

PARENTAL
GUIDANCE
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THE JOURNAL OF PROFESSIONAL SNOWSPORTS INSTRUCTION | FALL 2009

32 DEGREES

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32 Degrees

The Journal of Professional Snowsports Instruction

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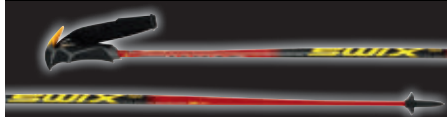
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Fall 2009



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By Ray Allard

PSIA-AASI President and Chairman of the Board



As we enter a new season of fresh possibilities, it's helpful to take stock of the previous year and consider opportunities for our association going forward.

The 2008–09 season was a mixed bag for snowsports. Mother Nature provided sufficient snow in most regions, but the declining economy posed a serious threat. While areas close to metropolitan centers did extremely well, visits to most destination resorts (especially in the West) were off.

Luckily, the seasonal economics overall weren't as bad as first anticipated. Spending on amenities such as lodging, meals, and adult lessons were down, but kids' offerings generally held their own. Manufacturers, however, were extremely hard hit, especially in hard goods. We have all seen evidence of companies trimming expenses wherever possible; even so, some players in the industry are pondering uncertain futures.

Notwithstanding the above, PSIA-AASI had a good year. Finances rebounded after an operating loss last year due to major investments and changes in our operations, ending up in the black this year. Membership is at a record level, pushing past 29,000. Our standing within the industry is solid. And it doesn't hurt that most snowsports schools are key profit centers for their resorts.

The National Ski Areas Association (NSAA) has encouraged our involvement in their educational endeavors, in particular with the Model for Growth, which enjoys renewed focus for the industry a decade after it was launched. While some resorts really embraced the concept and greatly improved their numbers, the needle has barely moved for the country as a whole. According to NSAA data, "Trial" figures (i.e., the number of people who try snowsports)

have been mostly flat, and "Conversion" figures (i.e., the number of beginners who stick with skiing/riding) are estimated to have increased only about 1.5 percent, from 15 percent to 16.5 percent between 1999 and 2009. What has kept skier/rider visits high is a longer-than-estimated period of active participation by Baby Boomers, but that will not continue indefinitely. In fact, it is critical that Gen Y (10- to 28-year-olds) become lifelong participants if we are going to maintain—much less grow—snowsports participation.

It's generally acknowledged that instructors have been doing their part by providing quality instruction to beginners. But the Model for Growth requires area management's commitment to the processes that occur both before and after we interact with the guest, and to the physical plant, equipment, and organization that support success. You can help by finding out how committed your resort is to the NSAA model, as well as who oversees efforts to further the cause; perhaps you can get involved. At the student level, your commitment to teaching "newbies" will get them hooked on the sport and ensure a bright future. By the same token, give all your other guests a reason to come back, too.

Of course, we're not asking you to go it alone. It's when we all renew our efforts that we can make the biggest difference overall. To this end, PSIA-AASI is committed to goals and endeavors that support the association's purpose and unique culture. As we've discovered through introspection among the board of directors and division presidents, the teams, and the national office staff, our purpose—what we do—is really very simple. We get people excited about skiing and snowboarding! We do that by embracing a culture in which a seemingly diverse group of people are connected by

a common love of snowsports. And we strive to boost the value of membership by providing access to things you just can't get anywhere else: access to people, access to resources, and access to more of the mountain environment to which we're all drawn.

The guidepost by which we navigate is a desire to be the first place members come for information about snowsports, teaching, and the industry. It's also important to be a resource for our potential guests and those wishing to join PSIA-AASI. I hope you'll agree that the association's new website (www.TheSnowPros.org) and the launch last fall of this magazine are solid steps in the right direction.

Other key endeavors are the Go With a Pro marketing campaign (see page 64) and our ongoing affiliation with other industry stakeholders. We're pleased that our partnership and sponsorship relations remain strong, a sign that manufacturers and vendors value what we do. Here again, you can help the common cause by promoting the products you believe in. Don't abuse pro form privileges. Thank the reps. Support your favorite local shop(s). Present yourself professionally at all times and be a spokesperson for skiing and snowboarding.

Without a doubt the largest project ever undertaken by PSIA-AASI (in terms of cost, personnel, time, difficulty, and long-term ramifications) has been the development and implementation of a new association management software system, which, this summer, began a multi-step process of going live. Far more than an upgrade, what makes our application so unique is that computer services for all nine divisions, plus the national office, are now being served by one system, which will translate to new and improved services for you, the member.

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Soar to New Heights

FRANKSHINE

PSIA ALPINE TEAM

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Letters

Angles and Equations . . .

Upon reading Scott Anfang's article, "Why Reference Alignments Work" (spring 2009), I have to express my disagreement with the standard definition of the front foot reference alignment. I agree with Scott that "If the shoulders, hips, and knees are aligned perpendicular to the front foot, the rider will be in balance," but only if the rider's front and rear stance angles are equal (0/0, 6/6, or -6/-6, for that matter). If the rider's stance angles are not equal (which applies to everyone I know), then aligning shoulders, hips, and knees (SHK) perpendicular to the front foot will result in a rotated stance (as in a heelside turn), the severity of which will increase in proportion to the size of the angle created by the bindings. The rotation occurs in the joints below the hips.

In the quoted sentence, I think "balance" is the incorrect term to use, but we all understand the intended meaning. The concept relates more to a "neutral" stance that maximizes potential for range of movement. Today, I'm riding with angles of 6/-6, which makes the math easy. Aligned perpendicular to my

front foot, my shoulders and hips would deviate 6 degrees from the longitudinal axis of my board. To achieve this position, my lower body must generate 6 degrees of heelside rotation.

It makes more sense to me to align SHK perpendicular to the line that bisects the angle between my feet ("split"), thus avoiding tension due to a "pre-wound" stance. One equation you can use to determine this angle in relation to the board's longitudinal axis is as follows:

$$\text{Front Angle } [F] - (\text{Front Angle } [F] - \text{Rear Angle } [R]) / 2$$

$$\text{or } F - (F - R) / 2$$

In my case, the equation would be: $6 - [6 - (-6)] / 2 \dots 6 - (12) / 2 \dots 6 - 6 \dots$ or 0. That's 0 (zero) degrees of deviation from the longitudinal axis (LA) of my board. In other words, my SHK and board are parallel.

My favorite manufacturer has suggested that the clueless begin with a stance of 15/-3. This creates an 18-degree angle between the feet. If SHK are perpendicular to the front foot, then they deviate 15 degrees from the board's LA. Plugging these angles into the equation I use results in an LA deviation of 6 degrees: $15 - 18 / 2 = 15 - 9 = 6$. I believe a rider aligned perpendicular to the front foot will have 9 degrees of heelside rotation in his or her "reference" stance, while a rider aligned perpendicular to the "split" will be in a legitimately neutral stance.

Here's an example for a stance of 21/6: $21 - (21-6) / 2 = 21 - 15 / 2 = 21 - 7.5 = 13.5$. SHK would deviate 13.5 degrees from the board's LA, rather than 21 degrees (a difference of 7.5 degrees if perpendicular to the front foot).

Why start a rider in that pre-rotated stance when it's often so difficult to undo the twist to help beginners complete toeside turns? Aligning to that bisecting line also eliminates contradictions with the other two reference alignments that arise when aligning to the front foot alone.

— Steve Hitchcock
Jiminy Peak, MA

Get Involved Online!

PSIA-AASI has more than 29,000 members, but we have very little discussion going on in the Member Forum on the website. Sure, not everyone is into blogging, chatting online, or, for that matter, using the Internet at all. I am just thinking that there must be more questions, opinions, or advice that our colleagues have.

I will keep checking in on the forum, and I will keep posting questions and opinion. I just hope that more pros will get online and start using this resource. If nothing else, it can make us more informed and more in touch. And, who knows? We

CONTINUED ON PAGE 92 »

What PSIA-AASI Has Done for Me

I've worked as a part-time instructor at Pennsylvania's Ski Roundtop off and on since 1979—and have been skiing there much longer, since 1968. This little 650-foot-vertical-drop mountain is truly my "home away from home" in the winter. It offers me a chance to get outside—and away from my desk job—several times a week.

My full-time, year-round job as an administrative assistant in a state

park and environmental education center sounds like fun, but in reality, I work behind the scenes and rarely get a chance to interact with guests and visitors. The job is demanding and—like most administrative positions—often taken for granted. That's why I was happily surprised to receive a letter from PSIA last July...with my 20-year service pin!

Hopefully, without gushing, I'd like to tell you how important this was to me. It is such an encouragement and treasure to know that one is appreciated. I love to ski, I love the mountains, and I love being outdoors every season. Above all, I love to share this joy with others. I have been

proud to be a member of PSIA since 1988 and look to the organization to strengthen the sport of skiing while providing standards for teaching.

Thank you, PSIA-AASI, to everyone who works so tirelessly to keep the sport lively and progressive. I know it takes the whole team to make this organization so prestigious. I hope to be a lifelong member of PSIA-AASI and look forward to many more years of sharing my love for winter sports and the mountains with others.

Terry Hoffman
Ski Roundtop, PA

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NEWS OF NOTE

Rhinehart and Warren Honored with Lifetime Achievement Awards

The exclusive ranks of people given PSIA-AASI's most prestigious honor—the Lifetime Achievement Award—now include Don Rhinehart, who, in 1961, helped found the Professional Ski Instructors of America, and Jerry Warren, a veteran instructor with a long list of leadership roles to his credit.



File photo

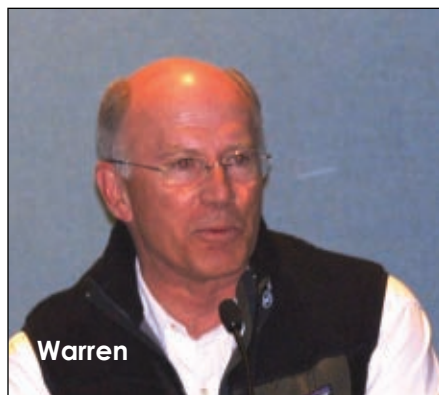
Rhinehart

Rhinehart, who died of cancer on March 15, 2008, at the age of 80, was honored posthumously at a ceremony presided over by Northern Intermountain Division Representative Walt Coiner. Receiving the honor on Rhinehart's behalf was his wife of 40 years, Virginia.

After serving in the South Pacific during World War II, Rhinehart started a roofing company in Seattle, but gravitated whenever he could to Sun Valley, Idaho, where he helped cut ski runs on Bald Mountain. Throughout the 1950s, he taught skiing at Washington's Stevens Pass and Snoqualmie Pass. In 1961, he made Sun Valley his permanent home and served as supervisor of the Sun Valley Ski School. That year was also noteworthy for a project Rhinehart and six other expert skiers undertook in Whitefish, Montana—the founding of the Professional Ski Instructors of America. Joining forces with Curt Chase, Max Dercum, Jimmy Johnston, Bill Lash, Doug Pfeiffer, and Paul Valar, Rhinehart helped set the stage for creation of a uniquely American ski technique and

the current national standard of certification for ski instructors.

If Don Rhinehart helped forge a path for other extraordinary instructors to follow, Jerry Warren has devoted himself to taking that path to new heights. Over the past 40 years, Warren has served in leadership roles within PSIA-AASI on a number of fronts. In addition to being a veteran ski instructor of tremendous skill, Warren served as a coach and member of the PSIA Alpine Team for 14 years and the association's education vice president for three. A member of the PSIA-AASI Board of Directors for more than nine years, he served on the Executive Committee and chaired numerous task forces and committees before retiring from the board this year. In addition, he furthered PSIA-AASI's educational endeavors by writing for the association's magazines



Kate Horve

Warren

and manuals, as well as through contributions to the International Ski Instructors Congress (Interski).

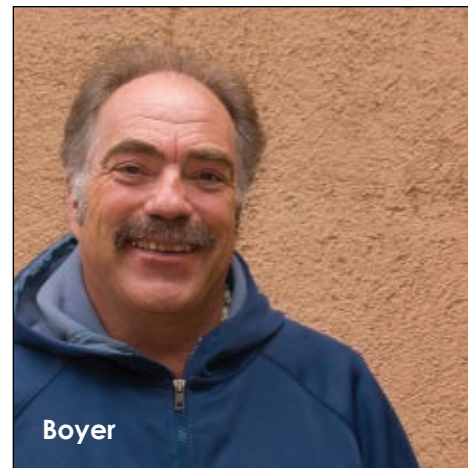
Upon reflecting on his affiliation with PSIA-AASI, Warren once wrote, "More than any other professional organization I know, PSIA-AASI has provided an opportunity to have fun, contribute, and associate with the best people in the world. Along the way I've developed not just skiing skills, but skills that have influenced every aspect of my life."

"Jerry's contributions to our organization, its 29,000 members, and to millions of skiers are incalculable, and we look forward to many more years of working with him to introduce more people to the thrills of skiing and snowboarding," notes Mark Dorsey, PSIA-AASI Executive Director.

PSIA-AASI's Lifetime Achievement Award is one of the association's most prestigious honors, given to individuals

who have made invaluable and ongoing contributions to the organization. Past recipients are aforementioned PSIA co-founders Max Dercum, Jimmy Johnston, Bill Lash, and Doug Pfeiffer as well as ski instruction pioneers Junior Bounous and Herbert Schneider. Hal O'Leary and Doug Pringle, both of whom have made significant contributions in the adaptive instruction arena, have also received Lifetime Achievement Awards from PSIA-AASI.

Boyer Is the New Board Rep from PSIA-I



Boyer

Carl Boyer, former PSIA-I president, is PSIA-AASI's newest national board member, replacing Jerry Warren, who after nine years as the PSIA-Intermountain Board of Directors representative did not seek another term.

Boyer brings to the table more than 35 years of teaching experience. Since 2002, he has been a member of the PSIA-I board of directors, holding such positions as member at large, administrative vice president, communications vice president, and president. He currently works for Snowbird Mountain Resort in Utah.

In related news, board incumbents Bill Beerman (Eastern), Peter Donahue (Rocky Mountain), and Bill Ellis (Alaska) were reappointed for three-year terms. J.P. Chevalier, snowsports director at Copper Mountain in Colorado, was appointed Snowsports Management representative to the Education Advisory Committee, replacing Dee Byrne, who was a member of the committee since its inception in 2003. In addition, Rob Bevier was reappointed as Snowboard representative. **32**

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—Jeremy Riss, Mt. Hood Meadows Ski & Snowboard School Manager

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—Kimberly Holzer, Wintergreen Resort Alpine Instructor, Level III


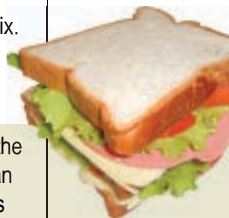
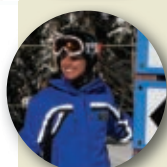


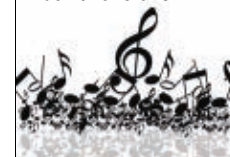
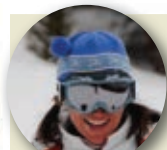


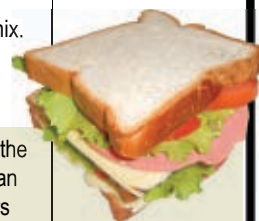
... helmet

because it has tunes!

—Richard Mario, Mt. Hood Meadows Alpine Instructor, Level I

LOCKER ROOM TALK

		Member since/ Division	Favorite run	Playlist	On-mountain lunch	Skiing/riding on
	Brad Allenick Boston Mills/Brandywine Snowsports School Alpine Instructor, Level I	2009 Central	North St. Pats, Steamboat Mountain Resort	Neil Young, The Allman Brothers, CSNY, Dave Matthews Band, etc.	Sandwich (turkey or peanut butter) and some sort of trail mix.	Dynastar, always. 
	Heather Boylan Beaver Creek Snowsports School Snowboard Instructor, Level II	1998 Rocky Mountain	Ripsaw, Beaver Creek Resort	Lots of stuff from the '80s.	Beans and rice hit the spot more often than not. Cheeseburgers at the Spruce Saddle (Beaver Creek) aren't bad either.	Gnu B-Street.
	G. Craig Merhoff, Sr. Powder Mountain Snowsports School Alpine Instructor, Level II	2002 Intermountain 	The backside of Powder Country, Powder Mountain	I don't have one. 	Half cheddar cheese sandwich on wheat and half a Granny Smith apple; occasional PowerBar.	Volkl Grizzly 177 cm.
	Nancy E. Peck-Cook Mount Snow Ski & Snowboard School Alpine Instructor, Level II	2000 Eastern	Upper Cirque, Snowbird Ski & Summer Resort	Rihanna ("Good Girl Gone Bad").	Met RX, PowerBar, or almonds/trail mix.	Rossignol World Cup Slalom Alpine Race Ski.



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PSIA Alpine Team Member

Pro File: Robin Barnes

So, Robin, congratulations, you are the first member of the alpine discipline we have featured in the Pro File. This is your chance to represent. What do you have to say to the membership?

My first season on the team has been truly amazing. I feel so fortunate to have had so many opportunities in just this first year. I've gotten to ski with instructors from Vermont to Alaska and many places in between. The membership has given me so much and I am grateful. I've also had great support from my fellow instructors at Heavenly; I feel like part of my journey as a team member is for them.

Oh, and you're one of just three women on the entire team. Tell us about the feminine side of the PSIA-AASI Team.

It's a great trio (along with Katie Fry and Jennifer Simpson). We come from pretty varied backgrounds, but we get along super well and really enjoy the time we get to spend as a group. Ripping around on the hill together is a real treat.

Do you have any advice for other women who aspire to a place on the Team?

Train hard, but train smart. Don't strive to be one of the best women at the tryout, strive to be one of the best *people* at the tryout!

Clearly, you are totally badass, distinction all the more supported by your endeavors off the hill. Tell us about Tahoe Outdoor Fitness.

My summer business, Tahoe Outdoor Fitness, is very rewarding. I get to train a group of people who are committed to improving their performance in

skiing, cycling, running, hockey, life, etc. My goal is to train people not only for improved fitness, but also for improved athleticism.

How do you stay in shape during the off-season?

I ride bikes a lot—both mountain and road. When I'm not on my bike, I'm usually on my bike! I also do agility and speed training, and resistance training several times a week. And sneak in a yoga class when I can.


Favorite training exercise? Name just one!

That's like asking what my favorite dessert is—hard to narrow it down to just one.

Okay then, how about your top three training tips to pass along to other instructors:

1. Use impeccable body mechanics. Keep *quality* of movement as the goal, over *quantity*.
2. **Work hard!** Develop a base level of fitness and then prepare to push yourself.
3. Treat yourself, and also, think of yourself as an athlete.

As if you weren't already the total package, now it's time to break it to everyone that you are a model, too! The women's athletic clothing store Title Nine asked you to sport some yoga and ski togs in last season's catalog. Any future modeling career plans?

I actually did do another shoot with Title Nine! There's a ski shot and a shoveling shot coming up in this winter's catalogs. I totally rocked the shovel. 





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29,161 – PSIA-AASI members. A record!
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2016

Reason to Get Excited...

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It's official. We've expanded the association's cyberspace presence with help from Facebook and Twitter. Join "The Snow Pros" group and become a fan of Go With a Pro at www.Facebook.com, or get quick updates from headquarters in Lakewood, Colorado @thesnowpros at www.Twitter.com.



Josiah Jost

2 – New Official PSIA-AASI Suppliers: Flaik and Ortovox. Log in at www.TheSnowPros.org to check out their member offers.

MATRIX SHOUT-OUT

The Movement Matrix is growing! The Snowboard Matrix and Nordic Matrix were added last season and the Alpine Matrix has been recently expanded. For less than the price of a 30-minute DVD, you can have access to hours of alpine, snowboard, and nordic footage with insights direct from the PSIA-AASI Teams. Download speeds are faster this year, and video quality is higher. The PSIA-AASI Education Department is working closely with the teams to add new content regularly. Get your subscription by logging in at www.TheSnowPros.org and visiting the Accessories Shop.



DEGREE WORTH GETTING

Sure, we jokingly tell everyone that our college major was skiing or snowboarding (hahaha). And certainly, many of us would have a Ph.D. in snowsports were one available. But until that day arrives, you can at least collect a few credits for your PSIA or AASI course. That is, if you attend Gonzaga University in Spokane, Washington. Students may obtain undergraduate or graduate credit for PSIA-AASI clinics and exams.

ROAD TRIP WORTH TAKING:

Duh, the Olympics in Vancouver, British Columbia, Canada this February. We would be remiss if we didn't at least mention it. But we also realize that making the pilgrimage to BC may not be in the cards for many instructors, since the games are right in the middle of the season. So in lieu of an Olympic-themed road trip, we hope you'll watch the latest installment of *Go With a Pro*, which looks through a snowsports education lens at the three U.S. Olympic venues. See page 64 to plan your virtual road trip.

PSIA-AASI IN THE NEWS

Ever wonder what we're doing to promote snowsports instruction to the outside world? Well, your association appeared 453 times last season in nationally syndicated articles, read by 369,766,746 people! An increase in PR efforts, combined with the success of the new website and magazine, as well as your dedicated PSIA-AASI Team members, resulted in publicity for the association that exceeds that of years past.

DID YOU KNOW?

You can recycle your stinky old skivvies! Yep, that's right: the folks at Patagonia will make sure that your worn-out base layers don't end up in a landfill. Their Common Threads Recycling Program transforms your old long undies (and fleece items) into new performance-wear. To find out if your garments are recyclable and where to drop them off, visit www.Patagonia.com/Recycle. (If you're in the neighborhood, the PSIA-AASI National Office in Lakewood, Colorado has a drop-off box.)

You—yeah, you, the one reading—are AWESOME! But no one knows that yet, 'cause you haven't sent an e-mail to Lineup@TheSnowPros.org, regaling us with your whimsical snowsports anecdotes.

Why don't you just drop us a line and we'll see if we can't include your tidbits of wisdom in the next issue of *32 Degrees*? Come on now—hop to it!

WANT TO
BE HEARD?



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*Ways to connect
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Look for hints in
this issue.*

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Hot Not

Sweating. See fitness tips in Robin Barnes' Pro File on page 12.

