From the Top

By Witold Kosmala
PSIA-E Alpine, Level III
K2 Ambassador

OK, put away all the red and pull out the green. St. Patrick’s Day is around the corner. Yes, March is here, and that means: spring ski/snowboard trips, ski/snowboard clinics up north, and of course, certification exams. There is also skiing in distant places, like Alaska and Southern Hemisphere. Some of us go there regularly. Ask Mike Simmons who goes to Chile every “summer.” Also look at Chris Anthony’s web page. He organizes such trips. In fact, he is sharing some of his knowledge and spectacular pictures with us in this very publication. Just flip through the pages. No, skiing and riding is not over for many of us just yet, and perhaps not over ever, ever. And, if you lived in the High Country of North Carolina for any length of time, you may very well know that heavy snows often do occur in March. So, keep those boards waxed and tuned and turning. In fact, spring on the hill presents many of its own challenges. I hope that this issue of Peak Performance will help you in your spring technique and inspire you all the way to the end of the season. Harald Harb was very kind to throw in for us a few key words, which lead to perfection. Just do what he says in his article and your skiing will move up to the next level.

March and green have special meanings to me personally. On March 4 of this year, I am celebrating 4 years of my new life following my life-threatening skiing accident. Green means “life” to me. On that 4th of March 4 years ago, my life has drastically slowed down — almost stopped. It was going at such a fast pace, even when I crashed, that things blurred together. Now, it is different. Every move I make is a move that my body registers with either pain or some sort of a discomfort and restriction. Nothing goes unnoticed. Every step I make, every pedal rotation on my bicycle, every slope irregularity when skiing, every time I get in and out of the car, every time I bend down, every time I kick even when in the water, every time I do anything at all my body tells me, with more or less discomfort, that I am in fact doing things it does not really want to do.
But, mind is stronger than the body. My message to you is: slow down and “smell the roses.” Take time to breathe and to live. Make the most out of your life NOW; don’t wait till tomorrow. Enjoy the God-given world and the time, and try leaving it better than you initially found it. Live by example and be joyful when the next day comes.

April will be our last issue of *Peak Performance* until July, so if you would like to share your stories with others you need to write me soon. Or, if you would like to thin out your closet, we can put your items in our Marketplace section. Write me with your comments and ideas and anything else at all to kosmalaw@bellsouth.net. Also, don’t forget that all the local shops have winter items on sale. This maybe a great time to pick up stuff you need for the next season or put a deposit on your new equipment. My son Konrad is still making these publications appear professional, and special thanks goes to him. You might wish to flip through our previous issues of *Peak Performance* and see how they changed. Perhaps you will find something of interest in the previous issues. They are posted and downloadable from my web page found at www.mathsci.appstate.edu/~wak/.

Again, Happy St. Patrick’s Day to you all!

**Main Course**

**Dawn Patrol**

*Eric Marland, a former ski patroller in TN, WV, and UT, wrote this poem for his brother Scott. Scott is the current Assistant National Chair of the National Ski Patrol and patrols at Brighton Resort in UT. The poem speaks of Scott's early morning weekday runs before heading to work as an engineer. He and his friends call it “The Dawn Patrol”.*

The cold darkness surrounds the heavily breathing troop  
Slowly inching foot by foot  
Small whispers of light  
A looming shadow in the dark above  
The morning begins in silence in a half-awake stupor  
A price is paid for glory  
The body moves without feedback  
The movements are hard wired  
Now halfway up, a short break for steaming coffee  
Yesterday’s bagel slowly disappears  
The party moves on  
Not a word has been spoken  
The freezing temperatures are turned back by sweat  
The air is getting thin  
The troop spreads out by instinct  
The slope gets steeper  
A thinning air and a heavy load makes progress slow  
A heavy awkward pack  
Flimsy poles for balance  
No time for rest  
A pale glow appears over the crest as the summit nears  
A skipped beat and a deep breath  
The pace picks up  
And the summit reached
A toast for the rising sun and the packs unloaded
A tear freezes on an unshaven cheek
A smile spreads across the peak
The first words of the new day
A watch is checked and there is not much time
A meeting at nine
A tie approaches
But not yet
A cornice, a chute, a quivering glade
A spray of snow
Adrenaline soars
At a desk by eight
Welcome to the Dawn Patrol!

Trees and Steeps at Mad River Glen

By Jim Hanson
PSIA-E Alpine, Level III

A farmer’s prized mule was not responding to any directions given by the farmer. So the farmer hires a nationally renowned trainer to help him with his mule. The trainer arrives carrying only a long leather case. The trainer approaches the mule and whispers in his ear to follow him out of the barn. The mule does not move. The trainer again approaches the mule and whispers in his ear to follow him out of the barn. The mule still does not move. The trainer then goes over to his case, opens it, and removes a beautifully decorated and detailed 2x4 with a tapered handle wrapped in leather. He approaches the mule, hits him square between the eyes with the 2x4, and drops the mule to its knees. As the mule gets back up the trainer again whispers for the mule to follow him out of the barn. This time the mule follows. Upon seeing this, the farmer asks the trainer why he hit his prized mule with a 2x4? The trainer responded, “sometimes you just need to get their attention.”

