HAPPY NEW YEAR to you all and to all our readers. I hope that 2012 will be the best year you ever had. My recommendation is that we learn from 2011, but not get stuck in the past. Live the present. Smell the roses. Anticipate dynamic future. We can’t be content with where we’ve come from, what is important is where we are going. Are we happy that 2012 is already here? Well, it is here and we all should count our blessings. Every day we have opportunity to make someone else’s day a better day, even if it is by a smile or a handshake. You never know how others are affected by the things you do and the way you do them. Today’s actions will shape your tomorrow. How are you on your New Year’s resolutions? Do they have anything to do with skiing and riding? Do they involve attending any update clinics or joining a professional organization? How about attempting a certification exam? Perhaps your resolutions pertain to reaching out of your comfort zone and learning skiing/riding on a more challenging terrain? Whatever it is, I wish you all the very best in attaining your goals. I hope that you will never hesitate to use all the resources that our Ski and Snowboard School at Sugar Mountain has to offer in order to improve your skiing and riding. It is my hope that Peak Performance will be one of those tools that you will find beneficial in reaching your New Year’s resolutions.

I am so pleased to bring you this issue of Peak Performance, which my son Konrad continues to edit and make look professional. After all, mostly professionals read our publications. Not only did we provide you with a new look, but with even/odd pages as well for double-sided printing. Remember that all previous issues of Peak Performance are also posted and downloadable from my web page found at: www.mathsci.appstate.edu/~wak/. Also, please send all your correspondence to me to: kosmalaw@bellsouth.net. Again, Happy New Year!
Main Course

A Summary of *Ski Technique in a Classroom*, Recently Held at ASU

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

It was a cold and snowy night... and the wind was howling. But for a determined group of ski pros, and other interested parties, it was warm and toasty inside room 302 in Walker Hall, on the campus of Appalachian State University. The event, held on Wednesday, December 7th, was a ski seminar conducted by *Peak Performance* editor Witold Kosmala. The event was entitled “Skiing Technique in a Classroom.” Witold’s e-mail invitation was intriguing: “We will talk about skiing, basically any topic that the group might want,” and listed a wide variety of possible topics. He added that this seminar would be very useful for anyone considering a PSIA exam in the future.

Beginning at 6:30 p.m., the group met to discuss the theories, tactics and practices of skiing. Witold was his usual enthusiastic, engaging, and informative self, and covered a wide range of ski-related topics with an easy-to-understand style. The attendance was really good, especially considering the bad weather.

With his ski boots on his feet (for the entire session, incidentally), Witold demonstrated proper stance, as well as recommendations for improving balance (both stationary and “in motion”). A large carpet foam pad, donated by Abbey Carpet, was placed on the floor, to simulate the soft surface of snow, and of course to protect the floor from the skis and boots as well as to make it less slick.

Proper stance has a “ready” or “home” position with proper angles in legs and back, elbows slightly forward of body and hands wider apart than the body. Think of “hugging a large person, not hugging a tree.” This way your upper body and head will not be as erect and straight like that of a soldier. After demonstrating the home position just standing in his boots on the mat, Witold clicked into his skis and indicated that the stance should remain the same. However, since tails of the skis provide a support, he indicated that skiers often will lean against the backs of their ski boots – a natural tendency of human reaction to slickness of the slope. Witold showed how a space opens in between his boot cuff and his shin if the skier’s body moves into the “back seat.” If there is such a gap, then the stance could be improved by moving forward and closing the gap (should be no gap, ideally – just a nice contact between shin and boot). Another interesting concept was using your finger to push into the muscle in your thigh. If one is in a “sitting back” position, this allows only a little indentation with your finger since his thigh is very tight and supports the whole body, but while moving to a “forward” (relaxed & balanced) stance the thighs become much more relaxed and mushy and allow the finger to be pushed much further into the muscle.

Other stance tips included: (1) Try not to stand with your feet too widely spaced. For a “home position,” try...
thinking about a stance width about the same as the width of a fist held between your knees. This will give you quickness from edge to edge. There is no “stability” sacrificed while in narrower stance, unless you are to ski a downhill race at 60 mph. On the other hand, too narrow stance will make your skis interfere with each other. (2) Your upper body stays relative to the slope from the waist up, and not to trees on the sides of the slope. It needs to be perpendicular to the slope. The steeper the slope, the more scary it may seem. On nearly vertical slopes your chest seems to be just falling straight down the mountain.

Balance was discussed – especially the particulars of lateral versus fore/aft balance. “Reactionary” balance is not considered good (but is better than no balance). “Anticipatory” balance is ideal (for example, develop the skill of “pre-jumping”, rather than letting a bump throw your body around erratically). A functional tension is a good thing. Witold said that if you need to correct your balance just simply by throwing your arms up to your shoulder height and back to home position, it will take you about one-third of a second. In that time you will travel about half of your speed measured in feet. For example, at 20 mph (speed of a slalom skier), it will take about 9 feet to regain balance. If you go about 40 mph (speed of a giant slalom skier), it will take you 18 feet to regain balance, and that is the height of a 2-story house as you are traveling out of control.