Chilling on preseason prep. Those quads aren't going to train themselves!



Logging on. Everyone's doing it. Check out www.TheSnowPros.org.

Staying offline. You may be missing out on more than you think. Time to get connected! www.TheSnowPros.org is a good place to start.

Happy Feet. Learn more about bootfitting, starting on page 18.



Sad feet. Being in pain is so five years ago. Get with the program!



Beginner skiers and riders and teaching them to love snowsports! See more on converting beginners on page 60.

Losing touch with the early learning process and missing out on a great opportunity to grow our sport.

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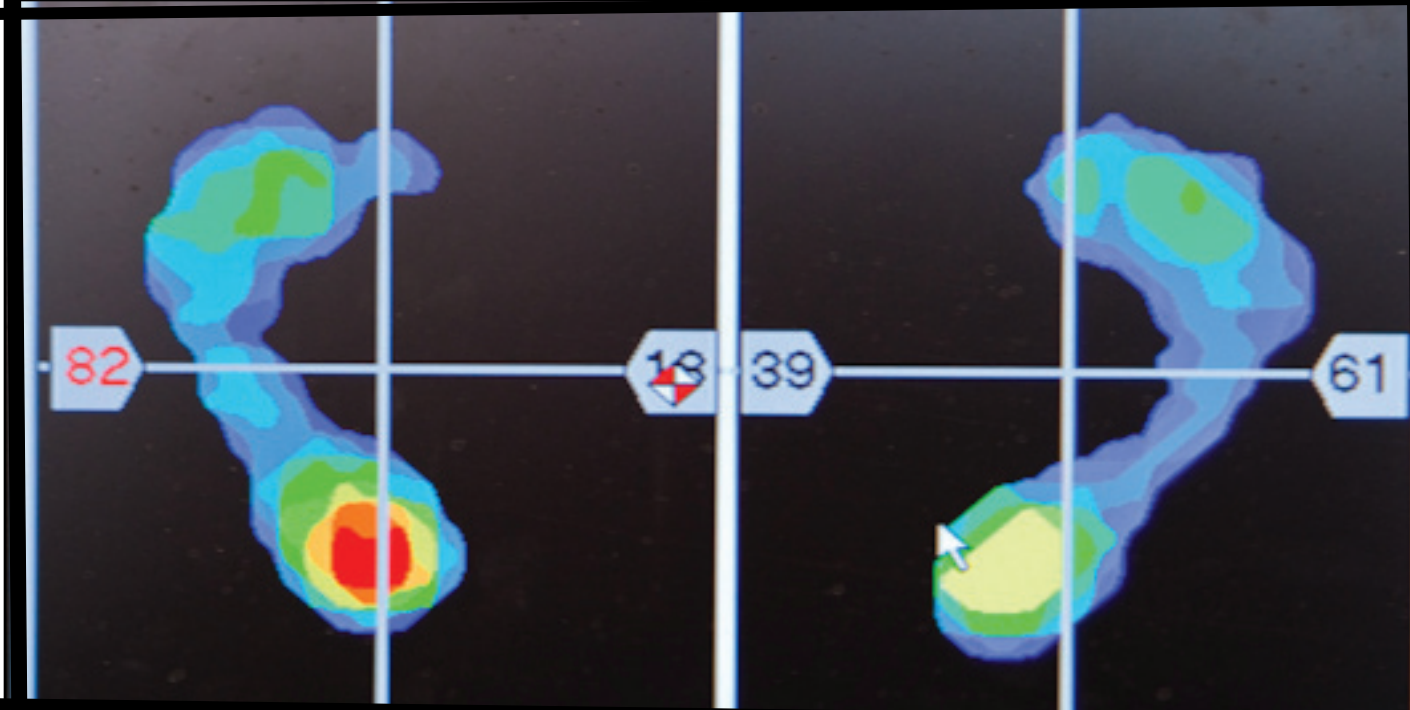
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ALIGNED IN WINTER

How I Finally Got My Boots To Do My Bidding

Text by EARL SALINE, PSIA-AASI Education Manager, with JIM LINDSAY

Photos by CESAR PIOTTO



Here it is, 25 years into my snowsports teaching career and I finally underwent my first official boot alignment. Some of you are probably thinking, *“Whoa, how’d you manage all those years?!”* For those of you who are thinking, *“Yeah, I’ve been meaning to do that, but is it really worth it?”* or even *“Boot alignment? What’s that?”* this article’s for you.

I’m the kind of guy who figured he knew enough about what he was doing and could get his boots set up pretty close to how a professional bootfitter would do it. If something didn’t feel right, I’d come in off the snow and make whatever adjustment I thought I needed, then go back on the hill. And since no one ever said my stance looked out of whack, I presumed that what I was doing was right.

Of course, I’ve also played with different things in my skiing over the years, such as widening my stance, reducing ski lead, standing taller, etc. (You’ve done some of the same things, right?) In the process of working on these specific issues I’d occasionally strike upon something that improved my performance, but I also found that the more I tweaked things the less consistent my skiing became. I know . . . change is uncomfortable and all that. But the thing is, what was most uncomfortable wasn’t the inconsistency in how my skis performed. It was how I was standing. Things just didn’t feel right.

In pursuit of an answer to this vexing development, I came up with the bright idea of going to see Jim Lindsay, owner of BOOTech, Inc., in

Aspen Highlands. Ever since I arrived in Colorado seven years ago, I’d been hearing about this guy from friends and colleagues in the snowsports industry. Whenever Lindsay’s name came up, it was always in a positive light and in a context of helping someone achieve the skiing performance they were after. There are lots of other boot gurus out there (and, in fact, you can get acquainted with some of them in “The Inside Boot” on page 26), but I chose Lindsay for two primary reasons. One, he works on my friends’ boots, and, two, I really like Aspen Highlands.

And so one day in April I made my way to Lindsay’s shop and subjected myself to the measurements, machines, and machinations of a guy who, unlike myself, really *does* know what he’s doing

when it comes to boot alignment. A little clarity of terms might be in order here. “Bootfitting” can be simply defined as modifying your boots to fit your feet, for example, stretching the shell to accommodate that bone spur. “Boot alignment,” or “integration,” as Lindsay refers to it, is about setting the boot up to match the skier’s unique physical makeup. This can entail the use of footbeds and any adjustments made to change how the skier stands in the boot. It turns out that between the assumptions and physical accommodations I was making, I’ve been skiing differently than how my body really wants to ski.

Before I take you through a visual tour of the alignment process, here’s some history, courtesy of Lindsay.

In 1970 the Kennedy Cant Company came out with the Kennedy Cant Computer—essentially a boot board that, when a skier stood on it, would light up to indicate if he or she were knock-kneed (i.e., had a stance “bias” in which the feet pronate) or bowlegged (in which the feet supinate). This led to the “fill the void” philosophy of alignment, by which bootfitters sought to have the skier stand flat by placing a wedge underfoot, sized to compensate for the degree of pronation or supination. Typically this was done with a cant wedge placed between the binding and the topsheet of the ski, which meant that particular set of skis was set up just for that skier. This also meant that a skier who tried a different pair of skis wouldn’t necessarily get a good feel for them because he or she would no longer be standing flat.

Starting in the mid-1970s with the San Marco Super Pro, most boots now come with a form of adjustment for cuff alignment. This doesn’t take the place of canting, but it does help align the lower leg with the cuff of the boot, the premise being that this allows the skier to stand in an appropriate stance width with his or her skis flat.

THE ‘BIG IDEA’

Okay, with that history lesson out of the way you might be wondering, “If boots are so adjustable these days why would a skier need to go to a shop

like *BOOTech*?” For me, the decision was driven by two motivations. I was intrigued by the idea of seeing how a professional approaches boot setup, and I wanted to see how close, or far off, my “home remedy” techniques were to being accurate.

Keep in mind that most boot alignment professionals have a central premise, or idea, that guides their process for working with clients. And those ideas can vary. According to Lindsay, *BOOTech* is all about “creating a synchronous relationship between skiers and their equipment.” By conducting a thorough series of measurements—and understanding the relationship between those measurements and the correlation to ski performance—Lindsay and his team strive to build a plan tailored to that individual.

As you might expect, another integral component of this process calls for developing an understanding of the skier and his or her aspirations. To this end, Lindsay asks certain questions before any measurement actually starts, such as:

- What is your experience level?
- How often do you ski?
- How do you like to ski?
- What kind of terrain and snow conditions do you ski?
- Where do you ski?
- How would you like to ski?

This should sound familiar. Lindsay—and, I suspect, all boot alignment specialists—approach their clients the same way you would, by seeking to understand each person and his or her motivations first, then creating a personalized experience for that person.

Just as your personal motivations and goals change over time, so, too, does your body and the measurements that help inform boot alignment. As you become more or less active, as your strength or body composition changes, and as your range of motion and flexibility increase or decrease, your measurements will shift—as will the nitty-gritty specifics of any boot modifications that may be in order. Regardless of who does your bootfitting and alignment work, plan on getting re-assessed every three to four years.

IT'S ALL ABOUT ME

I found the measurement process very informative, as I learned how my body naturally moves and what my boot setup at the time allowed. The photos on pages 20-21 illustrate the main steps I went through with what *BOOTech* calls its “boot integration process.” The emphasis on accurate measurements is illustrated by the “Smarter Ski Boots” evaluation form Lindsay created for me (fig. 1). To help make sense of the numbers and notes, I’ve included Lindsay’s explanation of the various elements.

TEXT CONTINUES ON PAGE 22 »

Date: 4/05/09

BOOTech, Inc. “Smarter Ski Boots”

Client name: EARL SALINE / PSIA ED. STAFF
 Ski Boots: SALOMON X-WAVE 25.5
 Source: _____
 Goals: STANCE WIDTH CHANGES WITH SKIS
BOTH SKIS ARKING EVENLY

Sizing	Left Foot	Right Foot
Length	<u>8.25</u>	<u>9</u>
Arch	<u>8.25</u>	<u>9</u>
Width	<u>2E</u>	<u>2E</u>
Mondo	_____	_____
Abs/Add	<u>18</u>	<u>26</u>

Footbeds: BOOTech, Inc.

Stance Width: 25 cm

Anterior View	Left Foot	Right Foot
Metatarsal Inclination	<u>28</u>	<u>28</u>
Tubercle/CKM	<u>+ / -</u>	<u>11</u>
CKM/Foot	<u>- 2K</u>	<u>11</u>
CKM/Track	<u>0</u>	<u>11</u>

Closed Chain Posterior View

Left: 3 Right: 2 Left: 2 Right: 2

W/accommodation

Open Chain ROM	Left Foot	Right Foot
STJ inversion/eversion	<u>40/20</u>	<u>40/20</u>
TCJ/Dorsiflexion	<u><10</u> >10	<u><10</u> >10
Forefoot/Rearfoot	<u>○ = +</u>	<u>+ = ○</u>

CKM/Foot	Left	Right
W/accommodation	<u>11</u> - ⊕ + ⊕	<u>11</u>

Alignment: Left 25 Right 25

Lifter: _____

Technician: JL
 Work Done: DECREASE FWD

Figure 1: At the heart of every boot alignment is an evaluation sheet for the various observations and measurements that go into a custom fit.

The Process in Pictures



PHOTO 1: Lindsay starts with measurements on which to base any boot adjustments he might make. Here, he is finding my “center of knee mass” (for a frame of reference) by measuring across the widest part of my knee.



PHOTO 2: Next, Lindsay has me stand in a neutral position while he measures where my knee center of mass falls relative to the first separation between the big toe and second toe. This can indicate tracking issues as a skier flexes.



PHOTO 3: By checking—and marking—the alignment of the lower leg in relation to the back of the heel, boot gurus are able to understand how the lower leg interacts with the foot.

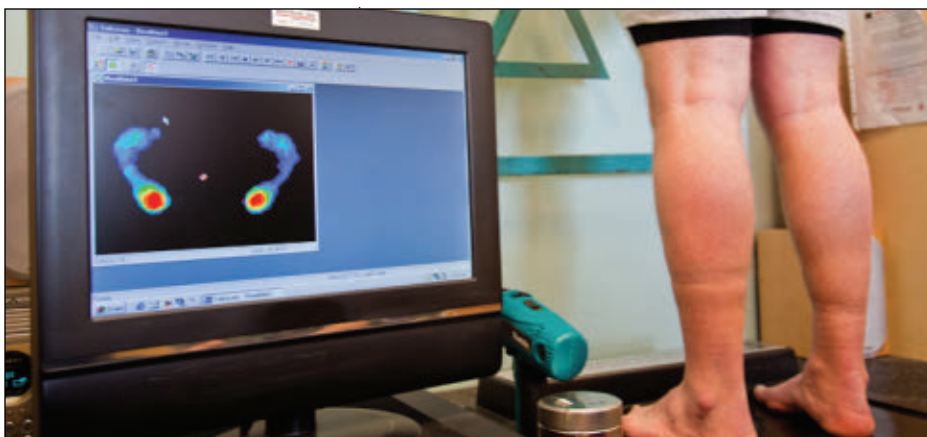


PHOTO 4: Here's where some computer magic starts to come into play. Lindsay has me stand—in my natural stance—on a pressure-sensitive pad to capture information on how pressure is distributed foot to foot and along the length of my feet.

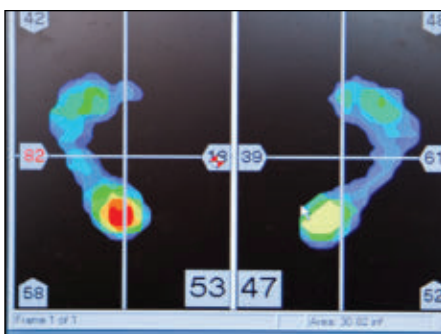


PHOTO 5: In this screen shot of my natural stance (measured on the pressure-sensitive pad), you can see that I tend to stand with more pressure on my left foot and heel.



PHOTO 6: Lindsay measures natural twist along the length of my feet, which relates to whether my foot lies flat or if there is a natural “twist” to it.



PHOTO 7: Lindsay uses wedges to help provide a “foundation” to verify the measurements. Here, I flex with the wedges in place to indicate changes in where the pressure is applied, as well as to demonstrate alignment of the center of knee mass to the first separation between the big toe and second toe.



PHOTO 8: Using a skeletal model, Lindsay shows me where the foot moves and how the foot bones and joint allow the ankle to flex.



PHOTO 9: The next step in the process? Taking foot impressions in preparation for molding the footbeds.



PHOTO 10: Now for the messy work: grinding the footbeds after the posting material—essentially, material to fill any voids—has been glued in place.



PHOTO 11: Here, Lindsay uses a grinder to flatten the bottom of the new footbed so that it sits flat on the boot board.



PHOTO 12: Time to evaluate my initial alignment with the new footbeds . . .



PHOTO 13: . . . followed by a bit of flexing.



PHOTO 14: Back to the computer and pressure-sensitive pad—this time measuring pressure while I stand in my boots with the new footbeds, but before the boot's rear spoilers have been removed.

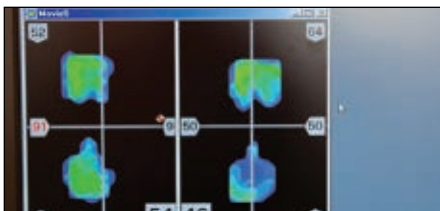


PHOTO 15: This screen shot shows my new pressure distribution—with the new footbeds and *after* the rear spoilers have been removed. Although there's still some "left-foot bias," I'm getting closer to even weight distribution along the length of the foot.



PHOTO 16: With the new footbeds installed and the rear spoilers removed, Lindsay re-measures the angle of flex at the knee.



PHOTO 17: Time now to check the tibial tubercle position relative to the ball of the foot. This helps indicate where the center of mass falls in relation to the foot.



PHOTO 18: Silly human tricks. Before heading outside to see how my new boot alignment will impact my skiing, Lindsay has me try different balancing acts to see how comfortably I can move and balance.

What About Orthotics?

Some of you might have orthotics for your everyday footwear and wonder if you can use them in ski boots. The short answer is . . . maybe.

Custom footbeds are, essentially, orthotics built for skiing. Using an "everyday orthotic" in your ski boots may or may not be appropriate, depending on the style of orthotic (i.e., half versus full). In addition, use of a conventional orthotic may require "bootfitting" to create the desired fit . . . and possibly even align-

ment work to get the boot set up for any stance adjustments created by the orthotic.

You'd need to get a true boot professional to advise you on the suitability of your orthotic for skiing. From my perspective, I'd say snowboarders might more easily get away with using conventional orthotics in their boots, since there's usually more latitude and room for error in snowboard boots than in ski boots. — *Earl Saline*

ON SNOW

Of course, none of the measurements and technical wizardry performed indoors tell me how the changes will feel while I'm skiing. For that, we have to take the show to the mountain—where the P-tex meets the snow, so to speak. This is the only way to evaluate whether the changes made will be effective.

Because Lindsay didn't have a chance to see me ski, he had no visual for what my performance was like before my boot alignment. Thus, he had to rely on my feedback on what I was feeling and how it differed from what I was accustomed to. And let me tell you, I noticed several changes immediately.

Right off the bat I could tell I was standing much taller, due to the fact that Lindsay had removed the rear spoiler from my boots. The result was a different sensation as I pressured the front of the boots. It seemed like I had an earlier—and much more responsive—connection between my boots

and center of mass. The outcome? I was able to pressure the tip of the ski earlier in the turn, especially if I flexed at the ankle instead of moving my center of mass (CM). This allowed me to manage pressure movements along the length of the ski, using more refined flexing and extending movements in my legs instead of grosser movements of my CM.

The other major change in sensation and performance was a newfound ability to "lengthen my legs" more easily during the shaping phase of the turn, thus allowing me to better manage (apply and/or reduce) pressure throughout the duration of the turn. The other added benefit to the increase in range of motion is greater ability to turn my legs and feet (a definite plus in moguls). Before my boot alignment, I'd been toiling away on this tactic with minimal success.

When working with instructors and other professionals, Lindsay uses an

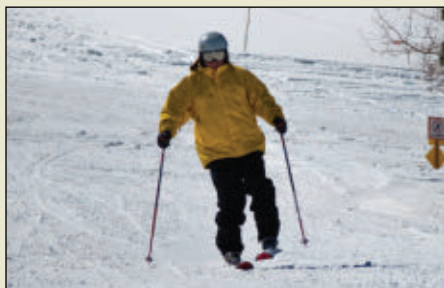
educational process that includes indoor and on-snow components. He leads skiers through a series of exercises, using wedges placed between the boot and binding to create artificial stances in which the skier is first over-edged, then placed in his or her neutral stance, and then under-edged. This gives Lindsay an idea of how a person skis and how his or her body compensates under these conditions.

This aspect of evaluation usually takes place before Lindsay does any work on the boots. In my case, however, I performed the exercises in my newly modified boots in order to gain an understanding of the process and assess my new setup.

The photos that follow illustrate how a stance that's out of whack—whether over-edged or under-edged—can put a skier at odds with effective skiing movements. You'll also be able to see the impact that a correctly aligned, neutral stance has had upon my skiing.

STRAIGHT RUN: The straight run is performed on one foot at a time to reveal how balanced a skier is over that foot. Wedges placed between the boot and binding artificially create circumstances that force the skier to accommodate with movements elsewhere in the body.

OVER-EDGED



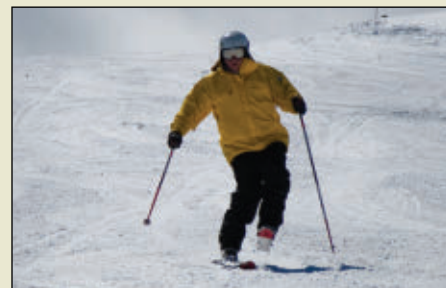
Notice that my upper body is leaning out to help flatten the ski and aid balance.

NEUTRAL



Notice that my center of mass and upper torso are now more stacked and centered over my foot.

UNDER-EDGED



Notice my exaggerated tipping of the leg in an effort to flatten the ski.



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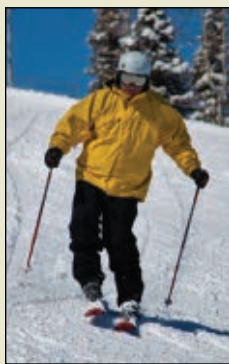
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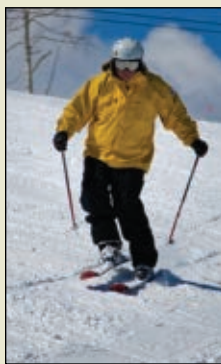
TRAVERSE

OVER-EDGED



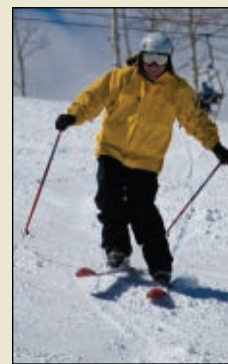
Once again, I've adopted an exaggerated lean with my upper body in an effort to help balance on the edge.

NEUTRAL



Notice the improvement in comfort, with my inside ski level to snow, indicating fore/aft balance.

UNDER-EDGED



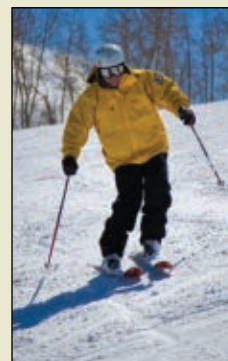
Here, my balance is aft, as indicated by the tail dragging in the snow and the divergence at my ski tips. Note that my entire body is trying to compensate for being under-edged, with the lower body trying—without much success—to tip the ski.



I'm not quite balanced in this picture, but notice the contrast between left foot and right foot balance.



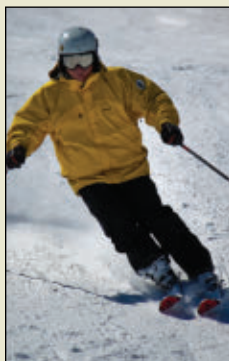
Now check out the similarities between the left and right foot in a neutral stance. See how the tip of my ski is dipping toward the snow? That indicates a slight balance shift forward.



My upper body is really leaning down the hill to compensate for an exaggerated tipping of the lower leg as I try to engage the edge.