This story was the first one that came to mind as I was participating in my latest PSIA event, Trees and Steeps, at Mad River Glen. At that moment I began picturing myself as both the farmer and the mule. I had joined (hired) a group lead by Terry Barbour (a nationally renowned “Trainer”), and envisioned his 2x4 to be the beautifully decorated and detailed Mad River Glen Ski area. When deciding to take on this challenge, my wife seemed to ponder why I was not attending “senior events”. However, coming off of the flat lands and open terrains of Western New York and Northeastern Pennsylvania, I felt this was one prodigious event that I needed to check off my bucket list.

I have attended clinics with Terry in the past, but this time I was in his territory. Both Terry and his wife Tange were gracious hosts, sharing their favorite stashes of great spring skiing. Mad River provided an “au natural” assortment of bumps, jumps, chutes, trees, frozen waterfalls, cliffs, steeps, rocks, bare spots, and great natural snow. Terry was precise with his directions, and in utilizing the skills needed to ski the mountain. He also utilized the mountain in another way, crafting it to be his 2x4. This manner certainly got our attention and helped to drastically reinforce his directions. It came as no surprise to us that these directions not only reflected the same skill development we all continued to work on, but that we needed to modify to the mountain environment itself. Skiing in this environment required the exploration and range of skiing movements.

Terry emphasized that a balanced stance stacked over our skis was required. We needed to be able to hold our

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position in relationship to our skis, whether on the snow, in the air (small cliff drops), or over frozen waterfalls. You did not want your skis out from under your body. The first drop was the 2x4 to reinforce stance. Leaning too far forward would cause you to face plant, too far back would lead to a butt plant, and off to either side, you hip check.

His guidance on edge control was to minimize the degree of edge utilized, allowing skidded turns both for speed control and for the ability to quickly turn your skis. The path down Paradise was the 2x4 used to reinforce this point. This was not a racecourse with evenly spaced gates to carve around with a high edge angle; we were in a mountain playground with unevenly spaced trees, rocks, narrow paths, and deep snow. (First note to self; need bigger baskets for deep snow). Bracing against the mountain resulted in too much edge; longer radius turns, and increased speeds.

Terry reminded us that turn shape was needed for survival, as well as speed control. I gained far more empathy for the lower level skiers we continually ask to complete their turns back up the hill, as I struggled to do so on the long bump run of Chute, and the drops under the famous single chair on Lift Line. Leg steering while keeping the upper body focused down the hill was needed. Utilizing effective pole swings and touches helped to stabilize the upper body and create stability for my legs to turn against.

Pressure control movements of flexion and extension needed to remain fairly neutral. We were never going to beat the mountain, and if we stood too tall, (extension) the mountain would push us away. If we were too flexed, we would bottom out and no longer be able to absorb what the mountain had to give. Being neutral also allowed us to be in a position to make hop turns (Terry’s Signature Movement) where necessary. Octo was the enforcer for this skill.

I would like to give Special Thanks to the following: My wife for allowing me to attend Trees and Steeps, my companions from Sno Mountain for suggesting we do this event, and the Mad River Glen Ski Area and CO-OP for supporting PSIA and it’s instructors.

(Second note to self, put “Return to Mad River Glen” back on the bucket list.)

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**Spring Skiing**

*By Witold Kosmala*

*PSIA-E Alpine, Level III*

Spring skiing is like no other. Days are longer and sun is stronger. We are more fit and hate to see the end of the season getting closer. So we are out there turning those boards under us as if the world was going to end any moment. But, approaching spring skiing may not be as easy as it may sound. The snow conditions may change drastically from moment to moment. In the morning you can encounter frozen icy surface which can change quickly to the best snow on earth, just to become moments later soft like mashed potatoes and later yet very soupy. Skiing ice as well as the soft and heavy snow takes skill that you need to develop now. Don’t wait.

In fact, there are similarities and differences in free-skiing both, ice and soft, mushy stuff. The biggest difference is in your stance. Icy conditions call for a wider stance, but similar weight distribution between the skis – about 60/40, (that is 60% of the weight is on the outside ski and 40% on the inside ski.) Ice we experience often through the season, so let’s concentrate on talking about skiing soft, wet, heavy snow. First, we comment on some tactics that will make your skiing seem effortless.

- Look ahead and anticipate.
- Use functional tension religiously.
- Look for changes in snow color. Snow that is transparent (less white) usually has a large water content. It is soupy. It will make your skis drag.
- If you go from shade to sun, anticipate sticky snow.
- If you go from sunny to shady conditions, anticipate acceleration.

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• Expect firm surface (maybe even a rock or two) between the humps of mashed potatoes.
• Use warm wax. Also, heavy skis go through heavy snow better than the light ones, and they don’t get knocked around as much.
• Start your run straight down the fall line so the first turn is actually only half a turn. Remember that momentum is your friend.
• Don’t over-steer. But, remember that heavy snow will not slow you down as much as powder will, unless it is a wet and sticky snow.
• Some snow textures will slow you down more than others. For instance, corn snow, that is a wet snow that has gone through repeated melt-freeze cycles, will not slow you down much.
• Carry everything down the hill, but don’t get hung in the turn initiation when the body already went down the hill and your feet got stuck uphill behind you. To remedy this situation, instead of making a head plant, hop out of the snow and pivot skis to point them straight down the hill.

Skiing in heavy snow involves technique similar to that in skiing powder. Stance needs to be relatively narrow with weight distribution 60/40 or so. The weight should be right in front of the heel and shins should be pressed against the boot cuffs at all times. It is important that tails of the skis follow the tips. There should be very little skidding and no pushing around. Turns should be clean. Concentrate on the beginnings of your turns because the bottom of your turn depends on its top. You want your turns to be very rounded with shape of an “S.” You can try forming “C” shape turns if the pitch is big but snow is not deep. To be successful with forming nice rounded turns you need to have early edge engagement and your body needs to travel a straighter line than your skis.