Many “props” were used to enhance the ideas presented. An excellent prop to discuss fore/aft balance resulting with proper steering was a shopping cart (legally checked out from manager Chris at a Food Lion grocery store.) The cart was used by Witold to demonstrate the concept that an accurate ski turn is similar to pushing a cart in the normal direction. If pushing the cart backwards, the result is similar to skidding your ski turns. In other words, the turn is very imprecise and erratic. The ski turns too quickly and too abruptly.

Another teaching aid prop was a ski shape cut from cardboard, to show how a ski tracks in a turn, and why it does not truly make a circle, if allowed to turn continuously around. This is because when the ski is edged, the sidecut arc will produce an ever-tightening arc of the ski in the snow, and not a circular arc. There were related topics discussed pertaining to reaction of the ski if the pressure is moved up and down the ski. Also, “sidecut radius” is the newly accepted term to describe what used to be called “turn radius”, with regards to ski design. Witold explained how a ski’s sidecut radius is obtained.

Since dynamic balance of a skier is so very important, movements should be precise and efficient. Body reacts to all movements, even if they are so little. Try flossing kid’s teeth while the kid is wiggling his hands in his pockets and you will see how his head moves from side to side. Also, movement of one body part masses up the movement of another. To illustrate this, Witold asked those present to draw circles on the floor with their foot while drawing a figure 8 with a pen on the paper – practically impossible to do. Muscles also do not like multi-tasking. To demonstrate this, Witold asked two young gentlemen from the audience to jump each over his own thick math book for 30 seconds as quickly as possible. One was to be bend in his waist during his jumping, while the other to be erect. The result was that the person standing erect jumped many more times than the one bend in the waist, whose muscles had to hold him up during his jumping. In addition, fatigue builds over time, so unnecessary moves will tire you out with time. Look at the Appalachian State University Chancellor shaking
hands at a large University gathering. Each handshake takes practically no effort, but do it 10,000 times, his hand is ready to fall off. This translates to skiing, and at the end of the day on your last bump field you will need to decide whether to go 10 bumps at a time or 1 at a time to conserve the dribble of energy you might have left after performing all those unnecessary movements all day long. (You should choose 10. Perhaps alternate with 1 every so often.)

Other topics that were discussed are:

- Whole body moves forward and diagonally into turns.
- What does “up from the snow” really mean?
- What does “vertically” and “perpendicularly” mean?
- “Lights” on shoulders should light the way the center of mass is to go down the slope.
- Platform angle (at most 90 degrees), versus edge angle.
- Steep terrain, similarly to a race course – drive the outside leg’s big toe HARD into the boot’s lower corner and, to decrease the platform angle, firmly lift the little toe of the outside ski to force the shin into the hill.
- What turns the ski?
- Pole planting versus pole touch – look in the direction of the turn.
- Pressure not on the heel, but forward of the heel, if heel pressure is required, like in powder. Never lean back.
- Everything moves simultaneously. Witold demonstrated how knees move together when turning the body on a swivel chair.

In racing Witold talked about:

- How to get out of a starting gate.
- About skating to the first gate.
- “Comma” turns vs. J-turns, about FIS regulations, and partially carved turns.
- Not a wider stance.
- How to get out of a “tuck” position.
- Use pole plant torque exhibited on the body to start your turn BEFORE the gate.
- At the finish, trip clock with HAND, not ski.

Ski design:

- Rocker concept.
- Width of a ski and its sidecut radius.
- Edge angles and tuning.

Boot design:

- New technology of vacuum boots by Fischer, where the entire shell of a boot is molded to an individual, was discussed.

It was emphasized that his event was not a part of the Sugar Mountain Instructor Training Program. Instead, the event was intended to simply bring together folks with diverse skiing abilities and interests, to further their technical knowledge (and to have a good time – and eat cookies).

If you would enjoy attending such an event in the future, let Witold know. Perhaps our Ski School Director, Len Bauer, might wish to make classroom sessions part of our Instructor Training Program. You can share your desires with him. I know I’d love to see the series expanded. It is greatly complementary to traditional “on snow” training (for instructors, racers, patrollers, or recreational).
A Paradox of Skiing
And They are NOT
Witold Kosmala and Mike Simmons