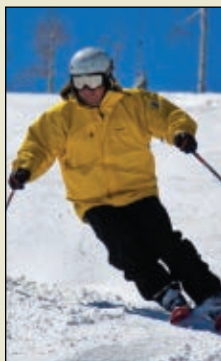
REGULAR SKIING

OVER-EDGED



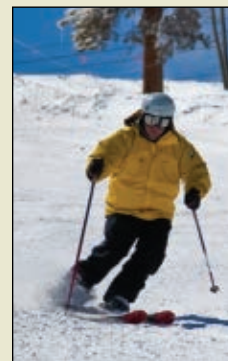
Notice here that I'm trying not to tip the legs as much as I might normally. Also observe the slightly closer stance width and less active tipping of the inside leg.

NEUTRAL



Both legs are tipping more evenly and both skis are more equally pressured, with the inside ski more engaged than in the previous photo.

UNDER-EDGED



Here, I'm struggling to pressure the outside ski and set an edge in this short-radius turn.

CONCLUSION

After skiing the rest of the day (and a few days since then), I have to say that going through this boot alignment experience was incredibly valuable. I've noticed that my range of motion has increased—as has my ability to adjust my movements based on a desired outcome or what I'm feeling in my skiing at any particular moment.

By standing more upright, I can turn my feet and legs more easily and am also benefiting from a greater range of flexion and extension. In addition, I have increased range in my legs with which to manage pressure.

These were really my goals in working with Jim Lindsay and BOOTech. Ski boots are still ski boots, and I don't ever envision a day

when they feel as comfortable as my snowboard boots. But as long as I feel a more positive connection between how I move and how the skis perform, I'll be happy. Lindsay's scope of boot knowledge is vast, and learning the small amount I did will help me be a better instructor as I try to ensure that my clients' boots are truly doing their bidding. **32**



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THE INSIDE BOOT: FIT TIPS FROM FOUR IN THE FIELD

HOPEFULLY THE PREVIOUS PAGES DEMYSTIFIED SOME OF THE LESSER-KNOWN PROCESSES BEHIND CUSTOM BOOT WORK. BUT THE JOURNEY TO A PERFECT FIT DOESN'T ALWAYS FOLLOW THE SAME PATH. JUST AS THE BEST SKI DAYS OFTEN COME FROM SPENDING TIME WITH A KNOWLEDGEABLE LOCAL GUIDE, THE BEST BOOTFIT REQUIRES A SPIRITUAL SENSE OF SORTS, SOMEONE WHO CAN SUPPLEMENT THE SCIENCE BEHIND BOOTFITTING WITH AN APPRECIATION FOR THE ART OF THE CRAFT.

TO COMPARE AND CONTRAST THE MASTERS' PHILOSOPHIES, *32 DEGREES* SURVEYED FOUR RESPECTED BOOTFITTERS — BRENT AMSBURY, P.J. DEWEY, BUD HEISHMAN, AND GREG HOFFMANN.

1. WHAT IS YOUR UNDERLYING PHILOSOPHY OR BELIEF REGARDING BOOT/SKIER ALIGNMENT?

BA: Every skier, from entry level to World Cup racer, can benefit from proper alignment. Although the range of human biomechanics can differ significantly from skier to skier, the laws of physical movement that are required to carve or steer a pair of skis essentially do not change. By providing skiers with the best mechanical advantage based on their biomechanical "signature," you can help them find a new level of efficiency and confidence in their skiing skills.

PJD: This is a quintessential issue that's often not considered at point of sale. It's usually "coached around" rather than analyzed and addressed with simple equipment modifications. A little extra time spent at the boot shop to address these simple balance issues can make skiers significantly better immediately, leading to a better skier experi-



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ence and increasing the likelihood that they will return to the sport.

BH: I believe every serious skier needs to address proper alignment to reach his or her skiing potential. Boots and bindings dictate how and where we stand over our skis. This position—out of the box—is not ideal in most cases, yet most skiers are totally unaware of the effect this has on their skiing enjoyment and success.

I have identified nine parameters I assess and modify in order to place the skier in the optimum balanced position. Proper alignment eliminates the need

for compensatory movements, which detract from efficient and functional skiing movements. An educated ski instructor or coach can pick up on these alignment issues within a few turns, and, if substantial, these issues could and have caused certification candidates to fail their skiing tasks. You tune your skis, right? Tune your boots!

GH: My basic philosophy regarding skier and boot alignment has been consistent over the years. The bottom line is that the boot needs to feel as if it belongs on the skier, and be more organically involved than not. A skier's

alignment, or balance point, should feel more familiar and natural than not. A boot should not feel like a plastic inorganic cast that is forcing an unnatural stance amidst a manmade environment.

2. DESCRIBE ONE COMMON MISCONCEPTION REGARDING BOOT ALIGNMENT AND SKIING.

BA: Alignment is no substitute for good ski technique and a strong stance. Once skiers are properly aligned, they're essentially given "keys" to help unlock a higher level of proficiency, but the phrase "practice makes perfect" still holds true. Skiers cannot expect their equipment to ski for them, but instead should expect that with good alignment, their skiing skills will progress in a more linear and efficient fashion.

PJD: That heel lifts get the skier forward in his or her stance, and that all women need heel lifts.

BH: How about three? 1) Many skiers believe they can simply compensate for any issues their equipment creates, and this is true. But why would you want to compensate? Think about a race car and proper wheel alignment: Can you drive the car with poor alignment? Sure, but will it handle well? Probably not. Will you win the race? Probably not. Will the tires (i.e., your knees and joints) wear poorly? Probably so.

2) Many believe a custom footbed is all they need for proper alignment. Although proper alignment begins with a well-made footbed, it's not the whole enchilada. The footbed does affect both comfort and alignment, but once the foot is placed in a soft neutral position, we then move out and up the chain to assess and adjust other parameters to achieve the total solution.

3) Most skiers can feel half a degree of difference in sole cant, ramp, or delta angles. This is a very minute change, yet these small adjustments create noticeable benefits.

GH: There are many misconceptions regarding boot alignment and skiing. Perhaps the biggest fault of bootfitters and instructors is the "if it works for me, then it has to work for everyone" mentality, e.g., "Brand X boots with Z amount of canting give me the best results; it will work for you, too." No

two people are alike, and not all boots are created equal. Therefore, asking the skier some holistic, hands-on questions and discussing his or her needs is vital to determining the best set-up for each person.

Discover and familiarize yourself with the nuances of ski boots from manufacturer to manufacturer, even model ranges within a manufacturer. It's important to figure out how these nuances interrelate and influence different body types and skier skill levels—as well as which skis the individual favors and what kind of terrain he or she likes to frequent.

3. WHAT IS ONE "TRICK" THAT INSTRUCTORS CAN RECOMMEND TO THEIR GUESTS TO HELP THEM HAVE A MORE COMFORTABLE AND ENJOYABLE DAY OF SKIING (E.G., BUCKLE TRICKS, ETC.)?

BA: One of my favorite recommendations—even though it seems obvious to most of us—is to use top quality ski socks that fit properly. Many skiers are happy to spend their money on top quality boots and fitting, only to degrade their investment with socks that are too thick, over-padded, may be cotton athletic socks, or may wrinkle in the heel as soon as the skiers attempt to put on their boots. High-performance ski socks can not only make your boots fit better, but will also keep your feet warmer and even make it easier to put boots on and take them off.

I also like to recommend to all my clients that they keep their long underwear or tights out of their boots. Tights and long underwear have seams that can restrict circulation around the ankle area once the boots have been buckled.

PJD: Don't suffer with poorly fitted, non-performance-based ski boots. Spend time with a trusted professional to make the gear right so that the rest of the experience is more positive.

BH: Instructors can certainly help their clients with tips to increase warmth and comfort. Probably the most basic advice is to make sure the boots are dry and warm in the morning, and to put on a clean, dry pair of ski-specific socks right before putting on the boots. Make sure there are no wrinkles,

creases, or seams inside the boots. Trim the toenails and shave the shins!

GH: Having the opportunity to run a bootfitting facility at the summit of Vail, Colorado, has allowed me to see a lot of weird things. The number one mistake visiting skiers make when striving for greater comfort is to think "if some is good, more is better." In other words, a skier will often think, "If a little room in a boot is good, then give me an even bigger boot with more room." Bad idea. Too much room leads the skier to over-tighten the buckles, which leads to vascular compression, restricted blood flow, and cold feet. Too much pressure on the nerves can also result in numb feet. Both create a recipe for disaster at 11,000 feet, especially when the guest has come from sea level and is already taxing his or her body with the stress of getting acclimated.

If you have an opportunity to advise guests before they get rental equipment or buy new boots, suggest this: If they try a boot on and the toes touch the front of the boot, do not go to a bigger boot. Try a smaller boot and see if, in fact, the tighter fit will hold the foot in the back of the boot. (Boots that are too large won't hold the foot properly and will allow the foot to slide toward the front of the liner.) As an instructor, consider encouraging the customer to use less buckle tension and go with a smaller boot. Not a boot that's too small, just one that fits.

4. BRIEFLY DESCRIBE THE MAJOR POINTS OF YOUR PROCESS AND ANY REGULAR ADJUSTMENTS YOU MAKE TO THE PROCESS. WHY AND FOR WHOM DO YOU MAKE THESE ADJUSTMENTS?

BA: The first and most important part of any bootfitting process is to conduct a thorough assessment of the foot and its biomechanical movements, such as dorsiflexion, abduction, and eversion. I collect measurements for width, volume, protuberances, and range of motion to begin creating a fit profile of the skier.

Next, I profile the skier's personal parameters such as height, weight, general fitness, and skiing proficiency to both select an appropriate boot and

footbed, but also to develop a level of fit that meets the expectations of the skier.

For example, an intermediate-level sport skier who skis 10 days a year will probably want the boots to be easy to use, keep his or her feet warm, and offer a somewhat plush fit. If I needed to make adjustments for this skier, I would focus on upper cuff comfort, appropriate forefoot width, and nice, snug heel pock-

stantially larger than the other, buy the boot for the smaller foot and make the boot work for the larger.) I use this same process—which takes approximately two hours—for every single client.

The number one problem with boots is that they're purchased too big at point of sale. This situation leads to poor performance and is one of the major reasons most people stop improving

aft and lateral parameters are assessed and adjusted.

The bootboard or zeppa (the piece of material, usually plastic or foam, beneath the liner and above the lower shell) and the footbed determine the “ramp” angle, which—along with the “forward lean” angle—create the “net forward lean” angle of the boot. This angle is adjusted to meet the skier's dorsiflexion needs. Limited dorsiflexion warrants a smaller net forward lean angle, while hyper-mobile dorsiflexion requires a larger net forward lean angle. These adjustments are made by raising or lowering the ramp angle and/or increasing or decreasing the cuff forward lean.

To complete the fore/aft alignment, I look at the skier in the boots and clicked into the bindings to see where his or her neutral position is and adjust the delta angle accordingly. For example, skiers who may have a hyper-mobile ankle need a greater net forward lean angle inside the boot to help them pressure the first metatarsal head. This could place their lower legs at an excessive angle with their knees farther forward than their toes. In this case a flatter delta angle is needed to pull the knees back and lessen the tib-fib angle. This can be accomplished by “gas pedaling” the boot (lifting the toe of the boot higher than the heel) and/or shimming under the binding toe piece.

Final dynamic tests must be performed on the slopes. One of the indicators I look for is the lower leg shafts to be relatively parallel to the skier's spine. The skier should feel easy balance during a series of short swing turns, as well as easy shin pressure on the tongue of the boot at the top of the turns.

On the lateral plane, I have the skier stand in boots with footbeds, without liners, to check for equal space on either side of lower leg and boot cuff. This adjustment is used to accommodate lower leg curvature rather than to change knee positioning. The final step in the lateral plane assessment is the boot sole canting. In general, the goal is to place the center of knee mass over the center of boot rail. Depending on range-of-motion limitations in the hips as well as other physical factors or skier preferences,

THE PHYSICAL EVALUATION OF THE SKIER'S LOWER LEG, ANKLE, AND FOOT MUST CORRELATE TO THE SKILLS INVOLVED IN MANAGING BALANCE AND TO THE QUEST FOR GREATER COMFORT. BECAUSE COMFORT IS PERFORMANCE. - GREG HOFFMANN

ets. The upper cuff fit and forward lean stance are especially important with this skier since he or she will likely rely on this portion of the boot to initiate and control the skis while learning more refined skiing skills.

A high-performance skier will not only rely on good upper cuff fit, but will want a more precise, snug fit throughout the boot. Advanced skiers typically require a footbed cast with precision, and I'll also often make adjustments to forward lean, flex, and ramp angle to help these individuals find a balanced stance. Protuberances and pressure points are eliminated through grinding or heat punching to increase “foot feel” for performance and precision.

Finally, I assess all of my clients for alignment in the fore/aft plane and in the frontal plane (canting). After I make any necessary recommendations and adjustments, I send the skier out for a trial run in the boots.

PJD: After performing the basic shell-sizing test and determining proper flex (based on weight), I construct a footbed, stretch and grind the boot shell, cant the soles, and address fore/aft balance. To get the right shell size, I remove the liner from the shell, have the skier put his or her foot in the shell with the toes touching the front (but not curled). For the general public, there should be no more than $\frac{3}{4}$ inch from the heel to the back of the shell; for performance skiers, no more than $\frac{1}{2}$ inch. It's easy to make a small box bigger, but very hard to make a big box smaller. (If one foot is sub-

and then don't return to the sport more frequently.

BH: I consider nine different alignment parameters, four on the fore/aft plane, three on the lateral plane, and two on the rotational plane.

Fore/aft

- ramp angle
- forward lean angle
- binding delta angle
- binding mount position

Lateral

- boot board/footbed angle (posting)
- boot cuff angle
- boot sole cant angle

Rotational

- boot offset angle
- cuff axis angle

To determine alignment needs, I begin with the feet and lower legs. Assessing the client in his or her bare feet and legs will identify many possible issues. Looking at lower leg curvature, muscularity, and calf size and height identifies considerations for boot cuff needs.

Assessing the foot's flexibility (dorsiflexion, arch flexibility, first and fifth ray mobility) and loading points give a good indication of footbed posting needs and net forward lean needs. I want the footbed to support the foot in a “soft” neutral position, which means that although the foot is supported to achieve a vertical heel cord neutral or sub talor joint neutral, it is still allowed to evert inside the boot. This is critical to efficient balance. The footbed offers the foundation from which the other fore/

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- PASCAL PALLATIN, PRODUCT DEVELOPER, SALOMON ALPINE SKIS.

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this target may vary. I will plane for needs as little as half a degree to achieve symmetry.

GH: In skiing we deal with skills—edging, pressure management, steering/shaping, and balance. These skills directly correspond to the planes of motion involved with balance in everyday life: frontal, sagittal, and transverse. The combination of any of the skills and planes leads to an oblique place in space known as balance.

I have come up with an assessment acronym, “DW15,” which stands for dorsiflexion, windlass, and 1st and 5th metatarsals, all of which are critical to various skiing skills. Why are they important? If a person has limited range of motion in the ankle joint, he or she typically needs a heel lift. Ski boot heels are narrow for a reason but nine times out of 10 the skier’s heel is loose because the ankle does not have enough range of motion for the lower leg and foot to match the angles the boot creates. Without the heel lift, two things could happen. The skier will sit back to get the heel to the ground or the heel will rise up when the skier presses the shin to the boot tongue, causing the heel to lose contact with the boot bottom and to feel loose. This evaluation of the lower joints of the leg and relationship to skills is clutch; understanding this concept is what separates the true bootfitters from the wannabe’s.

Dorsiflexion refers to the ability to pull the forefoot toward the leg at the ankle joint, a motion that’s directly related to pressure control skills. Too little flex leads the individual to sit back and makes him or her unable to steer the skis through the arc of the turn. Too much flex leads the individual to move the center of mass too low, appearing “squatty,” and renders him or her unable to make a C-shaped turn (but more likely to skid through a Z-shaped turn).

Windlass refers to the flexibility in the arch of the foot. If the footbed under the arch of the foot is too flexible, the skier will need more support there; if the footbed is too stiff, the skier will benefit from the addition of soft, shock-absorbing material under the arch.

The 1st (big) toe and the 5th (little) toe create the support structure for the

front of the foot. Flexibility here is related to edging and is grossly misunderstood by 99 percent of our bootfitting experts.

The physical evaluation of the skier’s lower leg, ankle, and foot must correlate to the skills involved in managing balance and to the quest for greater comfort. Because comfort is performance.

HERE’S YOUR CHANCE TO BRAG A LITTLE: SHARE YOUR EXPERIENCE AND THE “WHAT LED YOU INTO THE CUSTOM BOOTFITTING ARENA” HERE, AS WELL AS WHAT YOU’RE DOING NOW.

BA: I started ski racing when I was 14, and the most vivid memory of that time in my life was how painful my boots were. It was not until I was in college and working part-time in a ski shop that I was given a pair of footbeds (some Superfeet Korks) that absolutely revolutionized my skiing and comfort.

Ever since then, I have been fascinated with the potential of bootfitting and finding that “perfect fit.” Twenty-two years later, after decades of ski shop bootfitting, I discovered the certified pedorthist licensing process, went back to school, and received my license in 2004. Bootfitting becomes an entirely new realm when you introduce the science of biomechanics and the study of the lower extremities.

Currently my practice has expanded into footcare for athletes and providing relief for patients with chronic knee pain. I also have introduced to my practice the use of a digital foot pressure mapping system from Tek Scan to verify footbed performance results for skiers as well as cyclists, runners, and golfers.

Brent Amsbury can be reached at PCPUtah@gmail.com.

www.Bootfitters.com/shops/west_UT_ParkCity_PCPedorthics.htm

PJD: I was a shop rat for several years in college, then from 1995 to 2003 worked as a technician for Lange’s North American race department. Since 2003 I have been the owner and technician at Race Stock Sports in Waterbury, Vermont.

www.RaceStockSports.com

BH: I never set out to be a bootfitter. The second pair of ski boots I ever purchased were foam-injected Garments back in the mid ’70s. The problem was they were foamed to someone else’s feet, not mine. This was my first foray into bootfitting as I cut and plucked until they were comfortable. Over the years as a ski instructor, I constantly experimented with my equipment, trying to find any advantage I could to improve my skiing performance. I discovered the benefits of proper alignment in 1987 while preparing for the PSIA Alpine Team tryouts, which ignited my insatiable appetite for learning all that I could about optimizing boot set-up. I was fortunate to get some training from some of the Salomon race service guys and began formulating my own methods for balancing boots.

Today, I pride myself on keeping an open mind when evaluating various theories and systems. I try to take the good out of all of it and use what I think works where it works. I am wary of systems or methods that claim to have one solution for everything: “If all you have is a hammer, everything looks like a nail.”

I am currently teaching at Northstar at Tahoe and am a member of PSIA Western Division’s Tech Team. My goal is to help our division train instructors to better identify and differentiate between alignment issues and technique deficiencies and be able to offer students valuable alignment advice.


Bud Heishman can be reached at Bud@Snowind.com.

www.Snowind.com

GH: I’m the founder and owner of Ski Boot Fitting, Inc., in Vail, Colorado. Before this venture, I was the founder/owner of Green Mountain Orthotic Lab at Stratton Mountain, Vermont. I’m a senior instructor with Master Fit University, a board-certified pedorthist, and an orthopaedic shoe technician.

And beyond that, I’m a good guy who’s okay at skiing.

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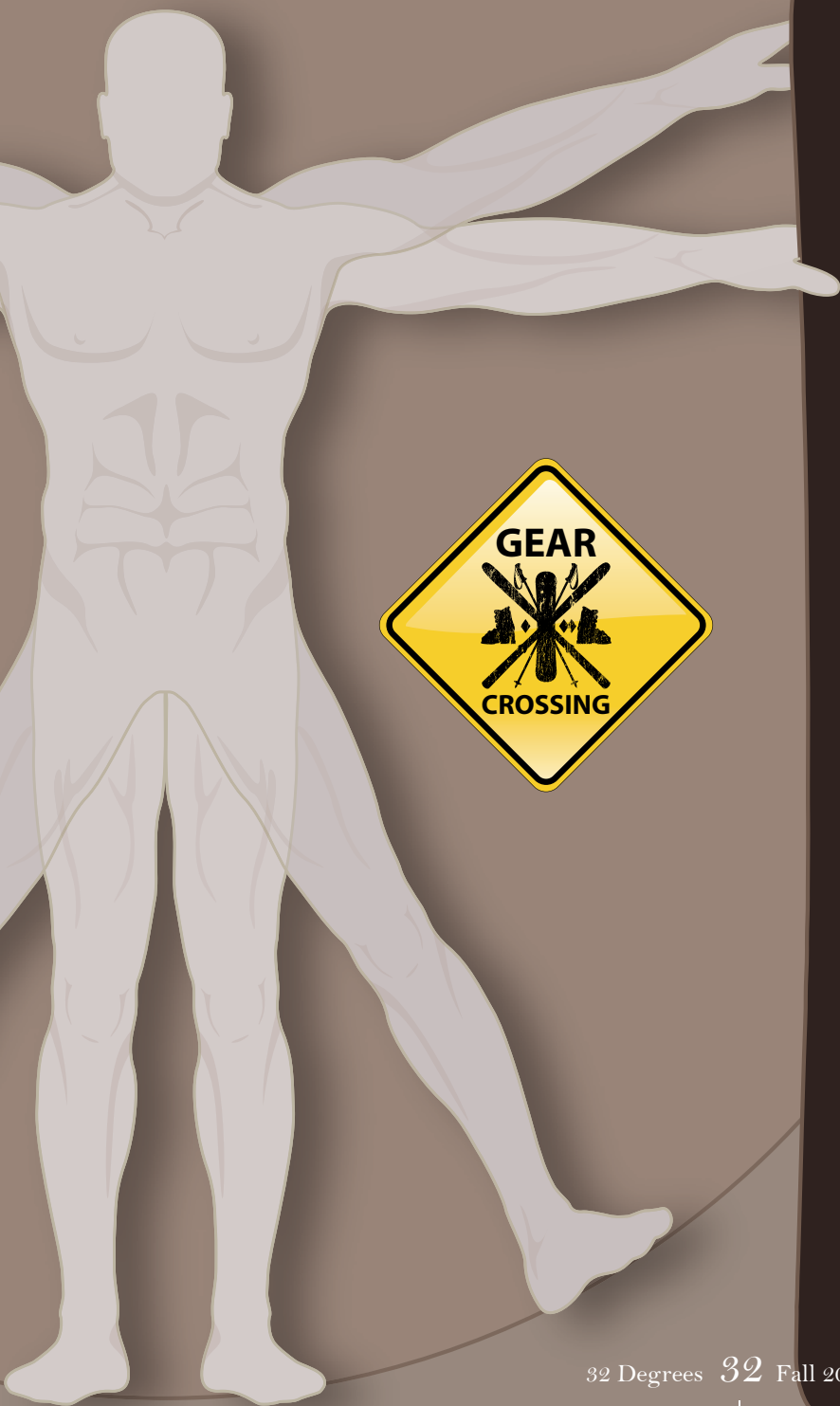
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Choices, Choices:

A Guide to Today's Ski Designs

by MIKE PORTER



If you're surveying the landscape of new skis with an eye to buy this year, you'll find lots to like. To help sort through the options, it's good to know how you ski, where you ski, and what you want your skis to do.

