comes. The formation of snow is quite the dynamic process, and for those that don’t have a bachelor’s degree in chemistry under their belt, understanding how snow is created could quite possibly be a problem. I could go on about the exact air conditions and temperatures and how they affect the formation of snow, but let’s keep it simple. In the most basic sense, a snowflake is a frozen cloud droplet that has multiple layers of ice crystals. How these layers are bonded together determines whether or not the snow fall will be “wet” or “dry” (powdery… we’ll get to this later). The diagram to the right puts the formation of a snowflake into the most basic and elementary steps.

Now, on to the differences between the geometry of snowflakes. As you can see above, a snowflake is roughly hexagonal in shape, due to the original droplet’s six-sided shaping. When this original prism develops into a matured snowflake, it tends to take on...
particular shapes depending on the temperature conditions that it experiences. Snowflakes that are formed in warmer conditions tend to be much less intricately designed than ones that are formed in colder conditions because, in colder conditions, the ice crystals are much more solidly formed and can support multiple branching (dendrites). Here are some general temperatures, followed by the most common geometric shapes formed in those temperatures:

- 32-25° F – Thin hexagonal plates
- 25-21° F – Needles
- 21-14° F – Hollow columns
- 14-10° F – Sector plates (hexagons with indentations)
- 10-3° F – Dendrites (lacy hexagonal shapes with indentations)

The reasoning behind the uniqueness of each individual snowflake can be found at the very basic molecular shaping of the original frozen cloud droplet. Essentially water molecules arrange themselves around this droplet in a shape that directly corresponds to how each water molecule is arranged at the base of the snowflake. Because the original cloud droplet contains so many water molecules, there are an almost infinite amount of arrangements that these molecules could fall into.

So what makes accumulated cloud droplets “wet” or “dry?” To answer this question, we must delve deeper into the conditions under which the snowflakes were formed. Just like how the cooler the temperature, the more elaborate the shaping of the snowflake, the “dryness” of the snow increases as the temperature decreases. This occurs because the liquid water that is in the atmosphere becomes frozen (attached to existing snowflakes) as the temperature decreases allowing for there to be less bonding between individual snowflakes. Have you ever tried to make a snowman when it’s 5° F outside? The snow doesn’t really stick together, does it? Now, how about when it’s almost 40° F outside? The slightly melted snow compacts and bonds with itself. All this comes from the amount of liquid water in the snow.

There is a question that comes to mind when thinking about water and snow. Why is it that, since snow is made of water, and water is clear, snow appears white? The short answer to this question is that, since snowflakes have so many surfaces that reflect light, they break up a single ray of light into all of its colors, so the human eye sees the color white. It is the same idea as with clouds in the sky and white water in mountain streams. On the other hand, glaciers appear blue because the air that separates the snowflakes is squeezed out and the light that enters the resulting ice gets bent with the red end of the spectrum being absorbed. Thus, the blue wavelengths are reflected back to the eye. Other colors that snow can take on are red, orange or green, depending on the impurities in the snow. Dirt will make the snow appear black or gray and, of course, dogs will make it appear yellow… or maybe it actually is yellow.

Konrad is currently a freshman at the University of North Carolina at Chapel Hill. He continues to put together Peak Performance publications.

“Dry-Land” Training v.s. Cross-Training

By Witold Kosmala
PSIA-E Alpine, Level III

Snowsports is one of these sports whose safety and performance depends on many things: snow conditions, line taken down the hill, surroundings that include others on the hill, weather, visibility, equipment, one’s technical knowledge, mental status, and last but not least: skier’s physical ability. Skiing and riding takes more than many other sports that we do on every-day basis. More prepared we are when we get to the slopes, safer our decent down the hill will be, better execution of our technical knowledge will be, in racing better times will be, in general – more fun we will have. We will
not have to think about hurting muscles and joints. We can use this energy into implementing better technique into our skiing/riding. Being better physically prepared we can take a more difficult line; we can react quicker, more effectively and more efficiently; we can be better skiers and riders; we can navigate down more difficult terrain and deal more effectively with worse snow conditions.