By Gordon Carr
PSIA-E Alpine, Level II

There are several paradoxical statements which apply to skiing performance. Statements which, when told to beginners especially, seem counterintuitive, nonsensical, and just plain ole wrong and stupid. Statements such as: “In order to gain control, you have to let go” (unsaid: of that death grip you have with your toe nails on the snow), “To keep from falling down the mountain, you have to sort of lean down the mountain.”, and “When skiing dynamically, your skis travel faster and further than your body.” Whaat? But my favorite conundrum is, “To be a really good two footed skier, you have to learn to be a good one footed skier!” And when speaking of this I mean either foot at any time. Sean Smith, formerly on the PSIA National Alpine Demonstration Team has said, “A good skier should be able to have a positive selective effect on any skill on either ski at any point in the turn!” For example this would mean the ability to exert enough additional pressure on the uphill edge of the INSIDE ski during the completion of a turn to be able to hop up off the snow and land in the same track and on the uphill edge of the inside ski! (Try this one sometime!) Skiing with and watching the best skier I have ever skied with, Peter Howard, Chairman, PSIA-E Education and Certification Committee, execute the above example and all the other combinations of actions implied in this concept was awe inspiring, and for we mere mortals, a head scratching experience! How in the world does he do that? What Sean Smith’s comment really means is that you should be able to comfortably ski on either ski alone during any point in a turn. Many junior race programs have the youngsters leave one ski at the bottom of a trail and then ski down with just one ski on, and then switch feet and ski down again. It is only by this extreme challenge of skiing with only one ski that you can, with absolute certainty, test your ability to affect all the skills of skiing with either foot during any phase of the turn. And, this test will also quickly illuminate which is your strong leg that has been carrying the bulk of the balance load for a lazy and less strong leg during your normal skiing. If you haven’t done this before, I would suggest you NOT take off one ski totally, but rather just pick up one ski and hold it off the snow during a series of turns. That way, your second, lifted, ski is there as a safety net when you bobble (and you will at first). Although taking one ski off and making a series of turns is the developmental goal, as a training task of self development we need to start a bit more reasonably and also more safely!

This will be a two article series and in this article I will only discuss half of this one-legged skiing gig... the easier of the two... using the dominant, outside ski in turns, alternating left and right leg/foot/ski to make right and left turns respectively. (Which those of you really attentive will see as another reason NOT to leave one ski in each turn exclusively (unless, of course, I’ve been drawn and quartered by some of the gang who tried some of the activities described in this article... my days may be numbered as a contributing author to the Peak Performance.)

Let me paraphrase Sean Smith: The mark of a really good skier is versatility, the ability to affect ANY action (tilting and tipping movements to add or decrease edging, twisting forces to increase or decrease rotational movements, or flexing and extending movements to add to or decrease pressure exerted) with EITHER foot at ANY point in a turn! To expand the full range of movements implied in Sean Smith’s concept: A skier could take a run alternately using the right dominant support leg/foot/ski for left turns and then left dominant support leg/foot/ski for right turns while holding the other “inside the turn” ski off the snow. This is the “normal” pattern of turning except the “inside” ski in each turn is held off the snow. Or, a person could take a run using the left leg/foot/ski (the “inside ski” of a left turn) to make LEFT turns and the right leg/foot/ski (the “inside ski” of right turns) to make RIGHT turns. This is the NOT “normal” way of making turns as the usual “dominant, support ski, the ‘outside’ ski, is held off the snow. This is the really scary, awkward, and humbling way to make turns. Or, a person could just take a run making ALL turns on the LEFT leg/foot/ski, where going right is the comfortable, “Normal” way to make turns but going to the left is the awkward, scary turn. As you can see, there
are a bunch of training combinations to practice when you combine this challenge with emphasis on each of the 5 skill sets selectively applied to the three phases of the turn with each of your skis. (Maybe Witold will figure the number of permutations of this for us.) [Also, for you riders, I am sure there are equally challenging “not normal movement” tasks which develop skills by isolating specific muscle movements, I just don’t know what they are. But you know.]

As I said, this article will only be about the beginning of your one legged skiing journey and I will (try to) explain a progression so that we can build the one legged balance skills in a sensible way. I don’t suggest you take one ski off, leave it in the locker room and then head for Tom Terrific right off the bat. (Although I did know a young feller who took off one ski AND LEFT ONE OF HIS POLES behind and did a gnarly mogul run on a trail longer and steeper than Whoop Dee Doo. He claimed he needed one pole to negotiate lift lines. He came back much later, white, but laughing, saying “That probably was not a good idea!” For any of you Sugarloafers reading this, that feller was Euko.)

For reference purposes I have included Figure 1, at right, to emphasize that all the really interesting, and difficult, things happen in these exercises at the “crossover,” at the Magic Diamond of turn transitions when edges must change whether you are on one ski or two.

The best introduction, and easiest, to one legged skiing is to find a very uncrowded trail, and standing off to one side holding yourself in position with poles, point your downhill ski diagonally across and slightly downhill on the trail. Then when all is clear up slope, pick up your uphill ski and simply ride the sidecut of the downhill ski across the trail to a natural stop. If done successfully, and if the trail is wide enough, you will leave a single arcing line, sort of like a half moon across the trail. Now face the other direction and do the same with the other leg. Initially, it is OK to lightly drag your uphill pole in the snow to “feel” for the snow, but eventually, with practice, you should be doing this just balanced over your downhill ski. One leg and foot will be stronger and more capable of balancing movements and it will be easier to do this exercise on that foot. A hint: equal practice on each leg will likely strengthen each leg equally, so that at the end you will still have one leg performing better than the other one. So practice the weak leg twice as much; or, on a day just practice the weak leg. (It is like pivot slips or hockey stops; you have a dominant leg in these skills and you need to double up the usage of the weak side to strengthen it. My rule is: “Always hockey stop to your weak side UNLESS it is a true emergency stop!”) If after many attempts you are still unable to do this one legged arc across the trail to a stop, you may well have serious alignment or foot bed issues and probably should see a competent boot fitter (that is if you really want to move further along the ability and performance journey.) The wider the slope (and always considering uphill traffic), the further downhill you can point the ski, resulting in a longer ride, a faster ride, and a more challenging test of your balancing skills. Remember, any cross trail exercise like this has to be done on UNCROWDED trails and you must maintain an awareness of traffic!