Every year ski manufacturers offer new sidecuts, changes in ski design, and variations in ski construction to entice consumers to upgrade their ski quiver. Up until the early 1980s the advanced skier basically had only three ski designs to choose from; a slalom sidecut, giant sidecut, or a combined ski. Then in the mid '80s a major revolution began, marked by the development of wide powder skis; parabolic, or shaped-ski designs; and the introduction of all-mountain skis.

Today, you can select from waist widths of 63 mm to more than 130 mm, and a full range of sidecuts—from those with a 12-meter turning radius to skis with reverse sidecut. Some skis feature tips that get wider beyond the forward contact point, while others bend into reverse camber (rocker) at both tip and tail. And some have tip-only rocker.

Given this vast array of options, you (and/or your students) are likely teeming with questions and uncertainty when it comes to choosing skis—whether the goal is to have one pair of go-to, do-anything skis or several from which to choose, depending on conditions and terrain. To help you narrow your choices and match the ski relative to your style and desired outcomes, this article examines five design parameters—waist width, sidecut radius, ski taper, rocker, and tail shape—and how they influence ski performance in three condition/terrain categories: groomed, all-mountain,

and soft powder/crud. And the material on tactics can enhance your own skiing and help shape the strategies you share with students in lessons.

Getting the Goods on the Goods

To solidify your selection, use these insights in combination with information you can get from company websites, ski magazine reviews, and personnel at your local ski shop. Company websites address the desired performance characteristics for each of their models and what the ski was designed for, while the magazine tests give good insight into a skis' personality and how it likes to be skied. For example, last season's reviews featured such descriptors as "burly and aggressive," "playful and forgiving," "easy to engage and a pleasure to cruise," "not hard-charging but reliable and predictable," and "#1 in edge grip but slow from edge to edge."

Shop employees are also a good source of information, since many of them have tested the new models at dealer shows and ski company product introductions. It's important to ask how

the ski skied, as likes and dislikes are very individual and not really reflective of a good or bad ski. Ultimately what you want to do is find the category of ski(s) you need, then test and/or research the group to determine the model that best reflects the traits you desire.

As you ponder your ski selection, reflect on what you want out of a ski. The more specific you can be, the more likely you are to find a ski that meets your expectations.

Design Parameters

Waist width is the width of the ski under the foot, which determines how quickly or slowly a ski goes from edge to edge and how well the ski will float in soft snow. Narrower waists offer better quickness at initiation and edge-hold on firm snow. A trade-off with quickness is that the ski can become more finicky, rewarding good turns but generally being less forgiving and consistent when skied all day. The wider the waist the better the ski's flotation in soft snow or crud.

The closer the numbers are, the more closely the tails will follow the tips through the arc (think of a car with all-wheel-drive, with the front tires [tips] pulling and the back tires [tails] pushing).

Sidecut radius is the turn radius a ski would make if you placed it on its side—flexed into an arc—and then continued to extend this arc into a full circle (fig. 1, page 34). The radius of this circle is defined in meters as the turn radius of the ski.

Waist width is closely aligned with sidecut radius, but it's the latter that determines turn radius. The smaller the sidecut radius the shorter the ski's turn radius, regardless of waist width. Conversely, the larger the sidecut radius the longer the turn radius of the ski.

If you combine a narrow waist with a small sidecut radius you have a quick ski that predominately makes short turns. A wider-waisted ski with a small sidecut will make short turns but not be as quick in initiation as a narrow-waisted model. Continuing this train of thought, a narrow waist with a larger sidecut makes for quick initiation of medium- to large-radius turns, while a wide-waisted ski with a large sidecut makes a slower-to-initiate, long-radius turn. Got that?

Again, the smaller the radius number, the tighter the turn shape will be, with 12 meters the shortest generally available. Some skis have what's called progressive sidecut, in which the forebody of the ski has a different turn radius than the aft section of the ski. For example, a ski may have more of a slalom ski sidecut in the forebody, but taper down to more of a GS sidecut in the aft section. Generally, the forebody has more sidecut than the tail. The idea here is to provide more variations in turn shape, since increasing tip pressure and edge angle will tighten the turn radius, and reducing tip pressure or edge angle will lengthen the turn radius. While all skis have tip/waist/tail dimensions—which determine the sidecut—I find it easier to look at the turn radius in meters to determine the skis' characteristics.

Taper refers to the difference between the tip width and tail width (fig. 1). This number tells you how a ski will exit the turn and how it will track in a

Tester's Choice

I have found that testing different skis has helped me learn a lot about how I ski and provides insight on how I can improve—or, in many cases, how new technology can improve me. I have a tendency to primarily ski one pair of skis. As a result, I know its turn radius, how it reacts, and how it responds to my movements. In fact, I often ski like I'm on auto pilot. When I test a ski I'm not sure what its personality is, so I'm on full alert. I make sure my initiations are precise, my timing is spot-on, and I'm tuned in to feel the ski react. I an-

ticipate how it's going to exit a turn, allowing me to select my line and create a good rhythm.

If I'm on slalom skis, I'm constantly amazed at the quickness, positive edge grip, and powerful arc they enable. They also make me realize that if my timing is off—or if I hesitate one second in the turn—the skis leave me behind. The end result is that when I go back to my regular skis I find that I'm more centered, my timing is better, and I can get more performance out of my turns. — Mike Porter

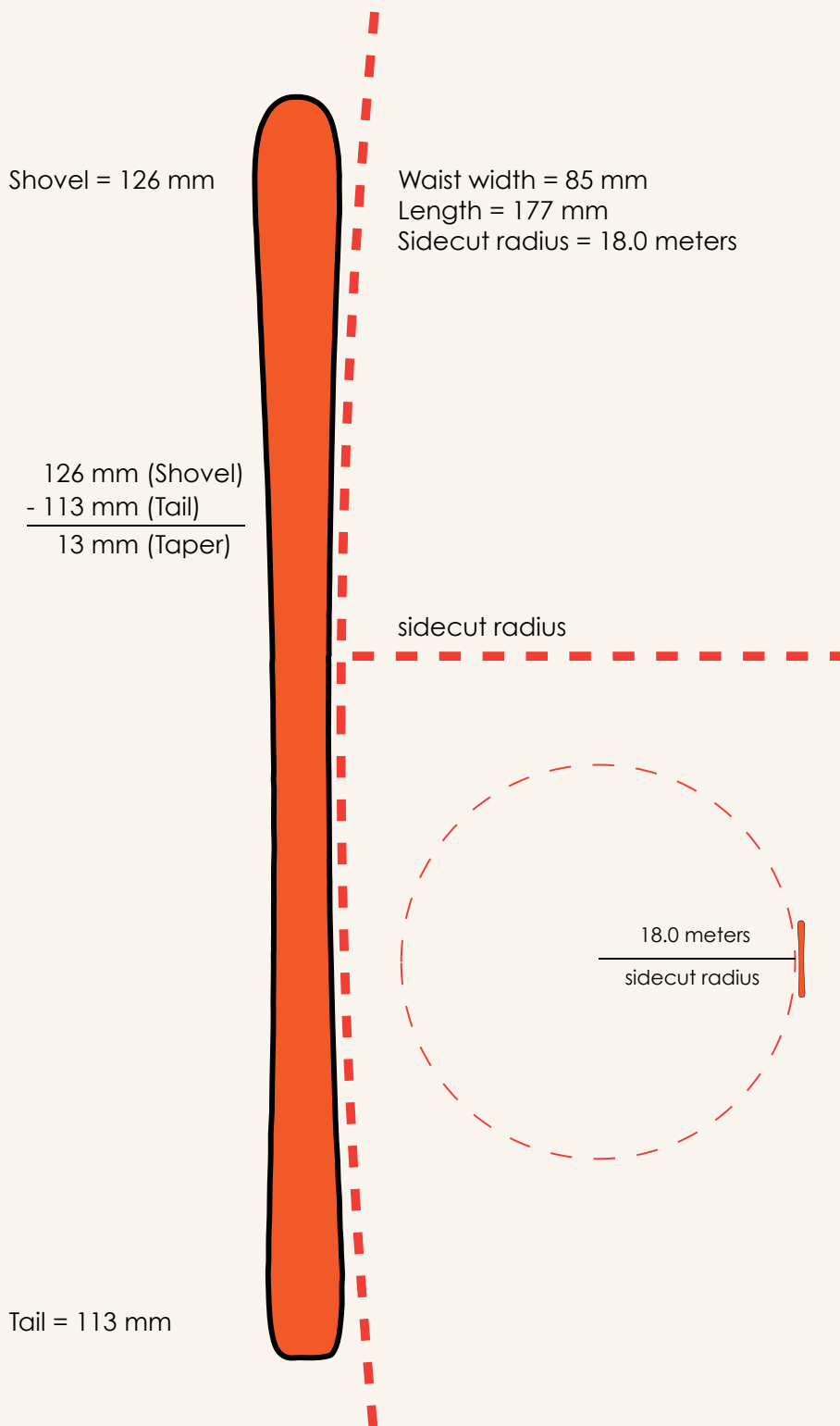


Figure 1. Sidecut radius and taper

straight line. A ski with a 10 mm to 15 mm difference will exit the turn easily. The closer the numbers are, the more closely the tails will follow the tips through the arc (think of a car with all-wheel-drive, with the front tires [tips] pulling and the back tires [tails] pushing). As the taper increases, the aft section of the skis has less impact on turn completion. The taper is usually widest at the tip and most narrow at the tail.

Rocker has to do with a ski's camber. If you place skis with traditional camber together, base to base, the tips and tails touch but there's a small (.5 cm to 2 cm) space between the center of the skis. In other words, each ski arches a bit underfoot. This helps distribute a skier's weight along the whole ski surface when he or she is standing on the ski. Without camber a skier's weight would be predominantly on the center of the skis, with the tips and tails bearing almost no weight.

This traditional camber concept is being challenged in many of today's skis, with rocker—a design in which the ski swoops up toward the tip (or toward the tip and the tail)—being one of the most prevalent of the new trends. Rocker allows the skis to float higher on the surface of the snow and was originally designed for powder skis. This opened up a whole new way to ski in the deep stuff, making it possible to “surf” in powder, land big airs more easily, ski powder switch (i.e., backwards), and jump—and land—switch, etc. Basically, this design keeps the skis from diving or becoming submarines in deep snow.

Rocker comes in two varieties (so far), full rocker and tip rocker. Full rocker skis are designed with reverse camber (the ski, when viewed from the side, looks like the runner on a rocking chair). In a ski with tip rocker, only the forebody of the ski is in reverse camber.

Between the tip- and tail-rocker section, some skis are flat (i.e., there's no camber underfoot) and pretty straight. Some are flat or slightly cambered with sidecut, and some feature reverse camber with reverse sidecut—all of which is meant to help the rockered ski handle groomed terrain and let the skier traverse to find a favorite line.

Okay, so what does this all mean? Tip

rocker allows the ski tips to float on top of powder or crud snow, allowing for easier turn initiation and less likelihood of the skis diving. Full rocker has the same floating ability as tip rocker, but it also allows you to pivot/smear the skis in powder, making it easier to ski in trees or narrow chutes. Outside of the powder/big-mountain arena that almost all these skis are designed for, some ski companies are creating skis with shallow tip and tail rocker for beginner and intermediate skiers as a way to advocate easier turn initiation and turn exit.

Tail shape is another design parameter with several varieties. For the most part there are three different categories: ski tails are flat (i.e., have minimal upturn), slightly upturned and rounded, or similar to the tip (i.e., twin tip). All affect how the ski finishes the turn. The slightly upturned tail and the twin tip allow the ski to release easily out of the turn by curving up and flexing, which reduces the pressure on the tail as you finish a turn (i.e., the skis are more forgiving). While this can be a plus for all-mountain skiing and skiing in challenging conditions, it has its downside if you love to arc the last bit of the turn off the tail or develop rebound and acceleration out of the tail at the completion of the turn.

The flat tail is most common on high-performance skis designed for groomed or race situations. Lately, some models of the wider powder skis come with flat tails for the same reason, to provide a bit of pop or energy at turn completion (a flat tail can work as a brake or to help the skier accelerate out of the turn). These are also useful in backcountry situations where skis are used as anchor points. (Until recently, many hardcore backcountry/heli skiers cut the tails off of their twin-tipped fatties.) The rounded-tail skis promote softer and more consistent turn completion.

Twin tips present some differences in their skiing traits, with some designed to go switch at speed, others set up with stronger tails to support all-mountain applications and provide good pop for tricks, and others designed to be soft for buttering. With regard to tail shape, it's best to read the manufacturer's promo-

tional material prior to selecting your skis. (For more on these versatile skis, see "Twin Tips: They're Not Identical," on page 86.)

Now that you have a grasp of all the ski traits, the next step is to combine ski design with ski conditions to help you refine your selection.

Groomed Terrain

Waist width: 63 to 76 millimeters

Skis with a waist width of 70 mm and less support very high performance, especially when matched with a 12 to 15 meter turn radius. The narrow width supports quick initiation when combined with a small sidecut and pulls the ski quickly into the turn. This "encourages" you to be 100-percent focused and committed to your line—because not only are the turns quick, they are powerful and have a good bit of rebound as you link the turn in the fall line. They're great fun but require both physical and mental energy to get the most out of them. As you go wider, you sacrifice a bit of response time for greater ease and consistency of turn initiation. That said, skis at the wider range of this category are still quite acceptable in turn-initiation quickness.

I should note that almost all the skis in this category require the use of binding lifters, which provide more leverage to facilitate stronger edge engagement. These skis range from race slaloms to detuned slalom race skis (groomer-suited carvers) to all-mountain carvers with good ease of initiation and a consistently playful nature. The last favor groomers and an edgier skill blend, but are meant to be skied off the groomed.

Sidecut radius: 12 to 18 meters

Skis in the 12- to 15-meter range are very quick and generally require physical and mental commitment, since they always want to be turning. There is little to no room for relaxation, particularly when this sidecut measurement is combined with a narrow waist. The upside is quick, responsive, dynamic turns.

A 15- to 18-meter turn radius still offers a good short turn with excellent variety of "medium-ish" turn shapes.



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Considerations for Women

Over the past few years there's been tremendous progress in skis designed for women. Gone are the days when a woman's ski was just a softer production ski with the binding mounting point moved slightly forward. Today's skis are engineered specifically for women. Within the women's range, ski manufacturers have developed a wide variety of models—from soft and easy to full-on power-houses.

One reference point to look at concerns sidecut radius. Some manufacturers give a radius for one length ski (not each individual size), usually in their most popular length. If the reference is an 18-meter radius on a 174 cm ski, then skis shorter than 174 cm will have a tighter turn radius, while skis longer than 174 cm will have a longer radius.

If you're a woman, realize that there is an array of models in all waist widths to match your individual preferences; just make sure you test a variety to see what features you really like. The ski design characteristics discussed in the accompanying article are equally valid for either sex, so they should be used as a guideline.

— Mike Porter

If you like short-radius turns, look for small numbers; if you prefer long-radius turns, go for the bigger numbers. If your priority is overall versatility rather than specific turn-radius performance, skis with progressive sidecut can be a good alternative.

Taper: 10 to 18 millimeters

The majority of skis have a 14 to 18 mm range of taper. The smaller the number, the more the tail will stay in the turn. The larger the number, the easier the tail releases out of the turn.

Ski Tactics

The narrower skis with deeper sidecut (i.e., tighter radius) want to be skied aggressively, working primarily from edge to edge. You can do some shaping, but if not on edge the ski tends to be very "nervous." These skis don't track well in a straight line, and it's usually easier to go from edge to edge (e.g., in mini railroad track turns) while on cat tracks or roads.

To get the most out of the ski, you need to be centered and ski deliberately and aggressively. Narrow skis with deep sidecut can be extremely rewarding, but they demand precision. These skis are generally skied in a shorter ski length to maximize the ski characteristics.

If you like to cruise and carve, the wider waist width of the category with a 15- to 18-meter radius would likely be a better choice. This allows you to shape the whole turn with stability, because the ski isn't too nervous and fussy, yet you can tip it up on a higher edge and still carve. The difference is that the turn radius will be longer and the turns not quite as quick and snappy. The skis' ability to blend between steering, edging, and skidding permits a wide performance range. If you like to ski bumps, choose skis with less sidecut; straighter skis offer the ability to slide, shape, and skid the ski in a variety of bump lines.

The ski length you select will also play a role in how the ski reacts, as shorter lengths allow for quicker turns and easier fall line lanes. A longer ski provides more stability in variable terrain and at higher speeds.

All-Mountain

Waist width: 74 to 88 millimeters

As skis get wider, they usually become slower to initiate and sometimes heavier underfoot. This can be good or bad, depending on the conditions you ski and your preferred turn style and shape. The wider the skis, the better they will float. The heavier the ski becomes, the more stable and less easily deflected it is.

If you ski at faster speeds and in challenging terrain and/or snow conditions, the extra width, slower initiation, and additional weight are to your advantage. If you ski different conditions—from bumps to powder—a mid-range waist may be a better choice as it would provide a blend between weight, quickness, and stability.

Notice I said that as skis get wider they usually get heavier. Ski weight varies considerably between manufacturers, and some are actually lighter than their groomer-g geared counterparts—especially with touring bindings becoming a "standard" option for system skis in this category. If you opt for a lighter all-mountain setup, you can expect the skis to initiate more easily, but they'll also tend to get bounced around at higher speeds, in chunkier snow conditions, and in frozen ruts.

Sidecut radius: 15 to 21 meters

If you gravitate toward shorter turns, go to the smaller radius but keep in mind that all-mountain versatility is best with a radius of 16 to 18 meters. If you ski a fair amount of powder or crud, too much turn radius can be a negative as the tips will want to over-turn.

Turn radius is less of a concern if you ski powder and crud rather slowly, and it actually can be an asset, since having the tips pull into the turn can help you. Skis with progressive sidecut can provide a good option, as they will produce a variety of turn radii.

Taper: 12 to 17 millimeters

The characteristics here are the same as those detailed in the "Groomed" category. One exception, however, is if you will use your all-mountain ski fairly often for powder skiing. Most

think a broad waist width is the main criterion for a powder ski, but taper is also important. The narrower the tail in relationship to the tip, the more the tail will sink into the snow, allowing the tip to float higher on the snow. This will permit a mid-fat ski to perform like a wider ski in powder, without sacrificing all-mountain versatility.

Ski Tactics

These skis are very stable and, while not being very quick edge to edge, they still provide a good short turn. They can be skied edge to edge if you are making longer-radius or high-speed turns. In general, they provide a nice blend between performance and all-day skiing pleasure.

All-mountain skis typically have a large sweet spot, and are easy to initiate and forgiving. This allows for greater consistency when linking turns and handling variable snow and terrain. The more you steer and shape the turns, the less energy is needed.

Creating higher edge angles will capitalize on the ski's design, with the trade-off being the need for more muscle involvement. If you prefer to ski terrain that's less groomed, look for skis with a wider waist and a larger sidecut radius, as the ability to shape the turns and steer the skis is more important than the carving aspect.

Ski length also plays an important role in personalizing your selection. If you favor quicker turns, like to ski more in the fall line, or ski a variety of terrain, such as moguls and narrow lines with a shorter turn shape, select a shorter ski length. If you like making longer turns—or favor higher speeds—you might want to go longer.

This category represents the greatest volume of ski sales in this country. The skis are extremely versatile, handle all conditions well, and provide a good blend between strong performance and all-day skiing ease. They provide good hard-snow performance while still proving more than capable in soft or crud snow conditions. If in doubt about your selection, I don't think you can go wrong with a model in this category.

Powder, Freeride

Waist width: 90 to 110 millimeters

At this waist width the skis can't be considered quick. Medium- and long-radius turns are the norm unless you're skiing fresh powder.

Sidecut radius: 18 to 28 meters

With the width and weight of these skis, the turn radius typically ranges from medium- to long-radius. If you favor long turns, higher speeds, or the ability to smear your turns, go for the larger sidecut radius. If you like medium-radius and linking figure-eight track turns, opt for the smaller sidecut radius.

Generally speaking, a larger turn radius is better in powder. Since snow texture and depth aren't always consistent, too much sidecut can be a negative as it can cause the tip to hook up and over-turn. A straighter forebody is less likely to be deflected, enabling a more consistent arc. These skis also are usually stiffer to allow the ski to push through the inconsistencies. The ski

width—rather than the ski flex—floats the ski.

Taper: 10 to 18 millimeters

In this category you start seeing the taper decrease as a way to get the whole ski to float on top of the snow. If the whole ski is "above the fray," so to speak, it can make eight inches of powder ski like two feet, since you can't feel or ski on the irregularities underneath.

If the entire ski is on top of the snow, you also have more turn options. You can make traditional turns, smear berms and other terrain features (both natural and artificial), or butter the ski sideways.

The more you're floating on the snow, the less the irregularities in terrain, snow conditions, and cut-up terrain will impact you. The options are almost limitless.