Are we to wait till the hill opens to start our physical training? If we do, then when we get on the snow we will have to deal with more issues all at one time: physical and technical aspects of skiing/riding, instead of only technical. Ask yourself a question: will a football coach tell his team to just sit around and do no preparation until the night before the game; then they can stay up all night if they need to in order to get ready for the game the next day? How about the piano teacher? Will he/she tell a student to just do nothing until the night before the recital, and then start preparations? Did you ever hear a math teacher tell students not to study until the night before the test, and then just cram all the stuff over night? No, and neither will your coach, trainer and conscious mind tell you to just sit around and not get yourself physically ready for the snow. Even if you are on the hill just for fun, you will have more of it when your legs are not hurting and your descent is a safe one.

I strongly encourage you to do all you can to be physically as well fit as possible before the slopes open. Besides, it is fun to workout and it is not too late. (Are water sports still called dry-land?) You will be healthier and feel better when physically fit.

So, what is this cross-training all about? Just another name for dry-land? The answer is – NO. Cross-training in snowsports refers to training in different ways during the snowsports season. It is conditioning on days when we are not on the hill during the winter season. Cross-training is performing physical activities that will strengthen body parts that are neglected when skiing/riding, but will overall improve our performance while on the hill. So, the bottom line is: dry-land occurs before we get on the hill, while cross-training occurs during the season when we are on the hill.

No matter what you call it, live a balanced life!

### Equipment Turns

**Bootfitting: Your Boots, Your Body**

*By Corty Lawrence*

Co-owner of Footloose Sports in Mammoth Lakes, CA

Skiing is balance in motion.

It is an interaction between two large opposing levers-the skier and the skis. The link between the two is the ski boots; they are the most important pieces of equipment you will own.

Ski boots define the skier’s experience.

With this in mind a bootfitter must pursue solutions to fit problems armed with the appropriate tools. Bootfitters need to have a thorough understanding of skiing dynamics, biophysics and most importantly a comprehensive education in biomechanics.

Biomechanics is defined as; “A science that applies the mechanical principles of physics and engineering to the motion, structure and functioning of all living systems, including plants (there’s hope for couch potatoes) and animals”. In short how bodies work.

A bootfitter must also have knowledge of the function and characteristics of ski boots-past and current.

All bodies work the same (exceptions are; past trauma or physical disorders which can be categorized as restrictions); biomechanics applies universally. Even with the many variations of human bodies.

Biomechanics is relevant across the board.

Everyone has a range of motion within which they are most capable of working. Bootfitters must become acquainted with each skier’s range of motion as well as foot shape, volume, bony prominences, etc.
Ski boots are mechanical devices, each with its own design parameters; “last” shape, ankle flex, lateral stiffness, forward lean and ramp angle. When selling ski boots a bootfitter must consider the characteristics of the ski boots being considered and at the same time assign equal importance to the biomechanics of each skier.

With shaped skis all our jobs descriptions changed. There is so much more precision built into current skis that there is even more burden on the ski boots.

It is only recently that boot manufacturers have caught up to the advances in ski technology-building into present ski boots at virtually all levels what was once the domain of race boots. Not all ski boots are “race” performance but much of what makes race boots the precision tool they are has filtered down into mid-range recreational ski boots. This does two things; first the skier gets an advantage as newer boots deliver the energy put into them much more efficiently to the skis and it gives bootfitters much better products to work with.

Ski boots that are more biomechanically correct ensure that the work we bootfitters do will give the skier the comfort, performance and confidence to continue making improvements in technique without struggling with equipment that’s not up to the task.

I am Corty Lawrence, co-owner of Footloose Sports in Mammoth Lakes, California. I have been a professional bootfitter for over 30 years and have skied for more years than I care to remember. I met with Witold and his right leg last season. After his devistating crash on DCL tryouts in spring of 2008, his right leg is totally different from his left. But, he is determined to continue skiing and improving. Correctly fitted boots became his biggest obstacle. Problems like his I relish working on.

Thoughts for the Month

- The ski boot industry talks so much about lateral stiffness of their ski boots, trying to tell the public that that’s what counts in a boot, not the forward stiffness. Can you think as to when you use exclusively lateral movement while skiing?
- Many intermediate skiers have a notion that “Z” shaped turns make them go slower because in more rounded turns one stays in the fall line longer. Is that necessarily true? Can one ski “C” shaped turns slower than “Z” turns?
- Blue is such a fascinating color. Do you like blue? Do you like to get blue ribbons? Do you ever feel blue? Or is that only once in a blue moon? (See the next issue of Peak Performance for our elaborations.