Having a “spotter” partner decreases risk on this task. If you reference Figure 1 above, this first drill basically creates the arc above the Magic Diamond, continuing on in that arc to a complete stop without edge change.

Now the cheese gets binding or maybe better, the snow gets slicker! Start skiing on a moderate intermediate slope, and standing off to one side holding yourself in position with poles, point your downhill ski diagonally across and slightly downhill on the trail. Then when all is clear up slope, pick up your uphill ski and simply ride the sidecut of the downhill ski across the trail to a natural stop. If done successfully, and if the trail is wide enough, you will leave a single arcing line, sort of like a half moon across the trail. Now face the other direction and do the same with the other leg. Initially, it is OK to lightly drag your uphill pole in the snow to “feel” for the snow, but eventually, with practice, you should be doing this just balanced over your downhill ski. One leg and foot will be stronger and more capable of balancing movements and it will be easier to do this exercise on that foot. A hint: equal practice on each leg will likely strengthen each leg equally, so that at the end you will still have one leg performing better than the other one. So practice the weak leg twice as much; or, on a day just practice the weak leg. (It is like pivot slips or hockey stops; you have a dominant leg in these skills and you need to double up the usage of the weak side to strengthen it. My rule is: “Always hockey stop to your weak side UNLESS it is a true emergency stop!”) If after many attempts you are still unable to do this one legged arc across the trail to a stop, you may well have serious alignment or foot bed issues and probably should see a competent boot fitter (that is if you really want to move further along the ability and performance journey.) The wider the slope (and always considering uphill traffic), the further downhill you can point the ski, resulting in a longer ride, a faster ride, and a more challenging test of your balancing skills. Remember, any cross trail exercise like this has to be done on UNCROWDED trails and you must maintain an awareness of traffic!

Having a “spotter” partner decreases risk on this task. If you reference Figure 1 above, this first drill basically creates the arc above the Magic Diamond, continuing on in that arc to a complete stop without edge change.

Now to the Drill: some call it Tip Down/Tail Up turns, others call it Bellows turns because of its visual similarity to pumping blacksmith bellows with your skis alternately. Start skiing smoothly and reasonably slowly using...
rounded “C” shaped turns to maintain your speed. Then after a several turns, as you approach the Magic Diamond and, for example, the maximum pressure has built in your Right Leg as you have completed the Left Turn, simply pick up the Tail of your Right Ski while maintaining snow contact with the Tip of the Right Ski. What will happen? First, the support of your weight will shift instantly to your Left Leg/Foot/Ski, and your body (the center of mass) will continuing on its path down the slope resulting in an almost instant change in edge of the “old uphill ski” which is now the new support ski, the new outside ski, the new soon to be downhill ski and a high, early edge change turn to the Right commences. As this turn progresses, trust your Left ski to turn, and especially trust the turn shape to control your speed if you just stick with it. As you approach the Magic Diamond on this Right Turn, with pressure building in your Left Support Leg/Foot/Ski, lower the Right ski tail to full snow contact, then pick up just the Tail of the Left Ski, and the balance support almost instantly transfers to your Right Leg/Foot/Ski and a high early edge change turn to the left will begin and then on down the hill alternating which ski tail is off the snow at the Magic Diamond. Most folks spook the first time when the single ski points down the fall line and speed increases, but trust your ski to continue turning and let the turn develop long enough to bring your speed back into your comfort zone. Hark back to the “riding the sidecut across the trail to a stop” exercise and realize that a turn on ANY slope (if wide enough), no matter how steep if held long enough will bring you to a stop. Gravity just loses its juice as you come out of the fall line.