Rocker: Full and tip

As mentioned, rocker lets the skis float higher on the surface of the snow. Tip rocker helps turn initiation by keeping the tip above the snow, allowing it to

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enter the new turn more easily. It also helps keep the ski from over-turning at initiation. Riding higher on the surface, the tip is less likely to be deflected by snow variations and inconsistencies, enabling a smoother ride. Adding tail rocker permits easy turn exit and enhances the ability to pivot or smear the skis for narrow lines in the trees or on tight lines.

Rocker definitely gives the skis a surfy feel. It also has advantages when landing your favorite cliff drop. Among today's skis, you can find all sorts and degrees of rocker. The less rocker the more the ski acts like a traditional ski on groomed runs. Slight tip rocker can still make for a very good all-mountain ski, while some full-rocker skis are great in soft snow but a challenge on groomed. Although rocker initially made its debut in powder ski designs, this technology is evolving very quickly and could potentially make its way into all categories and ability levels. It's definitely an interesting and exciting new dimension.

Ski Tactics

Powder skis are meant to be skied flatter on the snow. The width does you no good if the skis are tipped up on edge. You want the ski to float on top of the snow as much as possible.

As you tip the ski up on edge, the area in contact with the snow surface decreases, allowing the ski to sink down into the snow. To get the most out of the equipment, use more steering and less angulation when skiing powder.

Today's trend of making longer turns in powder is partially a result of keeping the skis flatter on the snow. The classic powder turns of yesteryear had the skis rising and sinking into the snow with each turn.

If you like to make more traditional powder turns (with the skis in the snow and then rising up to start the new turn), look for skis with relatively narrow waist widths and more sidecut. If, however, you like flatter, longer-radius turns and staying on top of the snow, use the wider skis with less sidecut. It's all a matter of what you like and how you ski.

Skis in this category are generally skied in longer lengths to give more

stability and better float but, once again, if you ski slower speeds and narrower lines, or like shorter turns, you can use your normal ski length. If you enjoy wide-open, high-speed turns and rolling through variable terrain, a longer ski length will provide more stability.

Conclusion

Okay, so I hope you now have a more solid grounding in all the nuances that go into selecting skis that will help you master the mountain—given the conditions of the day or the way you like to ski. The best plan of attack is to narrow your choices by using these insights in combination with the gear-test information in commercial ski magazines (which generally covers ski-specific waist width, taper, and sidecut data as well as some performance features). Tester descriptions of how the skis skied can be very insightful, but I also recommend that you test as many of the skis as possible.

I often seek out instructors/individuals who ski similar terrain, lines, speed, and turn shapes as I do to see what they ski on. And, of course, some of the best inside information comes from ski reps and shop employees, so don't be shy about pumping them for information on what they think is best for you. Be sure to tell them how you ski and what kind of terrain you favor.

Good luck, and happy hunting. And enjoy the process. Don't feel as if you must embark on an overwhelming quest to find the right ski. Just explore your options until you find a comfortable design that emphasizes your strengths in the terrain and conditions you like to ski. These days the quality and performance of the major-brand skis is extremely good. They all ski very well and it's more a matter of finding one in which the "feel" and traits match your needs and desires. **32°**

Mike Porter served on K2's product development team for 29 years, and from 1988 to 2002 served first as the training director and then the director of Colorado's Vail and Beaver Creek Ski Schools. He was a member of the PSIA Alpine Team from 1974 to 1996, serving as head coach of the team for 16 years.

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SNOWBOARD DESIGNS ARE OUT TO SHORTEN THE LEARNING CURVE

Text by K.C. GANDEE



Ask anyone who learned how to snowboard in the 1980s or '90s and they'll probably share a similar story about the experience. It goes something like this: *Grabbed a board from the rental shop, stiff as a barn door. Boots barely fit. Flailed around the beginner hill until bored. Jumped on the chairlift. Fell a lot. Bruised up good. At some point made a solid turn and loved it.*

No one understands how they made it through the pain, but they did.

Eventually, word got out that subjecting rookie snowboarders to intense pain might not be the best way to turn beginners into true riders, and companies such as Rossignol and Burton looked at designing a better rental snowboard. These new boards were durable like their predecessors, but, more important, they were designed to be an easier tool for beginners to use when learning how to ride. Today, snowboard manufacturers continue to explore snowboard technology, examining every part of the process, from the rental shop experience to design modifications that will make it even easier to link turns.

During the 2000–01 season, Rossignol solicited input from the American Association of Snowboard Instructors (AASI) when developing its Accelerator Series, which is still in production today. These boards are torsionally much softer than previous



Courtesy of Rossignol

rental boards, making it easier for riders to steer their boards. Since approximately 5,500 AASI members nationwide teach people to snowboard by using their legs and feet to twist the board, the Accelerator boards make it easier for beginner riders to learn because they require less leg strength to pull off a turn. Another plus is that the boards' evolved design minimizes the odds that the rider will catch an edge and experience one of those brain-rattling body slams.

By facilitating the learning process, the Accelerator Series makes it more likely that riders will return to the resorts to continue snowboarding. The Accelerator board line includes a 3-degree base edge bevel and a 3-degree side edge bevel. Boards with angled edges

are designed to prevent edge catches while the beginner is sideslipping or turning.

"Rossignol also includes approximately 1 degree of convexity in the actual base of the snowboard," reports Rossignol National Sales Manager Eric Hutchison. "This takes the beveling concept to the next level and adds another level of forgiveness." Accelerator boards come in different lengths and widths for different size riders, and the various boards are color-coded to make the rental shop experience more convenient for new riders.

For the 2009–10 season, Rossignol has released the Hellraiser Rental Series, which uses the company's Amptek technology to make learning to turn even easier and thereby help increase

rider retention. Amptek uses camber (i.e., the board has a gentle arch when viewed from the side) between the feet and reverse camber (i.e., the board swoops up, or has “rocker”) from the front foot to the tip and from the back foot to the tail. This design creates a board that turns very easily and is extremely forgiving for beginners.

“Most full reverse camber-type boards will drift, making them a little unstable and somewhat prone to edge-catching slams,” according to Chad Frost, AASI Snowboard Team member from 2000–08. “When straight gliding, Amptek is smooth! It’s easy to see that the nose and tail lift much sooner than a traditional full-cambered board. This takes tension off the ends of the board and helps a rider steer or guide the board easily.”

The Hellraiser comes in 138 cm, 140 cm, and 142 cm lengths. At first glance, these might appear to be too short for most riders to use, or use well, but the shorter boards are actually easier to

Rocker at the tips is great for not catching the contact points, so you can spin around like a top.

— Josh Spoelstra

turn. And the overall shape of the board makes it strangely stable.

Josh Spoelstra, 2008–12 AASI Snowboard Team member, is hooked on the Hellraiser for his own riding as well. “[The Hellraiser] is super fun to ride at our level, and what a concept for the beginner/intermediate! Rocker at the tips is great for not catching the contact points, so you can spin around like a top. And the width is great for how short of a board it is,” adds Spoelstra.

Technology aimed at facilitating learning isn’t confined to the snowboard alone. Rossignol’s rental boots include the BOA coiler R system, designed to make it easy and fast to lace up snowboard boots properly. This system replaces traditional boot laces with a wire and a reel device. To tighten the boot,

the wearer simply turns the reel; to loosen, he or she pulls the reel outward, releasing the wire. For instructors, this means no more kids showing up at lineup with laces dragging behind them.

Binding technology also continues to evolve. Rossignol’s Reflet bindings are secured to the board via Rossi’s Easy Disc. A simple flick of the wrist releases the base plate to permit easy on-hill stance adjustments. So the next time a student is unsure of whether he rides regular or goofy, the stance can be switched within the span of a minute or so, and on the slopes rather than in the rental shop. The Reflet binding also incorporates a quick clip adjustment of the heelcup, making it fast and easy to center the rider’s foot on the snowboard, thereby eliminating heel or toe drag.



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Shaun Cattanach

Maeven Cattanach's first day of snowboarding made easier with new board technology.

During the Hellraiser product testing phase, we put a group of AASI-Certified Level III riders on the decks for a day. We began on the beginner pitch, where we found that the boards were very easy to turn. Then we wanted to see how far we could push the design, which led to shenanigans with sets of rollers on the steeper trails. One of the full certs was soon bouncing and jibbing his way down the trail, when he found himself dizzy and totally out of control. After a couple of near misses with the downhill edge, he finally regained command and exclaimed, "Wait a minute. How did I not fall down? How am I still standing?" At that point we knew the Hellraiser would have a similar effect for beginners, who would be happily unaware of the design advantage at work.

Of course, if it has to do with riding you can expect that snowboard pioneer company Burton has also been involved in beginner boards nearly from the get-go. Burton Snowboards launched its learning product line in 1998 with the full support and feedback from the

AASI Snowboard Team. The Learn-to-Ride (LTR) series has progressed from a snowboard product to a full-fledged, multifaceted series of programs in 2009–10. Today, the LTR boards range in size from 80 cm for kids all the way up to a 160 cm version, and include wide widths and the LTR-L (lightweight) sizes in the middle of the range.

Sizes and widths are color-coded, allowing shop employees to provide a quick fit. Like the Accelerators, LTR boards are torsionally soft and use a true twin flex and shape, permitting riders to bend them easily into and out of turns, and Burton incorporates a 3-degree base edge bevel to make edge catches less likely. These rental snowboards use an integrated traction pad to help beginners get a good grip while learning to skate and glide.


New for the 2009–10 season is a fully beveled base on all sizes. "By making the entire base of the snowboard slightly convex, LTR boards allow new riders to make mistakes without paying the consequences," says Burton Resort Programs Manager Shaun Cattanach, a member of the 2000–04 AASI Snowboard Team.

When I started teaching in the late '90s, students were on generic rental boards and step-in bindings. The boards were bomber—super durable, which made the rental shop manager happy—but they didn't bend! I remember seeing beginner riders who had never taken a lesson come down the hill. Watching their feet, I noticed that they were making twisting movements to flex the board torsionally. Their boots moved in the bindings, but the boards didn't budge, which sent them crashing to the ground (ironic proof that AASI movement concepts were legit). The first time I worked with someone on an LTR board, the difference was like night and day. The board, boots, and bindings reacted to the rider's movements; the beginner was able to turn and progress with much less effort.

Burton follows up the LTR series with the Cruiser series, designed as a stepping stone toward traditionally constructed snowboards. Cruisers use a directional shape and flex to help riders nail down their turns and flow. The

Cruzer retains the 3-degree edge bevel, but eases off the base bevel so that only the contact points use the convex shape. This still allows forgiveness at turn initiation, but adds stability for the belly of turns and letting the board run. A 5 mm taper at the tail of the Cruiser lets riders exit turns smoothly and provides extra float in softer snow.

Burton's commitment to helping riders learn also encompasses bindings. LTR Bindings use the Tool-Free Quick Disc (TFQD) to lock and unlock the binding base plate on the board, allowing for ultra fast adjustments on the hill. The LTR Kids Binding uses a one-strap approach with a buckle guide, which allows small, gloved hands to strap in with ease. Burton prides itself on its direct-to-customer marketing program. "By educating the public about how Burton's products make it easier to snowboard, we provide solid service and support to new riders, resorts, and the instructors that will teach the beginners on LTR equipment," Cattanach adds. Burton currently advertises 160 Learn-to-Ride Centers worldwide.

By working in conjunction with AASI instructors to build boards, boots, and bindings around the way we teach, companies like Rossignol and Burton are making it easier for new riders to get hooked on the sport we love. Innovative technology has changed that first riding experience for many new snowboarders; perhaps now that story of the first day might go something like this: *Zoomed through the rental shop with a board that was the best size and width for my body. Boots fit just right, and were comfy and easy to adjust. My instructor changed the way I stood on the board, and it was way easier. I learned to turn by twisting the board and didn't even slam. I can't wait to go back!* 

K.C. Gandee is the recreation manager and a Ski + Ride School clinician at Okemo Mountain Resort in Vermont. A member of the AASI Snowboard Team from 2004 to 2008, Gandee continues to be active in AASI as an Eastern Division examiner and member of the division's steering committee. In the interest of full disclosure, he is sponsored by Rossignol.

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LEVEL

What's New on the Telemark Front



Text by J. SCOTT McGEE

Most people like to have the latest *thing*. Let's face it: it's hard to feel like you're on top of a sport unless you're down with the latest technology. Without the new stuff, you can be so, well . . . yesterday.

Equipment evolves, often along with technique. It takes time to develop the know-how to distinguish real revolutionary technology from clever marketing gimmicks, but making the effort to scrutinize what's new is worth your time. By understanding how equipment innovations can enhance the skiing ex-

perience you set yourself up for greater success in your own skiing and increase your insight with regard to technique and equipment features that can help your students ski better.

There have been remarkable changes in equipment throughout the nordic spectrum, but I'll save a discussion of cross-country and track gear for a future article. Now, though, I'm going to examine the telemark side of the equation. It's no exaggeration to say that telemark equipment and technology have grown by leaps and bounds over

the last 30 years. Even the terminology has changed. When cross-country skis were pressed into service for more decidedly downhill applications, the term "nordic downhill" was used to set this type of skiing apart from its ski-touring counterpart. Now, of course, the term of choice for this discipline is "telemark"—in deference to the Telemark region of Norway, where the legendary Sondre Norheim first laid down this fluid style of turn in the late 1860s.

Considering that free-heel skiing hadn't changed much over the course of



© Luca Diana

Telemark equipment has come a long way since the days of Sondre Norheim.

Tweak Your Gear for Peak Skiing and Comfort

There are an infinite number of possibilities when it comes to modifications of tele equipment, and the features described here are just a few examples of how companies strive to separate themselves from others. This kind of competitive innovation works to your benefit as a tele skier.

Black Diamond in the Rough

The legendary Black Diamond company, so famous as a tele ski manufacturer and formerly known for its climbing gear, is now in its second year of making tele boots. Black Diamond boots have two innovative features: first, there's a nifty wire-dial lacing ratchet that serves to tighten boot laces and then releases with the tap of a button; second, the new boots feature an upper and lower cuff with a significant range of motion and a much freer feel when they're used in "walk" mode.

Just Say "No" to Rocker Launch

Scarpa's new T2X boots come with a flat sole rather than a rockered base. While most boots have some "roll" under the ball of the foot when you buy them, such a feature in a tele boot can leave a relaxed skier in a heels-up position (something known as "rocker launch") and create a subsequent tippy feeling of vulnerability.

The problem with this kind of rocker is that the skier has to either weight the heels to get full-foot contact or modify the binding with a slight wedge under the toe that leaves the boot flat when it's at rest. Scarpa's boots address the challenge by letting skiers start out in their boots without rocker, and the difference actually leads to an initial progressive flex in the boot itself.

When it comes to standing in a relaxed stance with the flat feet that are so crucial to learning to ski well, the rocker launch phenomenon can be a major issue for people just starting out in the sport.

Almost all tele boots develop "rocker" (including those new "flat" Scarpas) after skiing on them awhile, however. There are other things that can increase the perception of rocker launch, though, including having your heel too high (e.g., different bindings have different heights); having a boot cuff locked too far forward; and having the bindings mounted in the wrong location on your skis.

Picked Up by Your Boost Straps

One of the newest new things out there is the elasticized strap available on some higher-end Scarpa models. The idea behind the straps is that as you flex forward, the shin stretches the strap, but then the boot tongue stays in contact as flexion is released—as opposed to the gap that typically forms behind the boot tongue when you're skiing in boots with static straps. The resulting fit with the booster straps is a snug feeling of added control without the "shin bang" of a non-stretching strap.

— J. Scott McGee

at least the last hundred years, the development of free-heel technology and equipment over the last three decades has been dramatic.

Tele boots have undergone a variety of changes, including a big shift in the basic materials used in their uppers. When it comes to shodding your hooves, you can ensconce your feet inside four-buckle plastic boots with canting cuffs. The technologically innovative dual-durometer shell-and-bellows moldings are made of new materials that provide both stiffness and torsional rigidity. A softer plastic used in the bellows increases ankle movement and distributes flex evenly across the ball of the foot.

Tele skis, in case you hadn't noticed, have gotten fatter. The free-heeler of today can get set up with super-wide, beefy tele skis that boast an aggressive sidecut and reverse camber or long shovels.

Bindings have gone from a three-pin configuration to the use of a throw (i.e., a camming lever used to clamp the boot's cable around the boot). First came front throws, then side throws, followed by heel throws. With varying degrees of tension and active resistance, all bindings today are non-releasing.

While a reliable, release-able binding has been the elusive Holy Grail of nordic binding systems, a more recent and realistic phenomenon on the market is the "free-pivot" option that leaves an active binding resistance-free for climbing.

Telemark bindings definitely have to overcome at least one element that other disciplines don't even have to worry about: they need to be suitable for ascending a slope as well as descending it. Such bindings must accommodate kicking, gliding, and climbing with skins. The advent of free-pivot bindings allows the whole binding to hinge at the toe in order to provide "frictionless" climbing.

Even telemark poles have undergone changes over the years. They've gotten lighter, and the straps are better than

makes changing them out easier as the plastic of the baskets wears over time. If baskets are too easy to exchange, though, it means they're also vulnerable to loss in the snow.

No matter which aspect of equipment you're looking at these days, contemporary tele equipment rivals much of the alpine gear out there in terms of the "wow" factor and the ski-equivalent of bling.

BOOTS

Out of all the equipment a tele skier needs, boots are probably the most important. A boot's fit, flex, forward lean, stiffness, height, and rocker can dictate the degree of success to which the human-ski interface affects technique, efficiency, and even style.

The free-heeler of today can get set up with super-wide, beefy tele skis that boast an aggressive sidecut and reverse camber or long shovels.

ever. Many pole companies now provide a bigger, interchangeable powder basket when you buy a pair of their poles. Although baskets can sometimes be difficult to switch out at first, simple use

Finding the boot that's right for you or your student can make all the difference in terms of learning and improving as a skier. Spending a day in rental boots can help you realize the major effects

that minor differences in design and materials can make.

In recent years the biggest innovation in boots is the New Telemark Norm (NTN), a round-toed tele boot with the adjustable release known as the Deutsches Institut für Normung (for those not fluent in German, it's better known as "DIN"). The NTN initiative started as a shared effort by tele boot and binding manufacturers (since no company manufactures both boot and bindings) to develop a standard that provided universal compatibility. Reaching agreement and later procuring the funding took years, especially in a relatively small yet fast-growing market.

Scarpa and Crispi put the first NTN telemark boots into production, and both companies seem to have come close to the mark for a boot that flexes at the ball of the foot while also providing the security and freedom that modern tele skiers demand.

Another cool innovation to come along among almost all of the high-end tele boots on the market is the inclusion of moldable boot liners. The benefits of a good fit via such liners go well beyond performance: they can positively influence comfort, warmth, decreased fatigue, and a fits-like-a-glove sensation when you slide into your boots. For all of these reasons, many people buy liners or custom insoles to improve comfort and performance (thanks to better fit and interface with bindings, and hence, the skis).

The decision to include moldable liners with boots shows that some manufacturers now recognize two truths. First, just like snowflakes, no two feet are exactly alike, and even a so-called perfect fit needs to be modified by a professional for the majority of skiers. Second, boot shells typically have enough built-in leeway to accommodate about 90 percent of users, but to achieve a satisfactory fit for all users requires some custom work.

Whether it's a clever marketing tool or simply a thoughtful addition on the

part of a few boot makers, the inclusion of moldable liners as a standard feature is a brilliant marketing move. Particularly when you consider that aftermarket custom liners can run anywhere from \$150 to \$300, involve foam injections, and require the use of a specialized convection oven to bake the insoles into a shape that will fit your feet.

SKIS

What's new in skis? As with boots, rocker is all the rage: many contemporary tele ski models have a true reverse camber or an early-rise tip and tail. The difference is that early-rise skis can have a regular camber (and sidecut) underfoot, and allow the boards to perform a

Tele fat skis with traditional camber and sidecut have also become a sort of "quiver-of-one" thanks to advances in materials and construction that contribute torsional stiffness without much added weight. You can find boards such as the Rossi Sickbird or the K2 Backlash that take on everything from carving on corduroy, floating in pow, and ripping the steepes.

BINDINGS

While the NTN boot-binding system is among the most newsworthy developments in telemark gear in years, other innovations in standard (75 mm toe) tele bindings are also noteworthy. Cable bindings have become the telemark

standard with such companies as G3, Black Diamond, Rottefella, and 22 Designs.

Of these makers, Rottefella in particular managed to come

For more practiced tele hands, a light pole is a joy to swing.
If you ski both in- and out-of-bounds, adjustability is handy.

bit like fat shorty skis—which can be a real plus when you're not pushing crud or powder off-piste.

Remember your first trip down the hill on fat tele skis? (If you don't, you probably weren't telemarking before 1995.) The float, the stability, and the security were revolutionary for the time. Today, though, rockered skis seem to be the next step up.

One model in particular, the Rossignol System S7 Pro Mancini, has dimensions of 145, 115, 123 mm (that's tip, waist, and tail widths), and a 17.5 m turning radius. The ski's shovel, which doesn't contact the snow until halfway between the tip and the binding, is super-absorbent and floaty in powder as well as in all kinds of tracked-up snow. It has sidecut in the midsection only, and for a fat, rockered ski actually moves reasonably well on hardpack. Because it comes pre-decambered, and utilizes "waterski dynamics" (i.e., basically hydroplaning over the snow), the ski is less demanding in terms of the pressuring finesse needed to scribe an arc through inconsistent or deep snow. The ski allows you to ski wind-whipped and grabby snow as if you're flowing over a buttery blue groomer.

up with an NTN model that's easy to use and provides a smooth transition of power that allows the boot to flex where it's supposed to during a turn. One critique of the Rottefella binding is that the degree of activity in the boot and binding make it difficult to get and keep the ball of the trailing foot/boot in constant contact with the ski, thereby sacrificing a key element in controlling the trailing ski and, ultimately, learning effective and efficient telemark technique.

POLES

When it comes to poles, the usefulness of particular features depends a great deal on the intended use and skier skills. If you're new to telemarking (and falling is part of your daily routine), then go for durability. Heavier carbon or fiberglass poles fit the bill well when it comes to the kind of abuse beginners dole out.