Here are a few exercises that will help with early edge engagement. If moving slowly, new edges should be engaged in the apex of a turn. If you are moving dynamically (not necessarily quickly dropping elevation), new edges should be engaged right after transition as the new turn just begins. (Often you might hear slalom racers talking about moving quickly from edge to edge.)

• Connect two “C” shaped turns with a traverse on FLAT skis, that is, not edged.
• Practice “leapers” and “hop to shape” drills.
• Practice tuck turns.
• Try spraying snow directly to the side of the slope when you are in the turn’s belly. Try to progressively spray the snow earlier and earlier in the turn.
• Show the bottoms of your skis to imaginary spectators lining the sides of the slope. See if you can show the bottoms of your skis to spectators on top of the slope.
• Along the same lines as above, try showing skis’ graphics (that is, the tops of your skis) to the spectators on the bottom of the slope.
• Push skis back with your feet right at or just after transition.
• Do inclination and exhibit a “strong inside half” on the beginning of each turn.
• Start your turns with the future inside ski.
• Practice 1000 steps making sure that right turn begins with right foot stepping to the right and left turn begins with left foot stepping to the left.
• Practice “bow-ties” with your feet as well as drawing half moons.
• Always counter-rotate your body, but the amount will vary according to size of the turn.
• Do pole plants on every turn.
• Don’t over-steer the skis.
• Move your hips inside the turn so that hips and shoulders form parallel lines.

Retraction type turns would be recommended for powder, and snow which is soft, or for snow that is wet and heavy, where decambered skis actually do the turning for you. Retraction turns are when you load up the skis when they are in the belly of a turn or just below it. There is a separate article about retraction turns in this issue of Peak Performance. You might consider reading it, practicing those types of turns, and then living up the spring-time skiing.
Skiing Tips

Movements That Make Sense Start With Correct Analysis

By Harald Harb

Here are some transitions movements and explanations that will make your short turn radius "short and connected." I always have to tell skiers on short 12-meter sidecut radius skis: "Those are really nice GS turns on those slalom skis."

From the left, frames 1, 2, 3, the release sets you up for the next turn. In the farthest right frame 4, the top of the new turn sets you up for the ability to control the arc. We teach movements for these important parts of the arc. That's where I begin. I evaluate how a skier negotiates these parts of the arc and whether he is using the correct movements to achieve what he wants from the arc. Let's talk through each frame.

**Frame 1.** Here the skier is counter acted, counter balanced, outside ski is holding and the outside arm and shoulder are not moving to reach for a pole plant, they stay counteracted.

**Frame 2.** The upper body stays the same as in the frame before, no movement, the counter is held, the legs are flexing, the legs and skis have released, changed angles. The outside arm has moved back to prepare for the pole tap, no pole swing is necessary. Carefully look at the actions of the whole outside arm, from frame 1 to this one. I am talking biomechanics, which most ski instructors and coaches don't watch for and (most don't understand.) The arm movement is an external rotation, which means the elbow goes down and the hand comes up, (which is pronation of the forearm, wrist and hand), in this situation, this is a backward movement, not a forward movement. Go through the movements of how the pole tip is presented for tapping. You will see that you have to move your arm back, to move the pole tip forward.

**Frame 3.** Notice the pole tap happens with the release, or even after the body has moved toward the new arc. New edges already in the "High C,"

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using ski energy, momentum, ski bend from the last turn, to get the body and legs across. Notice the skis have not changed direction, this is, “High C target tipping.” All of this is explained in the Essentials of Skiing book, by Harald Harb, with photos and exercises.

**Frame 4.** The skis are engaged lightly and have begun to arc, no steering or leg rotation is used, just tipping, counter balanced and counter acted. Add a little more counter and inside leg flexing, this creates more tipping, Strong inside hand and arm makes the body strong so it doesn’t fall inside.

In the photo montage I'm not skiing on a super carving ski. I am on the Head TT 800, kind of a forgiving in-between ski, about 14-meter sidecut radius in 170cm.

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**Head TT-800**

A great ski and perfect all-round performer. It is less shaped — especially in the tail compared to the Super Shape. It is quicker edge-to-edge, but still carves, holds and makes short arcs. Our performance-skiing customers love the TT 800 for its versatility. Whether it’s carving long turns, snappy short turns or nimbly threading the moguls, the TT 800 is a willing performer. Laminate construction provides excellent edge hold on hard snow.

Lengths: 152 / 158 / 164 / 170 / 176
Radius: 13.4 @ 170
Sidecut: 118/66/102 @ 170

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**Retraction Turns**

By Witold Kosmala
PSIA-E Alpine, Level III

Retraction turns, also called cross under turns, are usually short radius turns. The skis will cross under you in the transition as you pull them up (retract) towards the body with the legs to change edges. If the dynamics are high, this action is passive because skis will shoot under you with no effort on your part. These type turns are used in
powder, in moguls, in crud and in slalom racing. Often they are quickly mixed with reaching short radius turns depending on the need or desire. Since in retraction turns there is almost no pressure on the skis in the transition they might not always be a good choice in crud because crud irregularities might knock off one or both of your skis when just skimming the surface. In those cases you might want to keep skis pressed more to the snow, or clear the surface more and some air will be taken. The second choice will lead to resemble “leapers.” It is recommended that at least the outside leg becomes quite long right before the rebound occurs. The rebound will occur by ski trying to reduce its decambered shape from large amount of pressure applied to the ski somewhere between the fall line and the bottom 1/3 of a turn.