I have most frequently used this latter drill, with the “ride the side cut…” as an introduction, in Intermediate level classes to help them over the “Intermediate’s Plateau.” The single most critical hurdle for intermediates to conquer, which keeps them “intermediates,” is to initiate their turns with simultaneous edge changes with BOTH skis! They must break the dreaded rotational “stem” of the uphill ski to initiate turns. That stem can be obvious as in a wedge Christie turn or be ever so slight and subtle, if there is it prohibitive the simultaneous edge change of both skis at turn transition resulting in a stepping, 1 – 2, turn. And, boy, does this exercise ever break that stemming! When you pick up the tail of the “old” downhill ski with the old support leg and foot, your weight (and balance) instantly shifts to the New Support and soon to be Downhill ski (the old uphill ski) at the Magic Diamond. And you CAN’T stem or wedge the ski as all your weight is on that ski. This exercise is a really good self test to see if you are silently and subtly “Stemming a Ski” to initiate turns… if you are, even just slightly this Tip Down/Tail Up drill is a really humbling experience… it feels awkward and maybe is not even possible to do. Rest easy… I have had very very few intermediates who, during the course of a 1 ½ hour class, couldn’t get the basics down. Most go from “Are you kidding me? Have you lost your mind? I can’t do that!” to big grins and giggles of pleasure and surprise at their accomplishment. So it breaks the “stem habit,” but it is in the domain of one legged balance training that this drill really comes into its own. I have been in more than a few training sessions of an hour or more when several runs of 3000’ vertical each were performed entirely with Tip Down/Tail Up turns. What a wonderful confidence boost it is to then keep both skis on the snow!

Of course you see where this is going… just as you really get comfortable with Tip Down/Tail Up turns and can go from the top of Big Red to the lift, then we’ll kick it up a notch. Now as you pick up the tail of the old support, outside, downhill ski, pronate that foot slightly so that only the “outer” edge of the tip touches the snow. This will ultimately be the half of the tip of the ski shovel which will be most inside the developing turn. It will be the left half of the left ski shovel on LEFT turns and the right half of the right ski shovel on Right turns. This will tighten up the turns and make the drill more dynamic by drawing your center of mass down the fall line more positively.

What else does this exercise do? It begins to develop muscle habits conducive to keeping the “inside foot” of a turn back under your hip, something which is very critical to minimizing “lead change.” It is very hard to touch just the tip of your ski to the snow if that foot (and ski) is out in front of you. All this is very hard to write about or explain… it is visual and “Do” stuff and very easy to demonstrate while on the snow…anybody interested in exploring this further catch me during a run and I’d be happy to demonstrate. What else?… it is also self correcting in keeping the Old Uphill foot back with the ankle flexed. This is the previous few sentences said from a different perspective. If you tend to over rotate your upper body during turns or if excessive lead change has occurred on the previous turn then frequently your inside foot and ski will have scooted too far out in front. Then when you pick up the tail of the other ski (if you even can), you will be so far back on your heel and “in the back seat” that likely you’ll fall on your back seat! So to avoid having your ankle “open up” and to keep that inside
ankle flexed to keep the foot and ski back under your CM during turns, Tip Down/Tail Up drills almost “force” that. What else?... When 100% of your weight is on the only ski on the snow, it is very very hard to twist that ski to skid and scrub speed with skidded turns. Therefore, you learn to trust your ski to turn and trust the turn, when held long enough, to control your speed. Once turn shape is ingrained as the preferred method of speed control, then skidding and slipping your turns becomes a conscious decision for alternate, tactical speed control.

Once Tip Down/Tail Up turns are comfortable additions to your skill quiver, then you can selectively begin to vary the specific skill focus during practice runs. The next step in the progressions is to just lift the inside ski of the turns off the snow completely. Again, initially it is OK to lightly touch the snow with the inside pole to “feel for” the snow, but not to use it to hold yourself up. Other more elaborate progressions can be practiced once you are comfortable with only one ski touching snow.

Remember this isn’t the way to ski; these are simply developmental drills to isolate especially balance skills and to develop bulletproof balance symmetry in both legs. These have been the easier of the two balancing challenge drills! Next month I’ll submit an article discussing a progression leading to comfort skiing with the ski typically inside the turn as the only ski on the snow. So if you get a chance, practice this easier challenge. I think you’ll find you can do these drills and only your mental reservations have been keeping you from even trying one legged skiing. Try one legged drills… you’ll be a better two footed skier as a consequence!

MORE NEXT MONTH

Sidecut Radius and Torsional Stiffness

By Witold Kosmala
PSIA-E Alpine, Level III

All of today’s skis look like an “hourglass,” of course some more than others. Skis are wider at the tip and tail then in their waist. These measurements, given in centimeters, are stamped on the top sheet of the skis. Thus, skis have their sides “cut into,” creating so called “sidecut.” Every ski on the market comes with a specified “sidecut radius,” which is often stamped on top of the ski as well. (Sidecut radius was previously called the turn radius, which was somewhat a misleading term since a ski never performed a turn with the indicated radius.) To determine the sidecut radius of a ski you first must find two points on the side of the ski where a straight edge touches the ski. Call those points A and B. Then you put the ski on a flat surface, perhaps on a pavement of a parking lot, and trace along the side of the ski connecting the points A and B. The resulting arc drawn on the pavement is usually not an arc of a circle, but using mathematical procedures one can fit a circular arc pretty closely to the drawn arc. The radius of this best-fitted portion of the circle to the drawn arc is called the sidecut radius and it is always given in meters. It is the radius of the largest (superficial) circle that the ski “could” possibly make. In fact, it is superficial because a flat ski cannot make an arc. But, if you tip the ski on its edge even a tiny bit and pressure the ski to the pavement so all the points between A and B touch the pavement, then you can physically move it along an arc. Most likely this arc will not be circular, so you will not come back to the original spot after 360 degree rotation. Besides, the arc will change depending on where you apply the pressure on the ski. There is more to this: if you take another ski of the same dimensions, but different length, the sidecut radius will be different. Sidecut of a longer ski will create a larger circle, so radius will be larger. Shorter ski will result in a smaller sidecut radius.