For more practiced tele hands, a light pole is a joy to swing. If you ski both in- and out-of-bounds, adjustability is handy. Remember, though, that bent adjustable poles don't adjust too well. If you tend to cover a lot of

Today's poles feature innovative interface with the skier's gloves.

J. Scott McGee



flat terrain at the end of your out-of-bound excursions, poles that extend up to chin-or-nose height will help you skate more efficiently. Easy in-and-out straps are great for lift riders, while more advanced hand-harness systems are the ticket for doing miles of skinning in the backcountry.

Finally, if the poles don't come with interchangeable baskets, make sure you buy yourself some big baskets for powder and new-snow conditions. You'll also want a set of smaller "performance" baskets for groomers and hardpack.

And now that you've gotten my spiel on what I think is important to look for when you choose your tele poles, I will describe my new hands-down favorite. The Peak Vario S sports a range of adjustable-length options from 110 cm to 135 cm, and has a carbon fiber lower shaft for lightness. The highlight of this system is the harness strap system that smoothly disengages from the grip with the push of a button on top of the pole. The Trigger S grip has a rubberized spike-like protrusion embedded in the top of the grip that hosts the loop on the strap and built into some gloves. The strap, which usually ends up living on the glove, sports a quarter-inch

sized loop of Kevlar string sewn into the Velcro-adjustable three-part strap. The short loop clips over the receptacle in the grip and *voila!*—you've now got a bomber connection to the pole that unclips in a heartbeat with the push of a button on top. This is particularly handy for clipping out on the fly or before boarding the lift. One-handed operation becomes second nature after a few days of using them. (These poles—which are available through the PSIA-AASI *Accessories Catalog*—also come with big powder baskets and performance baskets.)

CONCLUSION

Whether skiing on new equipment is a means to help you win a race, reach your certification goals, or simply have an intelligent answer for clients' questions, it's worth spending some time learning about the gear that's out there. It's a vital part of your job as an instructor to understand new technologies and to be able to speak with some authority about what works for you and others you know and trust.

You can learn about new tele technical tidbits by reading company literature or related websites. You can also bring an extra cup of coffee along for

a shop owner when the place is quiet and he or she has some time to talk and share insights. Grab an extra latte and meet up with manufacturer sales and tech reps in your area; these folks typically have the most experience with a product and can tell you how it's faring on the slopes. Do any or all of these things and you'll be armed with the inside skinny that sets a professional instructor apart from dabbler wannabes.

Finally, you should demo as much gear as you can. You can read all the equipment reviews you want, but take my word for it as somebody who's just thrown a whole bunch of material and opinions at you: a written description of skis, boots, bindings, and poles is no replacement for trying the real thing out on snow. Whatever you do, don't forget to have fun while you're doing your own review. **32**

J. Scott McGee coaches the PSIA Nordic Team and is the Jackson Hole Mountain Sports School's Senior Manager for Nordic, Training, and Guides in Wyoming. A former telemark competitor, he now dreams of perfect corn on spring backcountry skate ski tours. McGee spends his summers guiding climbs in the Grand Tetons for Exum Mountain Guides.

ABCs OF SKI TUNING GIVE YOU AN EDGE



Text and photos by JACK MOORE

Whether you choose to entrust your boards to the capable care of a ski tech or want to go the do-it-yourself route, what follows will give you the basics for getting the best performance out of your skis. Notice I said “basics.” Waxing is one of those topics for which the actual processes involve numerous details and steps. If this article inspires you to invest in tools and immerse yourself in a full account of the whys, wherefores, and how-to’s, there are a number of great resources available to you (several of which are cited at the end of this article).

CHECK YOUR BASES

In order to turn and glide predictably and efficiently from edge to edge, your ski bases should be as flat as possible. Try using a true bar to determine whether your bases are flat or whether some areas fall short. While the ski is upside down, lay the true bar across the top of the ski base and then slide the bar from ski shovel to tail. If you see light under the middle or sides of the true bar (or if it rocks from side to side), your skis are not entirely flat (photo 1).

If your skis are new and the bases are not flat, take them back to the shop where they were purchased and ask the

technicians to correct this. If your gear is not new or the retailer where you bought the skis doesn’t service them, you can have the bases stone ground at a ski shop or you can flatten the bases yourself by using a variety of hand base-flattening tools. If your bases are noticeably scratched or gouged, you can ask the shop to address this, or repair the damaged areas yourself with base repair materials and tools (photo 2).

Ski bases should also be structured, and fortunately, most of today’s manufacturers impart base structure before new skis leave the factory. In much the same way that tread on a car tire helps

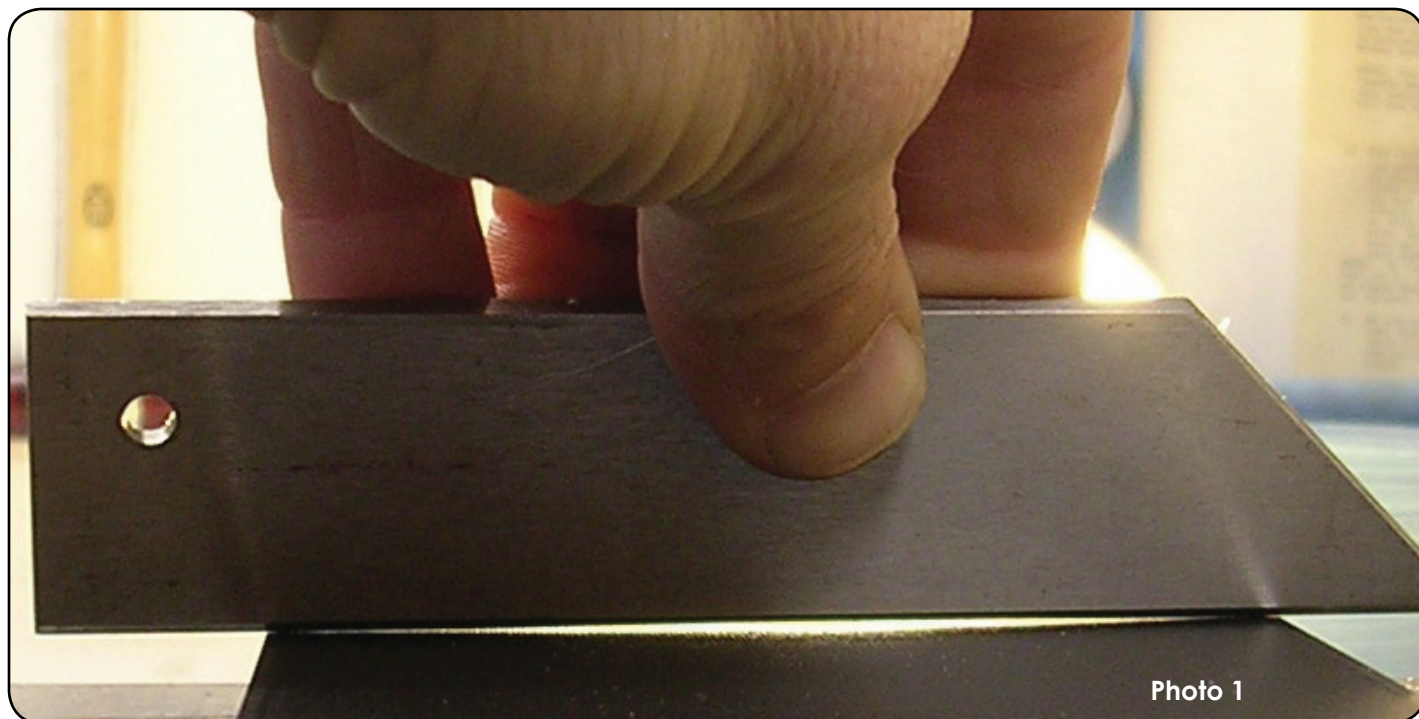


Photo 1

Use a true bar to determine whether your bases are really flat. Here, a true bar reveals an undesirable concave ski base.



Photo 2

Use a P-tex drip candle to fill minor base scratches.

displace water, structure on a ski base breaks up drag-inducing suction caused by moisture in the snow. You can detect this recessed pattern by running a fingernail lightly across the base from edge to edge. If your skis are new, they should already have a detectable base structure. If not, take 'em back to the shop and ask the techs to structure the bases. If your gear isn't new and the old structure is worn, you can have a ski shop impart a new structure or create it at home using hand structure tools.

TUNE YOUR EDGES

After addressing the bases, you'll want to turn your attention to the steel edges

TUNING AND WAXING SCHEDULE

After each day on the snow . . .

1. First, wipe the bases dry with a towel.
2. Then check both your base and side edges for nicks and burrs, especially the inside front edges. Deburr these using an aluminum-oxide or diamond stone (in conjunction with your bevel device or guide), followed by a ceramic or Arkansas polishing stone.
3. Check your base for gouges. If they are shallow, you can either fill them now or wait until your weekly tune-up. If they are deep, fill them immediately. (If fiberglass or core material is exposed, take your skis to the shop for a base weld.) Remove excess repair material afterwards.
4. Check your base for dry or oxidized areas, which indicate that the base needs waxing. A hot wax is best, but a rub-on liquid or paste wax will do in a pinch. (Skis can be placed on two tip and tail vise supports while waxing.)
5. After hot waxing, let the bases cool for 20 to 30 minutes or until they reach room temperature (overnight if possible). Then clamp the skis and scrape off excess wax with a plastic scraper. Brush remaining wax out

of the base structure with a nylon, steel, brass, or combo brush.

6. Fasten skis together using a strap or base protector that will prevent the bases from rubbing against each other.
7. Wipe off ski or snowboard tops and sidewalls with a clean, dry rag, followed by an application of a paste wax to help prevent unwanted snow buildup and reduce drag when skis are laid up high on edge in a turn (the latter being most relevant for racers).

Once a week, or after 3 to 5 days on the snow . . .

Perform all of the aforementioned daily steps, plus the following:

1. Lightly file the side edges (but not the base edges) using a steel mill file in conjunction with a side bevel device or guide. This re-sharpens them for better edge hold, especially on hardpack snow.
2. Hot scrape bases to clean them. This is the same as a hot wax, but you use a soft (warm temperature range) wax, and scrape it immediately after ironing. (Don't let the base cool first.) This pulls dirt out of the base better than any other

method. Follow this with a regular hot wax application.

3. Check your bases for gouges, and fill them if possible.
4. Spray a little boot/binding lubricant on boots, bindings, and ski or snowboard tops (but not on the bases). This will help prevent snow buildup.

Once a month, or after 15 to 18 days on the snow . . .

Perform all of the aforementioned daily and weekly steps, plus the following:

1. Check your bases with a true bar for flatness, and correct if necessary.
2. Check base structure for wear, and refresh or restructure if necessary.
3. Check binding mounting screws (but not the release adjustments!) to make sure they are snug.

— Jack Moore



EDGE BEVEL RECOMMENDATIONS

Note: Bevel angles are a matter of personal preference. These recommendations are for able-bodied skiers; bevels for adaptive skiers vary widely. If you're unsure which bevel to use,

start with the lower number and work up. You can always increase bevel, but if you have to start over, especially with the base, you'll have to have your skis ground flat.

Alpine Ski Bevel Recommendations		
Skier	Base Bevel (degrees)	Side Bevel (degrees)
Novice/Intermediate	1	1
Advanced	1	2
Expert/All-Mountain	0.75 to 1	2 to 3
Slalom Race	0 to 0.5	3 to 4
GS Race	0.5 to 0.75	2 to 3
SG and DH Race	1	2 to 3

Snowboard Bevel Recommendations		
Rider	Base Bevel (degrees)	Side Bevel (degrees)
Novice/Intermediate	1 to 2	0 to 1
Advanced	1	2
Freerider	1	1 to 2
Spinner	2	0
Boardercross	0 to 1	2 to 3
Halfpipe	1	1
GS Race	0.5 to 0.75	2 to 3

Sharp edges are critical to optimal performance and control, and edges are relatively easy to sharpen at home.

WHERE TO BUY THE TOOLS

PSIA-AASI members can get great deals on Swix tuning products through the PSIA-AASI *Accessories Catalog*, accessible online at www.TheSnowPros.org. In fact, when you purchase two Swix items from the *Accessories Catalog* you'll receive Swix's Ski/Snowboard Preparation Manual free (while supplies last). Toko also offers special pricing for PSIA-AASI members (e-mail info@mammutusa.com for more info). Other sources for tools include:

- Tognar Toolworks (www.tognar.com)
- Race Place (www.ski-racing.com)
- Racewerks (www.race-werks.com)
- Reliable Racing (www.reliableracing.com)
- Local shops



Photo 3

When beveling, start with the lower number and work up.

on your skis, which should be tuned regularly. Sharp edges are critical to optimal performance and control, and they're relatively easy to sharpen at home.

First, the edges should be beveled in accordance with your performance needs. Refer to the recommended bevel angle chart at left. As with other mechanics of tuning, you can have this work performed by a shop, or do it yourself with files and bevel guides or a bevel device (photo 3).

Put away your file after you've established the appropriate bevel angles. Your file should be used to re-sharpen side edges only on rare occasions; you'll want to leave your base edges alone until the next time you have your skis stone ground.

Normal wear and tear often results in small but grabby edge burrs that can catch unexpectedly in the snow and cause the ski or snowboard to behave unpredictably. Therefore, the edges should be deburred and polished frequently with stones (aluminum-oxide, diamond, ceramic, or Arkansas); this is the secret to sharp, efficient, and rust-free edges.

WAX YOUR BASES

Now that you've addressed the bases and edges, you'll want to pamper your bases with a fresh coat of wax. Despite being made from high-tech polyethylene (commonly known as P-tex), ski bases



GET ON THE BUS AND JOIN US FOR PSIA NATIONAL ACADEMY 2010 — APRIL 17-23.

Be the first one on and you'll get a window seat in the back, where all the cool kids sit. This bus fills up fast, and kiddos at the last stop will miss out on the clinics, freeskiing, and legendary parties. So, flip the page, fill out the registration form, and remember, no pushing, no shoving, no chewing gum. Visit www.TheSnowPros.org for more information.





PSIA National Academy

Snowbird, Utah. April 17-23, 2010

REGISTRATION FORM

Registration deadline is Wednesday, March 10, 2010

Event is limited to 180 people. If limit is reached prior to the deadline, registrants will be placed on a waiting list.

☐ Full Academy Participation **\$1,175**

(Arrive April 17, before 6 p.m. Depart April 23, anytime.)
Fee includes lift pass, ski clinics, education seminars, six nights lodging, opening reception, five breakfasts, five lunches, two buffet dinners, and closing banquet. *All lodging is based on double occupancy. Single rooms limited, \$348.00 additional.*

☐ Resident Fee **\$775**

Includes lift pass, ski clinics, five lunches, education seminars, opening reception, closing banquet.

Ski groups:

Academy ski groups will be defined at the opening night's reception.

Cancellation Fees:

Up to 30 days (3/18) prior to event \$100/\$60 (Full/Resident)
15-29 days (3/19-4/2) prior to event \$588/\$388 (Full/Resident)
No refund 14 days or less before event.

If a substitute is found, cancellation charge is reduced to:
\$50/\$30 (Full/Resident) up to 30 days before the event.
\$75/\$45 (Full/Resident) between 15-29 days before the event.

Release Form

In consideration of acceptance for enrollment in the PSIA National Academy 2010,

(please print name) _____

hereby releases and forever discharges Professional Ski Instructors of America, Inc. (PSIA) and PSIA Education Foundation (PSIA EF) from any and all liability arising out of the operation of sponsoring Academy to be held in Snowbird, UT, April 17-22, 2010. Applicant hereby acknowledges that participation in National Academy is solely at his/her own risk, and as a condition of participation in said Academy, Applicant agrees to hold PSIA and PSIA EF harmless from any liability resulting from injury or damage suffered by the Applicant as a consequence of participation in said Academy. Applicant hereby relinquishes and assigns to PSIA and PSIA EF all rights to the use of Applicant's name and likeness or pictorial representation in photographs, motion pictures, or other representations concerning Applicant's participation in said Academy.

I hereby state that I have fully read, understand and agree to the above terms and conditions.

Applicant's Signature _____

Date _____

In case of an emergency, please notify

Name _____

Address _____

City/State/Zip _____

Phone _____

If you have any questions, please contact the PSIA Meetings Department, 303-987-9390 x4832, fax 303-987-9489 or email academy@thesnowpros.org

PERSONAL DATA (PLEASE PRINT): Please read the application very carefully and complete all information.

Date _____ T-shirt size (S, M, L, XL, XXL - circle one).

Name _____ Gender ☐ M ☐ F

Name on Badge _____ Division _____

PSIA National ID # _____ Certification Level _____

Mailing Address _____

City / State / Zip _____

Home Phone _____ Work Phone _____ Fax _____

E-Mail _____ Birthdate Year (for roommate pairing) _____

Roommate: ☐ List name of preferred roommate if you have one _____ or ☐ Select roommate for me

Please indicate if you are a: ☐ Vegetarian ☐ Nonsmoker ☐ Smoker (We will try to accommodate)

Note: This application must be accompanied by the signed release form and full payment or deposit of \$588 (Full), \$388 (Resident), in the form of a check payable to PSIA Education Foundation. You may mail the form to: PSIA, Attn: Karen Hagaman, 133 S. Van Gordon St., Suite 200, Lakewood, CO 80228 or fax it to 303-987-9489. If you are paying by VISA, MASTERCARD, DISCOVER, or AMERICAN EXPRESS, please provide information requested below. Balance of payment is due by Friday, April 2, 2010. PSIA reserves the right to cancel this event at any time, in which case all fees will be returned to the applicant.

If paying by check: Check # _____ Amount \$ _____

If paying by credit card: Name and address of the credit card owner is required ONLY if different from above: Please print.

Name _____ Address _____ City/State _____
(as appears on credit card)

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Amount \$ _____ Account # _____ Exp. Date _____

Signature _____

Check out the PSIA website at www.thesnowpros.org for the downloadable registration form and elective sign-up information.

TUNING MUSTS FOR YOUR HOME WORKSHOP

1. **Abundant light.** You can't tune what you can't see.
2. **Workbench.** Build or buy one that's about 35 inches tall for suitable leverage.
3. **Brake retainers.** Use thick rubber bands or something similar to hold ski brakes out of the way.
4. **Vise.** To hold skis securely so that you can perform precision work.
5. **True bar.** To check bases for flatness and bevel angles on edges.
6. **Edge bevel guide or device.** To assure precise bevel angles when filing, deburring, or polishing base and side edges. (However, because you rarely need a base bevel—and the devices can be expensive—you can opt to have the shop put on the base bevel.)
7. **Steel file to bevel steel edges.** Good choices for most filing needs are the Swix 20-centimeter medium/coarse file or the 8-inch mill files made by Viiala, Vallorbe, or Bludan; they're harder and more durable than hardware store models.
8. **File brush.** To keep steel file teeth clean and sharp.
9. **Diamond and aluminum oxide stones.** To remove burrs from steel edges.
10. **Brass or steel brush.** To remove old wax and open the base structure. If you have to buy one brush, consider a brass/horsehair combo.
11. **Hot wax iron and wax.** For the most durable and effective wax application.
12. **Plastic scraper.** To remove excess wax from bases after hot waxing. Do not use steel scrapers for wax removal; they're too sharp and can cut into base material.
13. **Nylon or brass brush.** To remove wax from deep base structure recesses after plastic scraping.
14. **Fiberlene or Base Tex paper.** To wipe and clean off bases often while tuning.
15. **Scotchbrite or Fibertex pads.** To scour unwanted P-tex hairs off bases.
16. **Ski straps.** To safely secure skis together base-to-base after tuning and waxing.

— Jack Moore



Photo 4

Drip on and heat wax into a base, using a hot-wax iron.

dry out quickly and need to be waxed regularly; otherwise they start losing their gliding ability, become harder to turn, and wear more quickly.

Because waxing can produce fumes capable of irritating the respiratory system, you'll want to wear a respirator and wax in a well-ventilated area.

The best wax application involves using an iron to heat and melt in wax, which helps it penetrate deeply into bases (photo 4). Be sure to use a ski-specific waxing iron since temperatures in a repurposed clothing iron fluctuate too widely to offer consistent heat. If you find that you're short on time or are already on the slopes when your skis start getting "grabby," you can quickly apply a paste or liquid wax. This portable and fast method won't offer the durability and protection of hot-waxing, but it does serve the purpose for a half day or so.

A wide selection of waxes and waxing tools are available. Start with paraffin-based hydrocarbon waxes, which are inexpensive but provide good base protection and performance. These are available in universal (all-temperature) or temperature-specific formulas from manufacturers such as Swix, Toko, and Holmenkol. You can apply fluorocarbon waxes whenever snow is moist enough to make a snowball. Although more expensive than hydrocarbon waxes, they deliver better glide in such conditions.

After allowing the wax to cool, use a plastic scraper to remove excess wax from the surface, then brush the base to remove wax from the depth of the

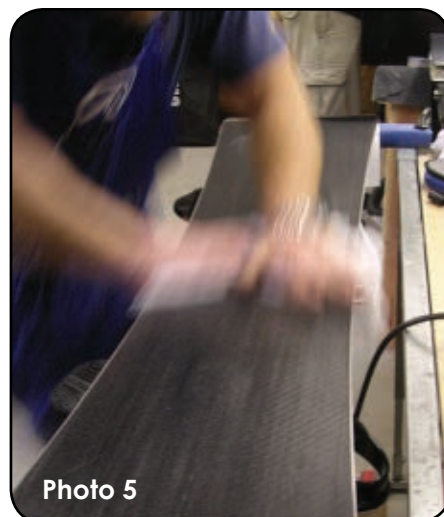


Photo 5

Brush bases vigorously after hot-waxing and scraping.

structure recesses (photo 5). Your goal is to impart wax into the base and not leave a coating on the surface, where it can gum up and slow the skis down.

In much the same way that staying in shape keeps you physically ready for whatever the hill throws your way, regularly tuning and waxing your skis or snowboard enables the equipment to do what it's designed to do. With time—and a relatively small cash outlay when you consider what you just spent on that innovative new set of boards—you can protect your investment for years to come. **B2**

Jack Moore is a veteran ski technician, ski shop owner, and the founder of Tognar Toolworks, a worldwide purveyor of ski and snowboard tuning tools, waxes, and information. For additional detail and helpful tips for waxing and tuning, go to www.Tognar.com.