**Balance**

In retraction turns your body will need strong dynamic balance. Gravity and pressure will be your friends. Sometimes your skis maybe close together (like in powder, in moguls and perhaps crud), and sometimes they will be wider apart, and so lateral balancing will need to be adjusted. In addition, you might need to balance on both skis equally much, and sometimes only on the outside ski. In retraction turns balance will change very quickly, so your upper body will need to be as stable as possible to support active legs.

**Edging**

There must be momentum to the retraction turns. Steeper slope, cleaner steering of a ski and/or faster skiing is necessary before these retractions can begin. In retraction turns skier remains on the high edges for a big portion of the turn. The skis are rolled from uphill edges to future inside edges almost instantly in the transition, but with a smooth movement. The highest edges are in the last one-third of a turn (or even earlier.) The skis “fly” under the skier in the transition, engage new inside edges before the pressure comes on. The edges get progressively higher in order to withstand the increasing pressure caused by extending legs and buildup of gravity. They again reach the highest angles in the last one-third of the next turn and all starts up again. Both skis maintain the same edge angle at all times.

**Pressure**

The skis are pressured to the snow the most when they are on the highest edges in the last one-third of a turn (or higher up in the turn’s apex.) It is important for shins to remain in close contact with boot tongues. If during the loading process heel is pressured more than the toes in order to get the jetting effect, it is of vital importance for the skier to bring the skis back with their feet and move center of mass forward so that when cross under is complete, little toe on the future inside ski and large toe on the future outside ski pressure the new edges into the snow more actively than the rest of the foot. There should be very little pressure on the skis in the transition, but the skis should remain on the snow at all times. When the skis are loaded, the outside ski carries more of this load then the inside ski, unless the snow is soft and/or deep.

**Rotary Movements**

Rotary movements *can* occur just after the skis change the edges after the transition and they are pressured into the snow. Rotary movements are normally small in retraction turns. What turns the ski is the pressure applied to a decambered ski. The higher the edge angle, the more the pressure, the tighter the arc. The amount of pressure on the shovels versus the tails will also dictate the turn radius of the upcoming turn. More decambered shovel edges will tighten the arc. For longer turns tails of the skis need to be pressured more. The skier’s upper body should not follow the skis from turn to turn. It should take a straighter line down the slope, but it can cross the fall line a little bit. (If it does not cross the fall line, then the retraction turn becomes a short swing.) In either case, the upper body should flow down the slope in a much straighter line than the skis. Skis should extend far to each side of the skier, with relatively long outside leg at the moment of rebound. If the surface is firm, the inside leg will be relatively short when in the belly of a turn. In powder, both legs will remain of similar length, but closer together with more equal pressure on both skis.

Steering can be very active during the entire turn. In retraction turns you can actively drive the skis where you want them to go. You do not need to solemnly rely on decambered ski to make the turn for you. Each ski should
leave narrow track. Tails of the skis go almost exactly through the same tracks as the tips did. Inside ski makes a sharper turn in order to stay parallel to the outside ski. Your body should have strong counter-rotation in the transition during which time it guides the skis that cross under it. Some pivoting can occur in the transition.

If there is no steering of the skis, the tracks they will leave on the snow will look like narrow railroad tracks (not close together necessarily) when in the belly of a turn, with almost nothing on the snow in the transition, kind of like edged half moons. Those tracks will be the deepest when most pressure is applied, which is in the last one-third of the turn (or before.) If rotary movements are present, then these tracks will be wider, less edged, less pronounced, more smeared.

**Pole Touch**

Pole touch in the transition marks the symmetry of the turns. Arms stay off to the sides but in the peripheral vision of the skier, kind of as if carrying a large tray. To perform the pole touch, the wrist (and forearm) with the outside pole should cock upward, forearm bend and elbow dropped without reaching with the whole arm, which would create unwanted body rotation. The pole basket should touch snow couple of feet down the slope away from the outside ski boot in the transition. After the pole touch, arm should not drop. Pole touches the snow when body is retracted (that is, short.) Think that pole goes down when body goes down, (like in moguls.) If pivoting becomes an issue, pole touch should change to pole plant in order to create more turning torque on your body.

**Terrain**

Retraction turns should be at first practiced on smooth blue slopes where there is no fear of speed. The turns should be shallow at first. As the speed increases, skier should start to tighten the arcs upon reaching the desired speed. When blue terrain is tamed, skier should move up to steeper slopes. The steeper the slope, the more downhill facing the body should be.

**Depending on the terrain available, ski traffic, skier’s profile, and snow conditions choose an appropriate lesson progression.**

**Lesson Progression #1** – Wedge/triangle made up of shoulders and outstretched arms. Good when the slope is pretty flat and progression needs to be less aggressive.

Stand in a wedge position on a gentle slope facing straight down the fall line. Choose an object directly in front of you (lift tower, tree, bush, etc.) and point to it with outstretched arms, elbows locked, fingers touching (almost like pretending to hold a revolver.) Sight continuously with your head and shoulders over connected fingers the “target” you selected and begin to ski down the fall line making tiny, totally connected turns (i.e. absolutely no traverse in between turns) in a wedge position. As you progress work on making your wedge turns more and more complete, all along sighting your target with connected fingers (i.e. not allowing the upper body, torso, to move back and forth following the direction in which your skis move.) You will begin to feel more and more pressure on your outside ski of each turn and tension in the muscles of your core winding up and releasing like a wound rubber band with each new turn.