Next, on a flat surface, let’s tip the ski on its edge a little bit and apply pressure to its top sheet at its waist (the narrowest place of the ski) at an angle of 90 degrees to the ski. This pressure will “decamber” the ski. Let the force be big enough so that ski decambers until it is touching the flat surface all along its edge. Note that the tip and the tail pressure the surface more than the place where you are applying pressure (the waist,) and the tip and the tail do not form as big of an angle with the surface as the “middle” of the ski does. This has something to do with the torsional tension. The stiffer torsionally the ski, the closer the angle at the tip and tail will be to that at the center. Usually skis for more advanced skiers will be stiffer torsionally, they will not “twist” as easily. This
will give skiers a better edge grip all along the edged ski. Beginning skiers should ski on skis that are torsionally less stiff. That means that if they were to stand sideways on a steeper terrain, only ski under their foot would dig into the snow and the ski at its tip and tail would be somewhat flatter on the snow. The softer torsionally the ski, the easier it is to ski it on a beginner slope. Those skis go nicely from one turn to the other if the slope is relatively flat and forces are limited. Beginner skier cannot ski a torsionally stiffer ski as easily since the stiffer ski calls for more dynamic type of skiing, which beginner does not possess. A stiffer ski will pop from one turn to the next too abruptly for a beginner skier. It is recommended that a ski instructor takes a few runs on beginner skis just to see those skis’ limitations as well as their advantages.

Now that we know about the torsional flexion, we can see that the arc of the tipped ski is not circular since the tip and the tail are a little flatter on the snow than the waist. The tail of a ski is usually less wide than its tip, allowing easier ski release in the transition because the tail does not pressure the snow as much as the tip does. The more the ski is tipped and pressured, the more it will decamber and the smaller turn it will make. Again, those turns will not be circular if taken all the way around, that is: 360 degrees. But, the portion of an arc that the skier will take on a tipped ski can be fitted to a circle whose radius will determine the size of the turning arc of the tipped and decambered ski. Observe that more you tip the ski on its side, more force it will take to decamber the ski all the way until it touches the flat surface with its entire edge. Finally it will come to a point at which it will be physically impossible to decamber the ski so much that it will touch the surface with its entire edge. And of course, if you put the ski at 90 degrees to the surface, there will be no way for the waist to touch the surface. All this means that every ski has also its minimum sidecut turn radius, and more, skis with waist much thinner than their tips and tails are not appropriate for skiing on steep terrain.

More, if the pressure on the ski is more forward than in its waist, the ski will turn sharper, creating a smaller turn radius. If the pressure is further back, then the turn radius will be larger. Therefore, a skier can manipulate the pressure on the ski in order to achieve the desired outcome, that is, tighter or less tight portions of any one turn. This is even enhanced in the skis that have tails little narrower then the tips. Manufacturers say that these skis have a progressive sidecut. The narrower tails also provide a skier with easier edge release in the turn transition.

Health Course

Drink to Skiing and Riding!!!

By Witold Kosmala
PSIA-E Alpine, Level III

Drink to skiing, drink to riding, drink to health, drink on the job! No, not alcohol. Why are we all so one-track minded? Drinking does not only mean alcohol, why is it usually assumed to be and/or implied? “Don’t drink and drive” is a common phrase, which sure implies drinking alcohol. I know that in many countries around the world a drinking toast, a cheer, has something to do with health or with long life. Here I do not wish to talk about drinking alcohol, especially on a job, (that is topic for another day, month, year.) I want to talk about drinking what truly brings health and long life – WATER. No, not coffee, tea, sports drink, soft drinks, beer, etc. – just plain old water. Did you know that...

- a muscle consists of 75% water?
- brain consists of 90% water?
- a bone consists of 22% water?
- blood consists of 83% water?

That is, human body is on the average 75% water. Also, did you know that water...
• provides you with energy and mental sharpness?
• speeds up recovery from injuries?
• transports nutrients and oxygen into cells?
• moisturizes the air in lungs?
• helps with metabolism?
• protects our vital organs?
• helps our organs to absorb nutrients better?
• regulates body temperature?
• detoxifies?
• protects and moisturizes our joints?
• reduces skin wrinkling?
• reduces skin cracking?
• reduces dry lips and dry eyes?
• boosts your immune system?

Did you know that most people are at a chronic state of dehydration? Dehydration causes...

• bad mood.
• poor productivity.
• migraine headaches and irritation.
• constipation and dark urine.
• bad breath.
• muscle cramps.
• irregular blood pressure.
• kidney problems, like kidney stones.
• health problems, including cancer of bladder, breast, colon and kidney.
• dry skin.
• slow reaction, poor concentration and fatigue.
• weight gain because body thinks that it is hungry instead of thirsty.
• death if 20% of water is lost from the body.