Elaborations on last month’s Thoughts for the Month.

Steeper slope is not necessarily harder. It all depends on the surface of the slope, width, snow conditions, how crowded it is, etc.

Health Course

Again we want to thank Danica Goodman, a videographer, photographer, layout and graphic designer who free-lances for several of the area magazines and newspapers, including All About Women and The Avery Journal-Times, for sharing her knowledge pertaining to nutritional value in fruits and vegetables. This month she shares her color WHITE with us. When I saw bananas and pears on her page I quickly wrote her with a question that I thought obvious: “but bananas look yellow to me, and pears green.” She was very sweet in response without making fun of me: it is the color of the fruit and not the color of the skin that she is talking about. So now being all educated, I thought I would put my kids to a test. At the dinner table I asked about the color of a banana. Right away one of my kids responds with a question: Do you mean color of the fruit itself, or color of the skin?
HEALTH BENEFITS OF
WHITE FRUITS & VEGETABLES

BY DANICA S. GOODMAN

Potatoes, the number one vegetable crop in the world, are a very good source of vitamin C, vitamin B6, copper, potassium, manganese, tryptophan and fiber. Studies have identified 60 different kinds of phytochemicals and vitamins in the skin and flesh of potatoes, including flavonoids, quercetin and kukoamines. Anyone avoiding potatoes because they think they are fattening is missing out the blood pressure lowering potential and cardiovascular protection. Its vitamin B6 is also good for athletic performance and endurance, and normal brain cell and nervous system activity.

Garlic is overflowing with a variety of powerful sulfur-containing compounds, which are responsible for its pungent odor and are the source of its many health-promoting effects, including its anti-inflammatory, antibacterial and antiviral power. Its other nutrients, like vitamins B6 and C, tryptophan, selenium, phosphorous and calcium, also are beneficial for weight control, cardiovascular and cancer protection, and promoting optimum health. It contains manganese, which aids in the formation of connective tissue, bones, blood-clotting factors, and sex hormones, and it plays a role in fat and carbohydrate metabolism, calcium absorption, and blood sugar regulation.

Pears provide a good source of pectin, fiber, vitamin C and E and copper. They also are high in vitamin B-complex and potassium, which is beneficial for the heart and for blood pressure. Pears relieve fever because of their cooling effect, and they aid in digestion, cleanse the body of toxins and boost the immune system. They are good for diabetics because their sweetness is largely supplied by levulose – fruit sugar that is more easily tolerated by diabetics.

A banana supplies 467 mg of potassium, an essential mineral for maintaining normal blood pressure and heart function. Consuming a banana a day may help prevent high blood pressure and protect against atherosclerosis. This fruit is known for its antacid effects, protecting the stomach against ulcers and ulcers damage. It also contains pectin, which can help normalize the movement through the digestive tract and ease constipation. Some additional health benefits include the reduction of depression and stroke risk, building better bones and promoting kidney health.

Onions contain quercetin, flavonoids, chromium, natural probiotics and GPCPs content. Quercetin has anti-inflammatory and anti-tumor properties. Onions also may help reduce symptoms of fatigue, depression and anxiety. Chromium helps cells respond to insulin to decrease glucose and insulin levels, improve glucose tolerance, and decrease cholesterol and triglyceride levels. It also is a natural cure for PMS. A peptide, known as GPCPs, has been found to help maintain healthy bones by inhibiting the activity of osteoclasts – the cells that break down bone.

The cauliflower is a treasure-trove of good things: promotion of liver detoxification due to its sulfur-containing phytonutrients, cell detoxification optimization, protection against rheumatoid arthritis and cardiovascular benefits. Cruciferous vegetables like cauliflower contain compounds that stop enzymes from activating cancer-causing agents in the body. Cauliflower is loaded with vitamins C, K, and B-complex, folate, dietary fiber and other essential nutrients.

Despite their lack in color, the health-promoting effects of white-fleshed fruits and vegetables are not behind their colored relatives. In fact, some of their powerful nutrients are not found in colorful fruits and vegetables.
Turn to Wisdom

- Anger is one letter away from danger.
- You can’t cross the sea, merely by standing and staring at the water.
- The less a snowsport instructor has to say, the more words he uses to say it.

This and That

Should I, or Should I not?