As you get proficient in making small, round, turns in a flat wedge, go on into making these turns more dynamically by steering the outside ski more and more dynamically and using more and more deliberate pressure application (fore, neutral, aft) and progressively higher and higher edge.

Your wedge should eventually go away making your stance parallel. Try making half moon movements with both skis as you cross the fall line. Straighten the outside leg as you are in the turn’s apex.

**Lesson Progression #2** – Start with pivot slips. Good when the slopes are slick and progression needs to be less aggressive.

- On a slick slope stand across the hill on high edges to prevent slipping. Now, gently release edges on both skis by decreasing pressure of your feet in your boots. If that does not make you slip laterally, try decreasing the edge angle with your ankles. Your shoulders should point straight down the fall line and
the hips at 45 degrees. Skis should slip evenly, parallel to each other and straight down the fall line. Stop sliding by making skis edges dig into the hill more. This is done with your feet inside your boots. If that is not enough to stop you, try more ankle angulation.

- As with all drills, try faster side slips and quicker stops. Feel how your skis are on the snow when they side slip. The flatter the skis, the faster they slide. You might need to make more angulation to stop quicker. Push your hips into the hill by rotating ankles and hip joints.

- Make the stops more sudden. They are called checks or forming a platform, or sometimes sudden hockey stops. Plant the downhill pole the instant you stop. Can you tell that your body is low at that moment?

- Now is time to introduce pivots. This is when you turn your skis 180 degrees to face to the other side of the hill, while side slipping down the hill. Your feet should be sliding down in practically a straight line while performing the maneuver. Either do the pivots without checks or with the checks.
  1. If you do pivots without the checks, make sure you: straighten up your body, flatten the skis on the snow (so you are standing perpendicular to the slope) and pivot the skis 180 degrees under your upper body (which stays facing down the hill) – all at the same time. Since everything is slipping and moving, your turning will be performed by your core muscles working against your shins. Make sure your skis and slope form two parallel planes before you attempt pivots.
  2. If you do pivots with checks, make sure you: use a check to straighten out your body right after making the check, put skis parallel to the slope, pivot skis 180 degrees so they will point to the other side of the slope.

In both of these cases, make sure you keep your head and shoulders pointing straight down the hill, and make a pole plant right before your body moves into a tall, straight position, placing it perpendicular to the slope.

- After you feel comfortable with pivot slips, checks, and pole plants, try rounding the turns a little by allowing your feet to deviate from the straight line. However, make sure your shoulders stay on a straight line.

- Make your turns more dynamic by making your checks before your skis cross the fall line. Progressively increase these turns by displacing your feet more and more back and forth away from the fall line. Think about moving your body downhill faster than the skis.

**Lesson Progression #3** – Ski in a funnel. Start with long radius turns and shrink the radius. Good when the slopes are wide open, good snow, and skiers like speed.

- This progression speaks for itself. Start with long-radius turns and progressively make turns with smaller and smaller radius. As the turns get smaller the counter-rotation gets bigger, pole touch might change to pole plant and are planted lower and lower down the fall line and further from the skis, checks will take place before the transition, get more pronounced and begin feeling more like hooks. You can do more and more steering with your feet as the turn radius decreases.

- Focus on long leg/short leg. Keep up with the dynamics. Think about performing half moons with your feet and the turns get shorter.

**Lesson Progression #4** – Start with tuck turns, or even taller position. Good when slopes are narrow, skiers are strong and fast, but the slope is not very steep. Firm or soft snow is fine. This approach quickly produces dynamic version of the short swing turns.

- Get down into a tuck position and point the skis straight down the fall line. Do not fall into the back seat. As skis start sliding, actively use your core to keep up with them. You might even need to pull your feet under you as to stay on the balls of your feet. It is not imperative that the tuck is really low.

- Apply small pressure on both boots forward as well as diagonally in order to make the skis turn gently to one side. Then reverse the pressure to get the skis back. Then reverse the pressure again. This will make small deviations away from the fall line to both sides. As the skis are in the belly of a turn, the legs are longer than in the transition but the upper body continues to face down the hill and move in a straight line.

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• To control the speed make the deviations from the fall line bigger by applying more diagonal pressure on the ski boots with your toes and then your shins. Some toes should go up and others down.
• Implement the pole touch (plant) as your body is short in the transition. Think that the body goes down together with the pole.
• These turns will need bigger and bigger hook in order to control the speed. Be sure to keep hips parallel to the shoulders. Eventually your body can move up to one meter to each side of the fall line.

Lesson Progression #5a — Start with skating straight down the hill. Good when slopes are narrow, skiers are strong and fast, but the slope is not very steep. A smooth surface would be good.
• Start this progression by mastering skating. Make sure your body goes with the ski that slides on the snow, so movement from side to side should be expected, but the ski should not slip laterally. Use core muscles to keep your body from dragging behind. Swing your new foot by staring close to the gliding foot.
• On a gentle terrain skate straight down the hill and stop when you reach your peak tolerable speed.
• Do it again, but try going just a little faster before stopping. Do you feel that toward the end of your run you were placing your ski on its outside edge and then rolling it onto the inside edge before going to the other ski?
• Try it again with this awareness on your mind.
• As you get close to the finish of skating on one leg, make the ski turn to the inside just a little before going to the other leg. Progressively make those turns sharper and progressively eliminate the skating all together.
• Throughout this progression stay on each ski the same amount of time, about one second on each leg. This means that as the speed increases you will cover more distance on each ski while skating. Keep the torso facing down the hill. As the skating gets eliminated, your upper body will quit traveling laterally from side to side. Initially make turns about every second like you skated, later adjust the size and shape to control the speed.
• Add the pole plant.