The research shows that for every 1% of water weight that we lose, our work performance or exercise goes down 10%. If we lose 2% of our water weight, our capacity goes down by 20%. So, if you weigh 160 pounds, then you are made up of 120 pounds of water since you are roughly 75% water. So, if you lose 1.2 pounds of water (which is very easy to do), your physical activity gets 10% worse. As you can see, a little dehydration leads to big loss in ability to perform.

Researchers say, if you are thirsty, then you are already dehydrated. We loose water with every breath we take. Here, get in front of a mirror and exhale. Don't you see fog? It is made from water that you just lost. How about perspiration? Do you ever use a restroom? Don’t you leave water behind? Do you eat? What do you think plays major role in digestion? Pregnancy and access salt that is often found in fast foods & snacks draws water out of our bodies. The same goes for drinking alcohol, where the hangover and headache in the morning is caused by dehydration (More on this at another time.). All this water somehow needs to be replenished. So, how much water should a person drink per day to stay hydrated? It all depends on an individual, but usually the weight of a person determines the amount of water to be consumed. On the average, one should drink half of their body weight measured in pounds to be the amount of water in ounces. For example, if you weigh 160 pounds, then you should drink 80 ounces of water in one day. That means 4 of 20-oz water bottles, which should be evenly spaced throughout the day. Now, of course, if you add elevation, dry air conditions, perspiration, deep breathing, urinating, sickness and/or diarrhea, you will need to increase the amount of water intake. All this is not counting exercise. If you exercise, you need to start drinking before the exercise begins and drink as much extra water as the amount of weight you lose during the exercise.

So, where does that put us as instructors? Well, we instructors simply do not drink enough water on the job. We can go through hours of lessons and not have even one swallow of water. This is not good. Remember that our Director often asks if we are ready to take the next lesson. If you feel that you need to drink some water, just tell him. Your new lesson can wait. Of course, a question is, where do you put your water bottle? We should not line
the slopes with them, so if you simply cannot run up the stairs to our room for the 100th time that day, ask our Director, Len what to do with your bottle. Remember, your health is important. If you drop, you will not teach your guests well. I am sure that Sugar Mountain’s administration will want you to be hydrated. But, don’t use bottles that look like they could hold alcohol when drinking on the job. Guests might not know it is only water, nor your employer. There are a number of water backpacks available for carrying water instead of water bottles. Most commonly known are CamelBak products made by an outdoors equipment company known primarily for its hydration products. So, drink to LIFE!

**Turn to Wisdom**

- Do not resent growing old. Many are denied the privilege.
- The man that had no shoes thought his life was over until he saw a man with no feet.
- The best way to make a difference in the world is to start by making a difference in your own life.
- There are three things that are important in human life. The first is to be kind. The second is to be kind. The third is to be kind.
- To live your life to fullest, start taking more risks and doing the things you fear. Get good at being uncomfortable and stop walking the path of least resistance.

**Thoughts for the Month**

- In snow sports, what is the difference between pivoting and steering?
- Does steering depend on edging, or does edging depend on steering, or are they independent of one another?
- Should you, or should you not lick your lips to moisturize them?
- What is skier’s/rider’s “vertigo?”

Elaborations on last month’s **Thoughts for the Month**.

**OK, so now you are on snow all clicked into your skis and ready to go. What is your first move? (It is very important since your second move depends on your first.)**

**Answer.** Move your whole body in the direction of desired travel, either before you move the ski or at the same as your ski. Avoid moving skis down the hill before you move your body because slick snow will help them run away from you.

**Is it important what your head and arms are doing when skiing, or is it all in your feet?**

**Answer.** Head and arm movements most definitely effect one’s skiing. Usually the body will move in the direction in which the arms and shoulders are pointing. Very often the body will follow the direction in which the head points as well. You can practice independence of head movements while riding a bicycle on a white line along the edge of a road.

**Announcements**

- In the previous issue of *Peak Performance* we presented you with an interview with Bob Muran. Now you can meet him in person. More, you can ski with him. I encourage you to take that opportunity. Read the advertisement on the next page.
25thシーズン
スキーとBob (Maciek) Muran
ASPEN
March 10 – 17, 2012
www.skiwithbob.com

SKI ASPEN WITH BOB MURAN!

Back by popular demand I’m happy to report we are moving the date to the middle of March to be sure the powder is fluffier than ever.

Aspen is one of the world’s best-known resorts, boasting four ski areas, three separate resort developments and a glitzy reputation. The famous ski town was a busy 19th-century silver mining district 130 years ago. Today the entire area has recently completed a multi-billion dollar redevelopment. The main resort of Aspen town has several faces. It has become synonymous with offering some of the best Alpine life in the world , as well as being home to some of the world’s most opulent and expensive properties, as well as a local airport full of private jets. However, we have assembled a deal for you to enjoy the superb skiing, which includes the biggest lift-served vertical in the USA, and a buzzing nightlife! Don’t miss out – BOOK early please. Limited Space. A $250 deposit per person is required. Check out photos from last year’s Aspen Extravaganza with Bob Muran” by visiting www.skiwithbob.com. Please complete the attached sign-up form.