GET WITH THE PROGRAM

Ski Camps for Women Offer Options

by KATE HOWE

As snowsports instructors, we know that improving technique unlocks more of the mountain, which is why we show up for early morning clinics and train whenever we have a few free moments. This is true for all instructors, but for women—who can sometimes feel outnumbered in a male-dominated sport and profession—training with other women can make the sport seem more evenly balanced, and can help us find new breakthroughs as we feel supported by each other in a way that coed groups just can't touch. Most of us don't want to be treated differently than our male counterparts, but there are times when it just makes sense to ski—and train—with other women.

Finding the time to balance dedicated training with freeskiiing fun can be difficult, especially if you have only enough time to make one run between clients. What should you do? Practice your wedge Christie for your next exam? Work on steeps? Learn to catch air? All in the half hour you have left before the next lineup?

The answer is yes! Get out there and play, for heaven's sake! Twentieth century author Edward Abbey once said, "A venturesome minority will always be eager to set off on their own, and no obstacles should be placed in their path; let them take risks, for godsake, let them get lost, sunburned, stranded, drowned, eaten by bears, buried alive under avalanches—that is the right and privilege of any free American."

With this in mind, make every chance you have to touch the snow a time to play and a time to learn. Turn your runs into playtime, find a little



Renowned freeskier Alison Gannett (in pink) provides expert advice to one of her camp participants.

Devon Balet

stump to hop off, find some bushes to ollie over, cut across to some green terrain and do a set of dedicated wedge Christies, then find a short set of bumps. Follow your desire in the moment, but pay attention to what needs doing. With thoughtful dedication and a healthy dose of play, your skills improve, your understanding increases, and more of the mountain opens up to you.

One of the best ways to find the time to play, work, think, understand, and practice is to join your progress-minded peers in a women's camp. There are hundreds of camps to choose from, including those offered by PSIA-AASI affiliated snowsports schools; the four that follow each offer a different take on the fundamentals we focus on every day.

[Alison Gannett's Rippin Chix Camp]

Alison Gannett is a world champion freeskier, ski film star, and an award-winning consultant for solutions to climate change. In addition to holding world extreme freeskiiing and endurance mountain biking titles and running the Rippin Chix steeps camps and avalanche courses, she has dedicated most of the past 20 years to saving our snow, water, and ecosystems from the devastating effects of global warming.

I had the privilege of skiing with Gannett at Crested Butte, Colorado, during President's Day weekend 2009. As a 37-year-old mom who's broken a few bones, I have to admit I like the idea of catching air, but the consequences have always weighed on my mind. So I was both excited and a little anxious

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No



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about diving headfirst into the camp experience.

By the end of this outstanding two-day camp, taught by extreme skiing pros, including PSIA's own former Alpine Team member Jill Matlock, I had learned five types of air designed to handle challenging terrain, and had dropped off everything from 2-foot stumps to a 26-foot waterfall.

I called my son, Ethan, from the chairlift after I landed my first big one: "Mommy just hucked a big cliff, babe!" and he asked, "Did you stick it?"

"You bet, bubba!"

"Yeah, MOM!" he yelled back.

Since attending the Rippin Chix camp, I've noticed a huge change in my skiing. By incorporating tips from the extreme skiing world into the PSIA model, I've begun to understand the whys and hows of what happens in the air, and now, more of the mountain is open to me! Unforeseen tree stumps and rocks that suddenly pop up look less like things that might break me, and more like things that I can play on.

Spending two days with 62 women who come from all walks—ski instructors, competitive big mountain skiers, women who just love to ski—was an amazingly empowering and exciting experience.

WHAT YOU CAN DO:

Learn Gannett's Five Types of Air, and teach them to everyone who wants to learn (intermediate skiers and up), regardless of age. Pedal Air (bunny hops), Flag Air, Straight Air, Airplane Air, and Kick Turn Air (a.k.a., the "Susie Chapstick") are tools that turn learning into play, inspire confidence, and bring out the athleticism in your students.

Here's an air primer:

Pedal Air—One TWO, like a bunny hop, lift one foot off the snow then

hop into the air using the momentum of your first swinging leg. Like a little skip, you'd be surprised what you can clear and save the bases of your skis on a rocky traverse, or skipping over some exposed grass, or even hopping off a cornice in a bowl.

Flag Air—Face across the hill and swing the downhill ski out. Let it work as a cantilever, pulling you out and downhill as you hop off your uphill foot. Flag Air is great for hopping over a bush or rock, or for hopping down a spine to get close to your takeoff point.



Kim Reichhelm demonstrates the skill that has women clamoring to seek her guidance for improving their own technique.

Adam Clark

Stomp the landing flat in the middle of your skis. You can do these from 1 to 12 feet or more!

Straight Air—Launch off something, keep your head up and eyes open, chin out, land straight, and stay forward (but not too far forward if it's steep or deep...or over the handlebars you go). It's important to look at the turn after the landing rather than the landing itself.

Airplane Air—Similar to a hop turn but with a more aggressive intent. Jump off something, projecting yourself in an arc, and land on the opposite edges.

Kick Turn Air—This is a standing maneuver meant to turn you around in limited space or on steep terrain. Plant your poles behind you firmly one on either side of your body. Let your body face down the hill while your skis are pointed to one side. Lean back on your

poles a little, and all in one motion, pick up your downhill foot and rotate the ski so that it's parallel to your uphill foot but the tip is facing the other way, like second position in ballet. Keeping your momentum, swing your uphill foot and your corresponding pole around so that both skis point in the same direction.

Incorporating these elements into everyday lesson strategies for intermediate skiers can provide a great break from the intense discipline needed to improve turn shape, and from repeated

drills on groomed snow. Find places to play along the way to bring up the lesson energy level and make any student feel just a little bit like a rock star.

For more information, go to www.AlisonGannett.com.

[Ski Adventures with Kim Reichhelm]

Kim Reichhelm is a former member of the U.S. Ski Team, a two-time NCAA All-American for the University of Colorado, and the only skier to win the South American, U.S., and World Extreme Skiing Championships in one year. A reporter and color commentator for ESPN, ESPN2, and Fox Sports, Reichhelm has also made numerous appearances on television shows, including "Late Night with David Letterman," "Dateline," and "Good Morning America." Reichhelm has been hosting her Ski Adventures around the world for more than 20 years.



Kaylin Richardson



US Downhill Champion Kaylin Richardson featuring the New 2010
Dale of Norway IOC Olympic sweater design



"When I started Women's Ski Adventures, my goal was to make skiing more fun for women. I created a ski vacation where my guests wouldn't have to worry about a thing. I wanted women to gain knowledge, build confidence, meet great people, and have fun in the mountains," Reichhelm says. "Today my goals are still the same."

Reichhelm's weeklong camp takes participants through progressions that start at their level, being sure to cover the concepts of safety and self-arrest before moving on to terrain-specific technique. Attendees learn tactics for steep skiing, starting with short pitches for those new to gnarly terrain and extending the range all the way to heliskiing in Alaska, with its trademark long, sustained runs. Regardless of where the women in Reichhelm's camp ply their turns, excellent instruction helps participants ski the steeps in a controlled but free manner.

WHAT YOU CAN DO:

Enroll in a dedicated steeps camp to take your own skiing to the next level. The experience will give you a deeper understanding and a whole bag full of specific tools to help your clients make the leap onto steeper terrain.

Contact Reichhelm at www.SkiWithKim.com for details on each camp.

[Ski Divas with Jessica Baker]

Jessica Baker's inspiration for Ski Divas Women's Ski Camps came from the time she spent skiing with Doug and Emily Coombs in La Grave, France. As she explored the terrain and gained familiarity with the area, Baker realized that the environment lent itself primarily to a male-dominated demographic. Today, her goal and pas-

sion are to bring women to La Grave to help them improve their technical skiing skills and open a new world of possibilities in the European Alps. Additionally, she wants to help women boost their self-esteem and confidence, create lasting friendships and connections abroad, and most important, create an environment where women can challenge themselves with rewarding and supportive outcomes in the incredible setting of the French Alps, Alaska, and more. Camps vary in length.

The founder and head coach/guide for Ski Divas Women's Ski Camps, Baker grew up in the Selkirk Mountains of Sandpoint, Idaho. From a young age she built a successful ski racing career and in 1999 moved to Jackson Hole, Wyoming, where she pursued her love for backcountry adventures, big mountains, climbing, and skiing. Baker has won five big mountain freeskiing competitions, landing such titles as the 2000 North American Freeskiing Champion, 2004 U.S. Freeskiing Nationals Champion, third overall woman on the World Freeskiing Tour in both 2004 and 2005, and more.

A PSIA-certified Level III instructor, Baker is currently a clinic leader for PSIA's Intermountain Division and a trainer for the Jackson Hole Ski School. She has coached steep skiing camps and women's camps in Jackson Hole, British Columbia, Idaho, Alaska, and France for more than seven years, and has taught and guided ski-

ing for more than 13. In the spring Baker spends her time at Alaska Rendezvous Heli-Guides near Valdez, where she is the operation's first female heli-ski guide.

WHAT YOU CAN DO:

Initial backcountry experiences are extraordinary, and the spectacular settings that Baker takes attendees into help connect them to the natural aspects of skiing, which can sometimes be lost in the choreographed environs of today's resorts.

Get outside and get connected to the mountain. Whether you're skiing the less challenging terrain to the downright steep in the amazing Beartooth wilderness or making your own wild adventures in La Grave, France, experience as many different venues as you can. Doing so will help you more easily inspire your students to step outside their own comfort zone if you've "been there, done that" yourself.

Contact Baker at www.SkiDivas.com for more information.

[Adventure Women with Susan Sullivan]

This extraordinary group was started in 1982 by Susan Sullivan, who had a dream to live a life less ordinary. Sullivan organizes groups that travel all over the world, from polar bear photo expeditions to downhill ski adventures in Montana.

CONTINUED ON PAGE 93»



Author Kate Howe has a blast as an instructor for Adventure Women.

Lonnie Ball

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John Crews | Skiing Magazine's Featured Instructor, Sun Valley, ID

"All I can say is, 'WOW!' The new QS⁵ machine is made like a precision instrument and the workout is quantum leaps smoother and quieter. I was hesitant about spending...but now that I've used it a few times, I see it's worth every penny. I can hear the TV while working out, and I can work out without waking my wife!"

J. Michon | Allen Park, MI

"This is the ultimate 'get back in shape' machine I've ever tried. Being from Canada, I thought there is no way that a machine can make me feel the burn in my thighs like an ice run of Eastern Canada. Boy, was I wrong, this machine is incredible, my legs feel like I have been skiing for a week non-stop."

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THE CONVERSION FACTOR

Tap Quality to Build Quantity

by JESSIE HALVERSON, Associate Editor

The number of competing leisure activities is high. Consumer confidence is low. And caught somewhere in the middle of the equation is a snowsports industry that's working overtime to ensure long-term sustainability.

With skier and snowboarder visits often at the mercy of snowfall totals, it's now more important than ever to turn curious beginners into devoted core participants who will stick with snowsports through thick and thin snow coverage to ensure the health of the industry for years to come. A sound goal, right? So how do we get there from here?

Helping to map the route are the National Ski Areas Association (NSAA) and Colorado-based consulting firm RRC Associates, whose research makes up the fundamentals of a presentation NSAA President Michael Berry gave at the NSAA National Convention held in Marco Island, Florida, in May.

According to RRC survey findings, beginners try snowsports for a variety of reasons, whether they're after a challenge, want to be with friends or family, or just hope to escape the daily routine. And if resorts and instructors offer outstanding customer service and strive to make the entire experience fun, these individuals will hypothetically return to the sport year after year.

But roughly 85 percent of these beginners eventually drop out of skiing and snowboarding. Reasons they cite for not returning (or for returning on a limited basis) include the cost of participating, a shortage of leisure time,

and distance from the resort, among a host of other factors.

According to Berry, "We have a more complex relationship with our new customers than we do with our traditional customers. There's been passion for this sport for a long time, but among those people who have entered the sport recently, there's not as much passion, and it varies by generation." He added, "For all age groups, at

someone crossing over from one of the other disciplines—into a core participant is vital to keeping the snowsports industry viable for the foreseeable future. (As defined by RRC Associates, a "core participant" is someone who describes him- or herself as an intermediate and who skis or snowboards at least five days a year [among other attributes].)

To "stay in the game" and ensure job security, instructors with an eye toward the future will want to refine their beginner lessons, both the instruction specifics and the ever-important interpersonal skills. If the industry's health depends on instructors' abilities to hook newbies just looking to have a good time, it stands to reason that experienced instructors who inspire a greater return rate among beginners will be the most coveted (and ideally, those who are recognized and financially rewarded as well).

Many of the study's findings are somewhat intuitive. Slightly more surprising are the beginner demographics. A look into a four-year Beginner Test Site Program sponsored by NSAA revealed that the majority of beginners fell into the 25- to 44-year-old range, so they're not all kids or teenagers. Interestingly, about 60 percent of the beginners surveyed at these sites during the 2005–06 season were female and 40 percent were male, which is the opposite of the overall distribution of skiers and snowboarders for that season (60 percent male and 40 percent female). And while snowsports are still most popular among white, non-Hispanic ethnicities, 20 percent of the beginners belonged to a minority ethnic group,



Stacey Gerrish

It's more important than ever to turn beginners into lifelong skiers and riders.

the end of the day, if the fun doesn't exceed the hassle and money spent, we lose them."

Because die-hard skiers and snowboarders tend to generate higher revenues and better margins from ski and snowboard school operations, it only makes sense for resorts and snowsports schools to do what they can to turn curious beginners into zealots as quickly as possible. Molding a new recruit—or igniting the interest of a lapsed fan or

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almost double the representation of minorities in the overall ski and snowboard population (which stands at approximately 12 to 13 percent).

Among the beginners surveyed during the 2005–06 season, household incomes were moderate to high, with approximately 40 percent of respondents earning more than \$100,000 annually. Another 14 percent were in the \$75,000 to \$99,999 range; 18 percent earned \$50,000 to \$74,999; and the other 28 percent reported annual household income under \$50,000. From these numbers, you might assume that the financial wherewithal to ski or board is there, but what's still lacking is the passion to commit to the sport (which is certainly where the resorts and snowsports schools can come in).

Inspiring enough passion to attract beginner skiers and riders—and then convert them to devoted participants—is a job well suited to cooperative efforts between resorts and snowsports schools.

To combat the sports' 85 percent rate of attrition and overcome some of the obstacles that keep beginners from returning, NSAA compiled a "Beginner Cookbook recipe" designed to improve the beginner experience. This formula for success includes the following:

1. Provide information about what to expect ahead of time.
2. Improve the arrival process with signs and greeters.
3. Focus on boot fit and on providing extra attention in the equipment rental shop.
4. Limit group lesson size to seven students.
5. Group lesson participants by athleticism and learning goals.
6. Staff beginner lessons with experienced instructors.
7. Focus on offering personalized lesson closure.
8. Provide roving instructors for those not taking lessons.
9. Follow up with guests and invite them back.
10. Create a resort-wide culture of valuing beginners.

There's room for cautious optimism: During a year that saw multiple stock market dives, rising unemployment rates, and consumer confidence near "the bottom of the pool," NSAA re-

ports that preliminary estimates for the 2008–09 season weighed in at 57.1 million skier and snowboarder visits. The total makes 2008–09 the fifth best season ever recorded and puts it slightly above the 10-year average of 56.7 million visits. Overall participation, however, reflects a shift from destination vacations to the more budget-friendly day trips, a change that's consistent with the ailing economy.

Take the NSAA recipe for success, mix in seasoned instructors and area employees who exude enthusiasm and offer exceptional guest service, and finish it all off with a healthy dose of much-publicized white stuff. The perfectly cooked main course should look like a business model poised to grow its participant roster for years to come, safeguarding its place among all the other activities competing for people's ever-threatened leisure time and defying volatile consumer confidence levels.

Overlook a few key ingredients, though, or expose the delicate recipe to the attrition rate of the aging Baby Boomers, and projected visits could plunge as low as 41 million by the 2020–21 season. There's not enough sugarcoating in the world to make those numbers palatable. **32°**

Lessons Rate High in Satisfaction

According to data cited by NSAA and RRC Associates, more than 60 percent of snowsports participants take a lesson when hitting the snow for the very first time. Among beginners who don't fall into the "first timer" category—including those trying out one of the other snowsports as well as those coming back after an extended hiatus—approximately 35 percent opt for a class. And gender matters: women are more likely than men to enroll.

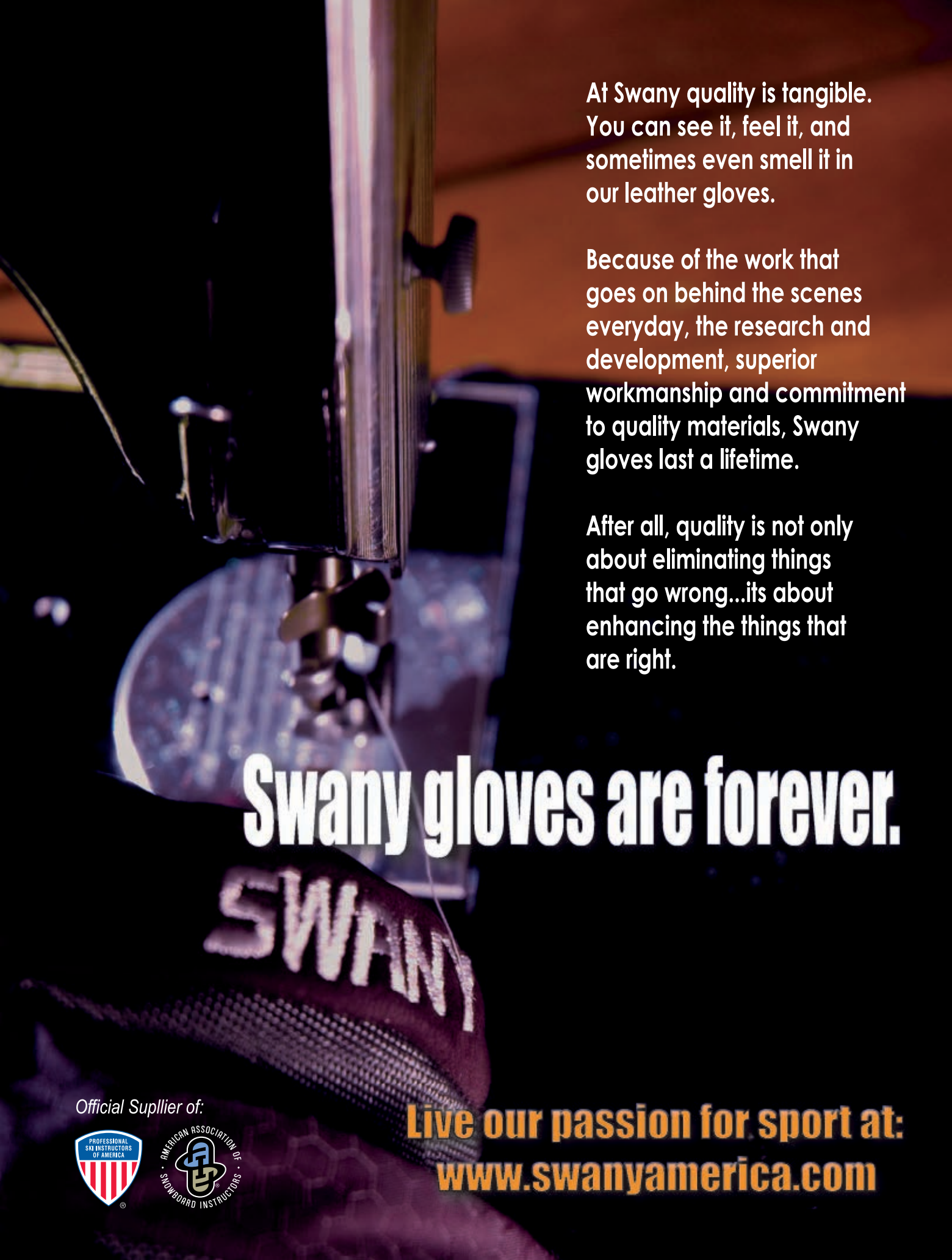
Feedback on the general lesson experience is overwhelmingly positive. Beginners tend to rate their lessons highly, giving the thumbs-up for their instructors and the amount of content covered. In addition to content, several other factors help determine overall satisfaction: personal attention, class size, and lesson conclusion by the instructor. It's a small detail, but remem-

bering to invite students back to your resort (or better yet, to take another lesson from you) can make a big difference in the warm and fuzzy feelings beginners take away from their snowsports experiences.

Aside from the lesson experience, the other factors that have the most significant impact on influencing beginners' likelihood of return include the following:

- Lift ticket value
- Snow conditions/coverage
- Base area attributes such as cleanliness, locker availability, restroom cleanliness, and ticket purchase process
- Lunch experience

— Jessie Halverson



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Go Behind the Scenes of 'Go With a Pro'

by MEGHAN MCCARTHY, *Marketing Coordinator*

Back at the PSIA-AASI national office, watching the first cut of *Go With a Pro* (GWAP), the show's talent (a few members of the PSIA-AASI Teams) seems at total ease regurgitating their lines into the camera. It's mind-blowing, almost, to think back on the hours spent filming and realize that despite all the stumbling and fumbling and multiple takes, the end result is cool, calm . . . collected.

Collected, if you've ever been behind the scenes of an on-snow production, is not the adjective most likely called upon to describe the process. Chaotic, confusing, crazy, to continue the alliteration, would all make accurate substitutes.

Watching the show, though, you would never know that the camera rolls for hours to capture a few minutes of useable material. Or that a dozen takes of the same jump were required to achieve the textbook precision of the ATML Method™. And if you weren't reading this, you would never guess that your PSIA-AASI Team members, delivering their lines so clearly and

confidently, worked straight through lunch and after the lifts had long stopped turning to ensure that their performance supported the Go With a Pro message.