Lesson Progression #5b – This is a variation of the Progression #5a.
• Start this progression by mastering skating. In this variation of Progression #5a we want the upper body NOT to move with the ski but to stay on a straight line down the fall line at all times, so there should be no movement from side to side. Use core muscles to keep your body from dragging behind.
• On a gentle terrain skate straight down the hill, thinking that you are in the snowcat’s track, and stop when you reach your peak tolerable speed or you cannot move from foot to foot any quicker. Remember that in this progression your body stays in a straight line down the hill, so your skating will need to get faster and faster from one foot to another. It will not take long to reach this stopping point.
• As you get close to the point when you cannot skate from one leg to the other quickly enough, start making short radius turns.
• Throughout this progression skating will get faster and faster from one foot to another, but the upper body will travel down the fall line at all times. Make short radius turns and shape them in order to control the speed.
• Add the pole plant.

Lesson Progression #6 – Ski in a low tunnel. Good when slopes are narrow, skiers are strong and fast, but the slope is not very steep. For skiers who like to work with both legs as if they were one. Soft snow is fine.
• Start in a flexed position straight down the hill, but not as low as tuck. Progressively push both feet into the snow as if pushing on a dialed weight scale and trying to have the needle point to a highest possible number. If your head goes up, you will hit the roof of the tunnel.
• Or, think about skiing in a low and narrow tunnel and kicking each wall with both feet at the same time. Be sure not to flex only in the hips.
• Perform tuck turns by dragging both poles on the snow far away from the skis. Flex the body equally.
throughout, but do not just flex in the hips and make the butt hang back. Poles should be at about 45 degrees to the snow. You should find yourself turning once close to on pole then close to the other.

- Add the proper pole plants.

**Common Problems, Their Possible Causes, and Ways to Break Them.**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skier starts a turn by inclination and stays inclined all the way to the end of the turn, never changing to angulation</td>
<td>Try skiing on ice. If inclination is not changed to angulation, skis will slide out to the side. Ski more on a steeper slope, where angulation is necessary. Be sure hips become parallel to the shoulders from the fall line to the end of the turn.</td>
</tr>
<tr>
<td>Skier parks and rides</td>
<td>Practice progressive edge changing. Do side-slip races. Often the skier that parks their body starts the turns with too much angulation, and uses too much lateral movements, especially with the hips.</td>
</tr>
<tr>
<td>There is not enough rebound for the cross under</td>
<td>Kick it harder with the feet in the last one-third part of the turn. Think that there is a weight scale under your feet and you want the needle to go as high as possible.</td>
</tr>
<tr>
<td>Skier is not low enough in the transition</td>
<td>Reaching and kicking with the skis in the last one-third of the turn is not strong enough. Make sure the outside leg gets long just before the rebound.</td>
</tr>
<tr>
<td>Skier ends up on the tails after the cross under</td>
<td>Skier needs to anticipate ski acceleration when it goes into the fall line before the cross under occurs. During the cross under boot cuffs need to be pressed to the shins. Don’t let the skis jet. After the skis cross, their shovels should be firmly pressed into the snow. Practice hop-to-shape drills and leapers.</td>
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</tbody>
</table>

**Turn to Wisdom**

- **GRAUPEL:** Pronounced GROU-PUL (“OU” as in Cloud) … Germanic in origin; it is the diminutive of “Graupe” meaning “pearl barley.” According to etymologists there is some basis to the belief that the word grew from the Slavic word, “KRUPA”, which has the same meaning, “pearl barley.” “Graupel” was first used in print with its modern English meaning in an 1889 weather report and has been used in the meteorology field ever since to describe PELLETS OF SNOW or SOFT HAIL. In English, “soft hail” is listed as the actual synonym of “graupel.”

So when skiing or riding we would all much prefer POW-POW rather than GRAUPEL to be falling from the sky!

*By Gordon Carr*

- “Courage doesn't always roar. Sometimes courage is the quiet voice at the end of the day saying, "I will try again tomorrow."”
- Always leave it better than you found it.
- You are what you repeatedly do. Excellence, then, is not an event - it is a habit.
- If you don't take care of your body, where will you live?

Peak Performance
Racing

Breaking Down what Lindsey Kildow Vonn does so well.

By Chris Anthony

Here, Chris Anthony discusses Lindsey’s Super G race at Beaver Creek held on Dec. 7, 2011. You can also view this on Youtube at http://youtu.be/9XkIjnxTw4.

Lindsey Vonn is quickly closing in on becoming one of the most successful female skiers in world cup history. Currently sitting with 50 wins (as of Feb 5, 2012) she trails Swiss Vreni Schneider who is retired with 55 victories and Austrian Annemarie Moser-Proell also retired with 62 victories. In the United States Vonn is the most successful female skier in US Ski Team’s history. This is in the wake of some huge names such as Tamara McKinney, Picabo Street, Diann Roffe, Gretchen Fraser, Eva Twadorkens, Christian Cooper, Holly Flanders, Hilary Lindh, Debbie Armstrong, Cindy Nelson and so many others that have come before her. In fact, at the moment the women’s US Team is an international powerhouse that includes Julia Mancuso who has also became one of the top three Americans of all time.