Gant Condo

PACKAGE INCLUDES:
• March 10, 2012  8 Days – 7 Nights – 6 Day lifts
• 2 for 1 ski / board tune ups @ any Ski’s N Bikes in Ontario.
• Combined value of approx $160.00
• Discount on airport parking @ Pearson
• Return Bus transfer to resort and back from Denver approx 4 hours.
• Resort fees, HST, GST, PST, lodging taxes are extra where applicable and shown right
• 6 day lift ticket
• Professional training and Video review with Bob Muran – CSIA PSIA CSCF
• 60 minute Hotel Welcome Party with free drinks. Use of fitness facilities @ The Gant including 3 hot tubs and 2 swimming pools
• 7 nights fully equipped 2 Bedroom Condos Deluxe with 2 bathrooms, very large living room with 2 couches and balcony overlooking the Mountains. Free Private Shuttle Service to Aspen Mountain Condos (5 Minutes) Free Shuttle service to Buttermilk Mountain and Snowmass. Free Private Shuttle Service to Shops, Restaurants and Bars or its 10 minutes walk.
• Most accommodating service staff. This is the most incredible Condo Complex in Aspen with Fantastic amenities.

ASPEN MASS

Our home for the week is the famous 4.5 star – Gant Condo complex. Experience the Service of an Aspen Hotel and the Privacy of a Vacation Home/Boasting the finest Aspen condos, The Gant offers our group tastefully decorated luxury condos situated in a great location. Some of the luxury amenities are, wood burning fireplaces, private patio or balcony fully equipped kitchen, luxurious linens, down pillows and blankets, high-speed wireless Internet access and cable television with HBO, DVDr/CD.

Prices: Per person – The Gant in Aspen
3 in 2 bedroom condo $1516 + $169.05 taxes
4 in 2 bedroom condo $1369+ $144.05 taxes
5 in 2 bedroom condo $1269 + $129.30 taxes
each in CDN $

Insurance for cancellation and excess medical while away with RBC is optional on an individual basis. Please inquire for rates. Premium must be paid @ time of deposit with date of birth provided.

Ultimate Ski Vacations can book you the best available flight and RBC peace of Mind Travel Insurance. Please contact Michelle Poirier at 416-368-8322 ext. 4375/ 1-800-268-5940 or michelle.poirier@invnt.ca to book your flights and insurance.

To reserve your spot contact
Bob (Maciek) Muran 416.999.1138
rmuran@rogers.com www.skiwithbob.com

Peak Performance
Funny Turn

DISINTEGRATING SKI BOOTS

Some (long) time ago, I went skiing to Steamboat Springs, Colorado. I was skiing in my favorite, though almost 10 years old, Kastinger boots. That day clouds hung low in the valley and most skiers apparently thought it was especially bad higher up so they stayed low. Well, I went high and all of a sudden I was above the clouds skiing on pristine corduroy with no one around. Going fast I took a natural jump, got a lot of air, landed and … wiped out. It was a spectacular crash but nothing seemed to hurt. I got up and tried to collect my gear but it felt funny and strange to walk. I looked down and only then did I realize my right boot was like a slipper: it was missing the entire sole, which was still clicked in the binding of the ski lying on the snow.

By Andrzej Kosmala, Mammoth Mtn., CA

YOU KNOW YOU’RE A SKI OR BOARD INSTRUCTOR WHEN...

• you HAVE to do at least one run at the end of each day just so you remember what its like to ride with two feet strapped in.
• you’re watching a kid come down the hill and you think to yourself “that kids gonna fall in 3...2...1” and they actually do.
• you can’t wait for Saturday morning when you get up at 5:00 a.m. and drive 120 miles through a blizzard to get to the 8:30 session on time, and then arrive at each line-up only to be told there are no lessons for you (no pay) and then you drive the 120 miles home again through the same blizzard and repeat the process again on Sunday. (You do it because it’s the best job in the world.)
• your favorite quote is: “I’m 3 but my mommy told me to say I was 4.”
• you have skied 3km down a hill in a backwards snowplow supporting a 12 year old kid who weighs at least the same as you with your poles held horizontally.
• you scrape your ski/board on a rock and life feels as if it is about to end.

Mike Hicks, thank you for amusing us with these statements. We can all relate to them. Mike was a ski instructor at Whitetail Resort, PA now for 20 years and going strong. He is an awesome skier and a wonderful person. Mike is a PSIA Alpine, Level III certified trainer for his ski school.

SUGAR BEAR...

For real. Wondering why a 500 pound black bear decided to walk down a busy ski slope at 3:00 pm... then it decided to walk towards ski school... maybe for a ski lesson?

By Wendy Snider