It is always a question – When I am going out on the hill, should I put my helmet on, or not? Many skiers and snowboarders do not use helmets for many reasons, like:

- I know what I am doing
- I do not crash
- I cannot see as good with the helmet on
- It gets in my way
- My students get scared when they see me in one on and they do not have one
- My head gets too hot
- Helmet does not fit well
- It is hard to lift goggles unto my forehead
- Just another thing to keep up with
- When I wear one, I take more chances on the hill thinking that I am protected
- No one will run into me since I ski/ride so well and faster than others
- I am always in control
- I cannot afford one
- Etc

Yes, many of these reasons work for me. Good excuses. Like having seatbelts in the car, or air bag that never was used to save me. Or insurance, which was never needed, at least thus far. But, wearing helmets is not required. It is our choice. Are we willing to take a chance?

With skiing and riding it is a question: When will I get hurt? and not: Will I get hurt? Yes, things can happen in a split of a second. That split of a second can change our lives forever, or perhaps end it. I talked to one patroller on a lift, (not at Sugar Mtn.) He said that the most unpleasant accident he attended to was when someone’s head was split open and the noodles were on the snow. Kind of like when a ripe pumpkin is dropped from 10 feet up, or so.

I am not saying what you should do. I just hope you put some thought into this issue, and choose wisely. For your information, my skiing accident in 2008 changed my life forever, but it had nothing to do with a helmet. Things do happen!

By Witold Kosmala
Strong or Powerful?

Are you a STRONG skier or a POWERFUL skier/rider? Or, is there a difference? **Strength** is simply the ability to lift the weight; **power** is the ability to lift the weight quickly. Performance in snowsports is determined by how fast a muscle can produce a force, and not by how much force the muscle can produce. For example, let’s take a weight lifter and a jumper who weigh the same. The jumper has a very limited amount of time to produce the needed force to jump, only until the feet leave the ground. The weight lifter may be able to produce several hundred pounds of force by the legs, he/she might not be able to produce that force fast enough to use it before his/her feet leave the ground. The overwhelmingly strong legs of a weight lifter might not let him/her jump as far and/or as high as the jumper with weaker legs. In snowsports we want to optimize both: strength and power. Strength for all-day skiing/riding and power for spontaneous moves while navigating down the hill. Look into the next issue of *Peak Performance* for **plyometric** exercises that will help you to achieve your desired power (and strength.)

*By Witold Kosmala*

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So, what is **Indian Summer**?

In our Appalachian Region we often hear people talking about Indian Summer. They refer to an unseasonably warm, dry and calm weather, usually following a period of colder weather or frost in the late autumn. This term is parallel with other Indian phrases, like **Indian giver**, named after North American Indians – who prefer to be called Native Americans. It implies the Indian falsity and untrustworthiness. Indian giver often describes a person who gives a gift (literal or figurative) and later wants it back, or something equivalent in return. It isn’t uncommon, and it could be argued that it is customary, for the conquering race to attempt to justify their invasion by dismissing the conquered as dishonest and stupid.

*By Witold Kosmala*

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**Announcements**

- ASU Ski Team Swap Shop will be held from Nov. 29 – Dec 3 in the Table Rock Ballroom of the ASU Plemmons Student Union, second floor. We will be selling gear, clothing, and accessories that shops from the area bring in (usually last year’s stuff), as well as equipment from reps in the area hopefully. Individuals can bring things in for us to sell for them for a five-dollar hosting fee, and 15% of the sale. Look for raffle prizes.

- Don’t forget that daylight savings time ends on Nov. 7.

- PSIA-E/AASI is offering a number of events in our area, and this season at Sugar as well. Be sure to look at the Schedule of Events at [this link](#) and plan ahead. That does not mean to just put down the dates in your calendar and pay the registration fee. Get yourself ready physically and mentally, and train hard. This way you can get the most out of the event.

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**Marketplace**

- If you are working with kids, or you simply need to get in and out of your ski boots fast, and you want them to be comfortable and of quality, you might be interested in my rear-entry Nordica Gransport Ski Boots in size 28 – 28.5 or 27 – 27.5. I have two pairs for sale and almost new. Asking $299 for the larger boots (Executive, top of the line boot) and $175 for the smaller ones (Deluxe, intermediate level boot). Write me at kosmalaw@bellsouth.net or call at 828-719-6884.