I could write pages about each of their careers. But at the moment I would like to just focus on one run in Lindsey Vonn’s career. Her SG win at Beaver Creek in Dec of 2011. Mainly because it was done in my backyard and most likely the women will not get to ever race on that course again. It was a make up race and unlike most courses that have a history to them. For the women this one did not have any. It was new for all of them and
Lindsey ended up on top of the podium after Tebowing in front of it. (The form of Tebowing = to kneeling and bowing in prayer – made famous by Broncos quarter back Tim Tebow.)

What really makes this run spectacular is how many times Lindsey loses and than regains the lead. She made significant mistake near the top of the course where she loaded her left ski up so much on a right turn than hits a transition in the slope and it almost top sides her. In short, she is goes up to one ski. The inside one and is unable to get weight to the outside ski and create the proper angles for a hard left turn. She pulls the turn off from her inside ski but its not clean. Plus she looses her line.

At this stage in the game and your career you know when you have made a mistake like this. And you know you need to take some chances to make up time. Bode Miller is a master of this. But the hard part to figure out is just when you should take the chances and do you have the ability to pull if off.

Further down the course Lindsey is able to ski herself back onto the proper line and than takes a chance by straightening out a part of the course other racers did not. Instantly she not only makes up for the lost time but also is going faster than any of her peers. But this comes at a risk because right when she is ahead on the clock again she has to almost throw her skis sideways to stay in the course. Dumping a ton of speed just prior to a flat section of the course. Losing speed prior to the flats is the worse possible place to do so. Since gravity does not play a significant roll on the flats instant acceleration is not possible. She once again falls behind on the clock.

The lower part of this Birds of Prey Super Giant Slalom drops off again. Huge sweeping turns on a very steep pitch. As if Lindsey had an internal clock she put the hammer down and skied the bottom part of the course more aggressively, cleaner and more powerful than any one. What becomes so apparent here is her strength combined with good technical skiing.

Lindsey can hold a greater angle on a tighter line than any of her peers. She is just plain strong. She creates the edge angle well before the fall line. Than she starts powering from the top of the turn and the front of her ski so it bends. She can ski on a stiffer ski than her fellow racers so if she does this right she can carry greater energy into and through the arc of the turn. Ultimately skiing a cleaner and tighter line and a greater rate of speed. Even more scary is that she can exit the arc and actually be gaining speed from the inertia she built up through the arc. Than she transfers this extra energy towards the next turn an ultimately towards the finish.

Lindsey did this so well in the bottom of the course she made up time from the mistake from higher up in the course and than eventually once again obtains the lead.

A lot can be learned from this run. How mistakes are made and where time can be made up.

ABOUT THE AUTHOR:

Chris Anthony, a Big Mountain skier is a Colorado native and longtime Vail resident. For a good portion of his life, Chris competed at an international level, including World Cup, as well as traveled as an athlete and on-screen personality with the Warren Miller Film Team. Chris has filmed with the legendary action sports production company for 23 years and continues to do so currently. His feats are displayed in the annual Warren Miller feature film as well as numerous television programs and documentaries such as "Warren Miller Global Adventures." Chris is a former Alaskan Extreme Skiing Champion, a veteran of 9 World Extreme Skiing Championships, and US Heli Ski Association Level 3 Mechanized Ski Guide.

Between film shoots and sponsor appearances Chris manages specialized ski programs under his company "Chris Anthony Adventures" in Alaska, Italy and Colorado. Additionally, Chris co-hosts the "Camp of the Superstars" every August in Portillo, Chile. Also, Chris is available for speaking engagements. His website is www.chrisanthony.com. Chris, thank you for sharing your article with us as well as the next 2 photos.
This photo of Chris at Stone Creek in Beaver Creek was taken by Cody Downard. Cody Downard is a photographer for many occasions that can be found on codydownard.com. It is Cody pictured below.

The photo of Chris on the next page was taken by Chris’ Dad: Vino Anthony. Among other things, both Vino and Chris are PSIA fully certified skiers, and also help each other on ski trips. Nice to see them working together.

Look at that awesome air Chris is getting. Wow! But, for us at Sugar Mountain, with much less air you can loose your job. So, you need to practice getting air somewhere else.
Thoughts for the Month

This is Harald Harb. Look at the angle of the skis to the snow, then look at the angle of the inside shin to the snow. If it is less than 45 degrees, you are rocking. Can you tell which ski he pressures the most, in which place and how much?

What does this have to do with skiing/riding?

Eric Marland, who wrote the poem on page 2, let me take a photo of his injury after his first day skiing. Can you tell what it is?
Elaborations on last month’s Thoughts for the Month.

What is the difference between the edge angle and the platform angle?

**Answer.** Edge angle is simply the angle measured from the bottom of the board to the slope under the board. Bigger angle does not necessarily hold you up better. There is such a thing as too big the angle and the board slips out. **Platform angle** is a little more tricky to measure. It is the angle measured from the top of the board to the force that is applied to that board. So, one edge angle can have many platform angles. The board is more likely to hold if the platform angle is 90 degrees or less. If the angle is bigger, then the board will likely slip out even if the edge angle is plenty big. One can decrease platform angle by driving (actively pushing) the board’s edge more into the hill. This can be done by moving the upper body further away from the hill and, in the skiers’ case, applying more force into the hill with big toe of the outside ski and shins into the side of the boot. Lifting the outside foot’s little toe will help.

What is the difference between square turns and box turns? What are these turns used for?

**Answer.** Sometimes pictures speak louder than words. So, below is a pictorial explanation as to what each of these turns should look like. Note that the edges are locked in each traverse.

Skiers should travel in each of the straight lines for approximately 2 seconds. Box Turns, also known as Box Top Turns, are used for teaching skiers to get out of the back seat and to eliminate “Z” shape turns from their skiing. Rotary skills in the 90-degree pivots are also involved. Square turns are mostly used for improving edge control with some need for quick rotary movements: 180-degree pivots to be exact. In both drills it is imperative that the skier pressures boot cuffs with their shins at all times and moves with the skis.

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**Peak Performance**
What are the hop turns and what are they used for?

**Answer.** Hop turn is when you hop up off the snow and change the skis’ direction by pivoting them in the air. You should hop up simultaneously with both skis by extending your legs using your core and legs muscles, while pushing off the downhill pole. Pivot in the air and land with your feet directly down the fall line from where you started. Both skis should land at the same time, and together with the new downhill pole. So, 3 things land at the same time: 2 skis and the downhill pole. As you land you flex to absorb the landing. Don’t stand up and then hop again. You should hop to make the next turn as you are extending from the absorption of the previous landing.

That’s right, we did not say anything about how much pivoting you need. You can pivot your skis anywhere from 45 degrees to 180 degrees, depending on the need and/or desire.

Start learning hop turns on nearly flat slope. Plant both poles firmly into the snow and hop between them trying to make an “X.” Then, you can try making these 60 to 90 degree hops by pushing off one pole and landing with the other. Since both poles are not blocking you that much any more, you might start slowly scooting down this flat slope. To prevent going down too fast, you should try landing with your skis more across the hill. It is important that your boots travel pretty much in a straight line down the hill. Finally, try to increase the pitch of the slope and make as much as 180-degree pivoting in the air. In the final outcome your head, arms and shoulders should be looking straight down the hill and skis twisting under you equal amounts from one side to the other, as if you were swinging your feet from side to side on a chair lift. Your landing should be evenly distributed along the entire ski, pressure should be on the uphill edges and on balls of your feet with toes firmly pressed to the soles of your boots. Shins should be pressured against the boot cuffs. These turns are pretty demanding on the body, but easier in the softer boots.

You can use these turns to teach an aggressive skier about pressure control, demanding edging if on a steep slope, rotary movement of pivoting type, blocking pole plant, and of course, proper stance and balance. Potential dangers are that the pivot is not big enough and the skis will land facing more downhill than desired. This will cause tails to contact the snow before the tips do, which will put the skier in the back seat and jetting down the hill. Other obvious problems are the over-rotation of the upper body, which wants to spin the skis all the way around, making the entire body landing sideways to the hill. Next turn is a big turn, body will tire out quickly, and ski control is sacrificed. Another danger is that when you land, the ski will slip laterally and run into the planted pole, tripping you and ... you know the rest of the story.

You can use hop turns in narrow slopes where side-slipping is not an option. You can use them to get around objects, like rocks, tree stumps, ice patches, etc. Use them when you are facing a wrong way but you do not want to drop elevation when turning around. These turns can be relaxed some, where you pivot in the air only to land in the fall line, and then finish the turn. Those drills are often called “hop to shape” and serve well as turn initiation where starting a new turn is difficult. Using the approach of hop to shape, you can use hop turns to improve your short radius skiing by mellowing them out. Other variations of hop turns are hops where tips stay on the snow but the skier hops laterally. That means that pivot is somewhere between the boot and the ski tip. This is a very good tactic when hopping in deeper snow without wanting to make a big and deep landing and not wanting to over turn. Also, skis maintain movement and contact with the snow, making your next move easier. Hop turns are great on steeps and in narrow chutes when snow grip is not in question. On icy surface hop turns are not recommended, unless performed to their perfection and on sharp skis.

*By Witold Kosmala*

### Funny Turn

**RAILROAD TRACKS**

January 2012 at Mammoth Mountain, CA. Unusually little snow. So, instead of burying all technical imperfections in the powder or hiding them behind trees, everything was out in the open, right on the table. It was clear that my moves needed to be improved, so my brother Andrzej, trainer for the Mammoth Mountain Ski School was gracious enough to help me out. After some work on railroad tracks and improving hip movements,
we stopped to evaluate the tracks. There is much one can learn by looking back at them. So, here is Andrzej looking to see if he taught me well. Wait, he is taking a picture of my tracks! Does that mean he likes them?

By Witold Kosmala

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

- homework/work takes a backseat to fresh tracks.
- you know that if your house was on fire you would save your gear first.
- July hits... the burn out has worn off and you want it to snow again.
- you are going down the hill and you KNOW that everyone on the lifts is watching you, and wishing that they could do that.

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.

TOO MUCH PRESSURE

I bet this skier put too much pressure on his toes, don’t you? I bet in the rest of his run he had more pressure on the heel of this boot.

By Witold Kosmala

Pet of the Month

Pet of the Month is the horse, not the rider. Horse’s name is Willis, a good jumper, especially when Sarah Dockery rides him. As you can see, Sarah is not only great on her race skis, but on her race horses as well.

By Witold Kosmala

Peak Performance