No, indeed, you would never know. What you will see when GWAP airs this fall is expertly crafted—seamless, really—a credit in large part to the team talent, who had to accommodate last-minute script revisions on the fly, and Rival Films, without whose skill in film editing (and everything else from start to finish of the production), we would all be subject to hours upon hours of the good, the bad, and the downright ugly—for it's in post-production when the real work starts.

But let's not get too far ahead, because this all begins in Squaw Valley. Stop, rewind. Actually it began long before, during summer '08 at GWAP Headquarters (otherwise known as PSIA-AASI's national office). Lest we bore you to tears with even another word about the planning stages—other than to hint at the amount of prep (it's A LOT) that's required before anyone

[DO NOT PASS GO... WITH A PRO]

Not caught up on the GWAP saga? Here's the scoop: When the 2010 Olympic Winter Games crank up in Vancouver in February, PSIA-AASI will have been feeding the flames and flooding the airways for some five months with a customized Go With a Pro message cleverly packaged with

an Olympic backstory. It's all part of an hourlong show created from footage shot this past spring at the three venues to have hosted Olympic Winter Games in the United States—Squaw Valley, Park City, and Lake Placid. The show gives PSIA-AASI a chance to offer an educational twist for the unique terrain and snow conditions at each historic site.



Scott Sady

The Snowboard Team's Josh Spoelstra works on a take at Squaw with Matt Fults of Rival Films.

ever steps into a binding—we'll skip to the juicy stuff, like cancelled flights, rain, illness, and all the other uncontrollable disasters that contributed to this production.

[SO IT BEGINS]

Starting with...CANCELLED. As in our flight. This did not bode well for the success of the shoot, and in this case the whole show, since we were on our way to the first location, Squaw Valley, California, one of the famed Lake Tahoe destinations.

And, as if not arriving there at all weren't dismal enough a prospect, when we (the marketing department) did finally arrive, we found Matt Fults from Rival Films contaminating the entire valley with the by-products of his walking pneumonia. He was death-warmed-up, at best. But as they say, "The show must go on!" So at daybreak the next morning we arrived in the Olympic Village to meet up with the stars of the show, Bill Bowness (PSIA-AASI Adaptive Team coach), Michael Rogan (PSIA Alpine Team captain), Mike Hafer (PSIA Alpine Team), and Josh Spoelstra (AASI Snowboard Team). Fortunately, they were healthy and energetic, and the sun was shining.

Smiles and sun, in ordinary circumstances, foretell a successful day on the mountain. But when you're filming, it's a question of whether the sun is shining in the right place at the right time, and if those smiles will reproduce on camera, take-after-take, as shining and enthusiastic as they look on the first ride up the chair. We'll save you the suspense; it doesn't and they don't. That's not to express even the slightest insult to the location or to those on camera, who, at every shoot, exceeded our expectations—it's simply the nature of the beast. As you can imagine, asking someone to repeat the same lines into the camera, over and over, on an empty stomach, in waning daylight, after a full day in boots, is enough to make even the most experienced pro a bit punchy. Yet, at the end of the day we got what we needed, having squeezed every last drop from Squaw's sunny Siberia and Shirley Bowls, not to mention the team guys, who nailed fierce lines through the famed Palisades, and even fiercer lines into the camera. Well played, indeed. On to day two...



Matt Fults captures the end of a long day at Park City with AASI Snowboard Team member Gregg Davis and PSIA Alpine Team member David Oliver; while Meghan McCarthy and Andy Hawk, from the PSIA-AASI marketing department, look on.

Now think "Groundhog Day," the movie with Bill Murray... truly, these undertakings require a whole lot of repetition. Day two was much of the same: lapping the chair and stopping in between for a little face time with the camera. Though the theme at Squaw was big-mountain style, our stars weren't dropping sick lines all day, but more often filming on-piste tips for intermediate skiers and riders.

Fortunately, we had two cameras at Squaw, so on day two, while the team filmed outside, we headed indoors to get a few shots of the Olympic museum at High Camp up at the top of the tram. While we were there, Squaw Valley Vice President Tom Murphy phoned to tell us that Jonny Moseley was on his way up to give us an interview. Cool! Ever prepared for the unexpected, we got all set up for the Olympic gold medalist and ended our day with some words of wisdom from Jonny, who gave us a peek into local lore and attributed his skiing success to his first ski instructor in the snowsports school at Squaw. We could not have scripted it better ourselves.

And then it rained, so we left.

[SECOND VERSE, SAME AS THE FIRST]

Not unlike the shoot at Squaw, in Park City, Utah, we were on tap to film several team members and multiple disciplines. But having learned a thing or two in Tahoe, we split the disciplines into different

days and prepped the guys in advance with more detailed scripts so they would know exactly what to say and what to ski or ride.

David Lawrence of the PSIA Nordic Team wins the overall award for most calories burned in a shoot. You wouldn't have guessed that, though—he was all smiles as he chased the snowmobile (with Matt and camera on the back) in loops around the grounds at Soldier Hollow for an entire day, after which we plunked him in front of the fireplace in the lodge and made him narrate his skiing and describe in detail, on camera, the differences between classic and skate skiing. His entire segment in the show, the result of about 10 hours of filming, lasts just a few minutes.

And again, same scene, different players. Gregg Davis of the AASI Snowboard Team and David Oliver of the PSIA Alpine Team joined us at Park City Mountain Resort the following day for a little (well, actually a big) "park sesh," as they say. Talk to any famous ski flick stars and they will tell you about the explosive falls they endure over and over, in hopes that they can stomp some big air just once and ride away for the camera. That's a huge risk for what probably amounts to about 15 seconds of useable film, and also closely relates to what was shot with Gregg and David. While we weren't asking them to go huge, they did have to jump and hike and jump and hike, and jump and hike some more—and then

slide or pop—so we could film the finer points of ATML's approach, takeoff, maneuver, and landing.

After we starved them and killed a lot of their brain cells via repetition and falls, we put them front and center of the camera to read and recite their lines. Then we put them in the car and sent them back to Breckenridge, Colorado.

Like a ski movie mill, we brought on team number three on the third day for bump skiing at Park City. Enter Rob Sogard, coach, and Dave Lundberg of the PSIA Alpine Team. These guys are local, so getting around the mountain and finding the sweet spots to film was no problem (half the battle out of the way). But again, it was “do this, do that, blah, blah, blah”—ski bumps slow, ski bumps fast, ski together, ski individually, ski a zipper line, ski a falling leaf, hike back up, do it again. And again, “Better this time, with more inflection.” Naturally, being the pros that they are, they obliged. And naturally, being the slave drivers that we are, we wrapped the shoot and sent them on their way, on an empty stomach, of course.

PSIA Alpine Team captain Michael Rogan, AASI Snowboard Team member Josh Spoelstra, and PSIA Team member Mike Hafer earn their turns at Squaw, hiking for the camera to the slope with the best angle, light, and snow.



Scott Sady



Julie Shipman

David Lawrence of the PSIA Nordic Team takes direction from Marketing Coordinator Meghan McCarthy and Marketing Director Andy Hawek while Matt Fults of Rival Films stands by for the next take at the Lodge at Soldier Hollow.

[BUT, WAIT! THERE'S MORE!]

The bonus round brought us to Lake Placid, New York. And what a bonus it was, as we only had to shoot three team members in two days. We did, however, arrive early to film with our good friends at the Lake Placid Winter Olympics Museum, who shared with us their impressive collection of Olympic artifacts, images, and film. After which, we stood outside in the freezing cold (frigid, even in March, for people from the balmy West) to film the historically significant Olympic buildings, grounds, and flags.

That's all relatively academic information; let's get back to snow and the fact that we went to Lake Placid intent on filming icy conditions, only to wind up shooting what could be considered primo spring skiing and riding. Yep, it was about 60 degrees and fabulous! Sunny, bluebird . . . you get the picture.

Amazingly, we were able to capture quite a few frames of Jeb and Matt Boyd from the PSIA Alpine Team, and Dave Lynch from the AASI Snowboard Team, carving around the mountain as if it were totally bullet-proof. Let's just say we got up early and got really, really creative—and leave it at that.

Cunning and patience define this segment, which had to be revised with every rise of the mercury. From script and location changes, the guys were totally accommodating as we dragged them all over the mountain in search of ice (there really wasn't any) and

variable terrain (only we weren't looking for slush). Jeb and Matt were able to offer up plenty of tips for carving a slalom course on somewhat less-than-carvable slopes, while Dave made small jumps that were melting away to dirt look like awesome rollers for refining boardercross technique.

On the bright side, we did stop for lunch.

[THAT'S ALL FOLKS!]

All in all, despite starting with one foot in the grave (hey, at least you can only go up from there), the shoots were a success. And they were totally typical. We knew going into this project that what amounts to 44 minutes of finished product would take 60 plus hours of filming, twice that in travel, and countless hours of planning. We knew it would require take-after-take to get it right and that we would have to ask a lot of people to jump through a lot of hoops to make it successful. In the end, though, what's developed is the first in a series of shows created to spread the Go With a Pro message and get people fired up about taking a lesson, exploring new terrain, and checking out some awesome destinations.

We're psyched with the outcome, and we hope you'll agree when you see the show this fall, broadcast nationwide in high-definition. Stay tuned to www.TheSnowPros.org to find out when and where to watch, or link to the blog to learn more about what went on behind the scenes. Whatever you do, don't forget to pack snacks. **32°**



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Team Tip

Fat Skis Offer More to Love

by GEOFF KRILL

The new-school revolution of fat skis is most often associated with face shots, off-piste descents, and breathtaking couloirs located in remote corners of the world. This is the fat-ski selling point that promises excitement and adventure in the steep and deep. A somewhat less glamorous (but no less important) selling point is the wide application of fat skis in the beginner area, the lifeblood of snowsports recreation. Today's fat and mid-fat skis deserve special recognition as useful tools for adaptive skiers—especially those just starting out in the sport—on all kinds of terrain and in conditions as varied as the individuals who ski them.

By giving students a stable platform to build upon, the fat ski helps beginners create a foundation for good skiing from day one. This is especially relevant for novice sit-skiers who are dealing with compromised body function and a completely foreign piece of hardware thrust beneath them for support. A wider base from which to operate will help the student stay balanced while becoming familiar with the nuances of skiing.

The first-time sit-skier feels more stability and balance sitting on a fat ski than they would on a conventional ski. The wider base of support provided by the fat skis streamlines the wheelchair-to-sit-ski transfer and promotes independence from moment one. Sitting still, the skier can feel superior stability while demonstrating balance during drills such as lifting the outriggers off the ground and overhead, and then in the first gliding straight run.

The difference between a sit-ski on a fat base versus a sit-ski on a narrower ski can be equated to the difference of having two feet planted firmly on the ground versus standing on one foot. For that matter, any skier—disabled or

able-bodied, sit-ski or stand up—will reap the same benefits of improved confidence, stability, and balance when starting on a wider foundation. The balance platform is obvious, but what are the performance characteristics when the ski meets the snow?

The beginner sit-ski teaching progression does not differ with the implementation of a fat ski. This wider platform does, however, let the student focus on the basic movement of turn initiation instead of trying—sometimes even fighting—to stay in balance. A skier who is balanced over the ski is much more receptive to learning proper outrigger movements and body position. The fat-ski platform is not equivalent to a set of training wheels on a bike, but the outcome and ability to speed up and enhance the learning process are the same. Once the basic movements are firmly in place, it's easier to switch to other ski choices that offer a variety of performance options. That said, students and teachers should be encouraged to continue using a fat ski beyond the entry-level maneuvers. In addition to providing stability for beginners, the fat



Ken Watson

To give your adaptive students a head start on mastering the sit-ski, consider equipping it with a fat ski to aid balance and facilitate learning.

ski enables a more experienced student to perform in a variety of conditions and terrain choices.

Designed with less sidecut than race and all-mountain skis, powder and fat skis are built with certain parameters that work perfectly for novice able-bodied and adaptive skiers. They still have some of the shape and contour at the tip, allowing ease of entry into the



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turn, while the tail traditionally has less contour and sidecut. This allows the student to easily release the edge and slide the tail around to create those smeared-peanut-butter turns that we instructors like to see in our skiers' first turns. The tip shape allows the ski to engage the snow at the beginning of the turn and the straighter, less contoured tail lets the edge more easily break free of the arc initiated by the tip of the ski.

Skis with more radical sidecut tend to pull the beginner through the turn too quickly, causing a host of problems such as late turn initiation, a railed ski, and letting the uphill hip and shoulder fall to the inside of the turn, thus producing a "banked," passive turn. These problems are common among those just getting the hang of basic movement patterns, but the quickness of a faster-turning ski tends to exacerbate the issues. A wider ski gives the student a little more time to react to the ski, permitting a greater kinesthetic awareness to what's happening throughout every phase of a turn.

The fat ski—because of its greater waist width—requires more deliberate movement than a narrow ski, but that's mostly a good thing. The skier is less likely to inadvertently let the hip, head, and shoulders fall too far inside the turn, creating too high of an edge angle from which to recover. A narrow ski is relatively easy to tip onto an edge, but the beginner sit-skier risks tipping it too much and either falling over or getting locked into a turn and banking with little actual control of the turn. Overall, a narrow ski can be a bit more squirrely.

It's fair to say that a fat-ski design prevents many of the mistakes most common with entry-level skiers, while making it easier for the skier to use progressive rotary and edging movements

through each turn. Precisely because the platform is wider, the skier has to use a purposeful move to get the ski on edge. But rather than over-edge, the ski will more easily fall back to a flat, stable position or support an edge-change maneuver in which the skier tips it back to flat on the way to an edge change.

This is especially evident when you watch students riding on one ski. Look at a photo of a sit-skier or three tracker, and you'll see that the hips or residual limb put the body farther away from the edge on a skinnier ski. The photo of the same skier on a fat ski will show how the

(to keep the ski from sideslipping in the bottom half of the control phase of the turn). Fat skis might not offer the ideal platform for firm or icy conditions, especially on steeper terrain, where a higher edge angle might be beneficial.

Like any ski, the fat ski is a tool designed for a specific purpose. As instructors, it's our job to pick the right tool for the desired outcome and tasks at hand, while also considering the conditions of the day. Just as you would with any student for whom you've introduced a new technique or equipment adaptation, be sure to continually assess performance

When new skiers are figuring out the nuances of body position, it's very easy to create a gross motor movement that can put them out of balance on a skinny ski.

body is more centrally located over the platform of a wider ski. When new skiers are figuring out the nuances of body position, it's very easy to create a gross motor movement that can put them out of balance on a skinny ski.

For example, consider a situation in which a sit-skier prepares to enter a new turn with a large directional outrigger movement that is out of time with the desired turn and radius. The conventional ski might lead to a railed and banked turn that in many cases results in a fall. The same movement on a fat ski will not create as high of an edge angle, and because of its width the ski can more easily be returned to a neutral or flat position, putting the student back in balance. This helps the skier develop finesse for the ski while building his or her confidence.

As with all equipment, however, there are some situations in which a fat ski might have limitations. As a beginner becomes more proficient, he or she may find a fat ski more difficult to control when terrain dictates a certain amount of edge

and the efficacy of your lesson strategies for the given conditions and terrain.

Think outside the box and embrace the fat ski revolution! Fat skis are not just for powder days, off-piste, or extreme terrain anymore. At your next opportunity to introduce an adaptive beginner (either standing or sit-skier) to the sport, why not put the student on a wide, stable base—one that will speed the learning curve and instill added confidence? The fat ski is just another trick to add to your quiver of options; this one will likely improve your students' mountain experience in changing conditions on a variety of terrain. It's a relatively simple equation: If fat skis shorten the learning curve, prevent common entry-level skier mistakes, and make a day on the slopes even more fun, maybe it's time to give them a try. **32°**

Geoff Krill is a member of the PSIA-AASI Adaptive Team and the snowsports director of New England Disabled Sports at Loon Mountain, New Hampshire.

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Seth Morrison has worked with the Hestra R&D team since 2005.



Pro Model
by Seth Morrison

Team Tip

Have You Lost Your Direction?

Text and photos by MICHAEL ROGAN

Demonstration by ROBIN BARNES, PSIA Alpine Team Member

Think back to your snow days before sidecut. Can you remember the high degree of precision needed to get an “old straight” (conventional) ski to carve? The amount of patience required was almost exhausting, and it seemed that your movements needed to be laser guided. And to get both skis carving, well, that was almost otherworldly. Even round, consistently skidded arcs could be accomplished by only a select few in the upper echelons of skiing. The rest of us were forced to pivot and skid our way through life.

Thank goodness sidecut evolved during this lifetime! We’re no longer forced to skid along random tangents as we make our way down the mountain. We mortals are now able to enter the world of the elite and start to scribe thin lines in the snow. Heck, carving on today’s sidecuts has become so easy that just about anyone can stand nearly anywhere on a ski, happen upon an edge, and enjoy the ride as the ski turns. (Not long ago, making those movements on long, straight skis would have had markedly less favorable results.)

Have we forgotten what quality movements are? Sidecut is meant to accentuate and reward good movements, not bail us out when we move badly. You could argue that shaped skis reward fuzzy fundamentals. Instead of building a solid set of skills and later reaping the benefit (the formerly elusive carve), we hit the hill and lay down some impressive tracks with hardly a thought about what really makes a good turn.

Has modern ski design allowed a generation of skiers to forget that the art of the sport lies in the quality of what we call “directional movements”? For me, directional movements are how I stay balanced, keeping me out in front of each turn with my center over my feet. The actual direction can vary slightly—depending on what you want to do based on your understanding of the situation at hand and your abilities. For the most part, though, moving forward and slightly to the inside at the start of each turn is a good place to aim.

To better understand directional movement, review the prerequisites

that follow, and then try the exercise described below.

THE PREREQUISITES

Balance, strength, and athleticism are huge components of quality skiing, including directional movements. The following are a few basic movements that you need to be able to handle before tackling the actual drill. These prerequisites may take practice; don’t be discouraged if you need to work on them first. Practice the next three exercises both statically and in a traverse.

1. Can you balance on the edge of one ski...on the flats, on a pitch, statically, on your uphill edge? If not, set this as an intermediate goal and practice.
2. Can you stand on one leg from a low position and then extend that leg to stand up? If not, you need to work on your leg strength.
3. Can you stand on one leg and roll your foot from your little toe to your big toe? If not, practice this fundamental athletic movement.



Photo 1



Photo 2



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THE DRILL

Find a groomed intermediate run and ski at moderate speed when performing this drill.

1. Start in a basic traverse position with your weight on your downhill ski (photo 1).
2. Without moving your hips forward, shift your weight to the uphill edge of your uphill ski, and lift the downhill ski off the snow (photo 2).
3. Glide for about a ski length on your little-toe edge.
4. Now extend that uphill leg so that your hips are over your feet (your base of support), and balance there for an instant (photo 3).
5. Keep moving forward and slowly move to the inside of the turn. Your ski should want to seek the fall line (photo 4).

The goal here is to get that ski to carve.

Your feedback should be internal and immediate. When you get it right, you should feel strength in your stance, the positive pull of a ski tip carving into the fall line, the ability to hold your inside ski

off the snow for as long as you want, and a feeling of being connected through your body to your ski. Trust me: You'll have an "Oh yeah!" feeling when you get it right.

MOVEMENT ANALYSIS CUES

If you don't find success with the drill, here are a few factors that may be to blame.

1. If you fall to the inside, you have shortcut into the turn too abruptly.
2. If you lean on your pole so hard that it feels like it's about to snap, you've moved to the inside too far, too fast.
3. If your arms beat the air like the wings of hummingbird, it's a good bet that you don't really know where your hips are in relation to your feet.
4. If you feel your calf plastered against the back of the boot, you're sitting way too far back.
5. If you have to pivot your ski and it really never gets out from underneath you, you're out of balance.
6. If you can't continue to shape the rest of the turn, you're not moving with your ski.


FOUND THE DRILL TOO EASY?

Here are some elements you can play with to increase your level of difficulty and further heighten the accuracy of your directional movements.

1. Leave your poles behind.
2. Take one ski off.

3. Continue the carve until your skis point uphill.
4. Experiment with skis with different amounts of sidecut.
5. Go slower.
6. Try it off the groomed runs.
7. Practice on side hills and slopes with double fall lines.

As you practice this drill, you should be able to zero in on the optimal directional movement and sensations that make you feel successful in the prevailing conditions. Keep in mind that because snow conditions, steepness, and terrain are constantly changing, your directional movements will also need to shift to help you stay in balance.

Good directional movement is what allows you to stay balanced over and against your skis—and what can keep you from having to make abrupt adjustments. When you know what shape of turn you want to make, understand what the equipment on your feet is capable of, and let your body respond in the right direction, round, clean arcs (carved or skidded) become a given. The next time you hit the snow, make your sidecuts do what they were designed to do—enhance solid directional movements—rather than compensate for fuzzy fundamentals. 

Michael Rogan is the PSIA Alpine Team captain and the director of instruction for SKI Magazine. He teaches at Heavenly Ski Resort in California.



Photo 3



Photo 4



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Team Tip

To Air Is Human; To Land, a Requirement

Text by DAVE LYNCH

Photos by JULIE SHIPMAN

Let's face it; when launching a snowboard, riders are going to err, and air (or vice versa). It is both the nature of the beast and its allure. To be sane about it, the rider needs to be ready for all possible outcomes—the Good, the Bad, and the Ugly—every time the board leaves the snow. The goal is to land the Good, avoid the Bad, and deal with the Ugly.

THE GOOD

To be optimistic, we'll start with the Good. If all goes well with the jump, you'll put your board down softly in the landing zone, centered over both feet with the board pointing straight down the hill. The result of this is acceleration. With the exception of step-ups (terrain features on which the jump deck is higher

than the takeoff), we tend to land farther downhill than where we took off. We're also moving at a higher rate of speed than we were when we left the snow. Most people aren't ready for this, but there are plenty of ways to prepare for the inevitable, especially when you know it's coming. The exercises that follow will help you get your students ready for those landings, and hopefully will lead to more encounters with Good than its less-likeable cousins, Bad and Ugly.

Static

Before we can help students land big air, we need to be sure they have a good foundation. In this case, I'm referring to the ready stance. As snowboard instructors, we all have hundreds of ways to describe it. Personally, I pre-

fer the sports analogies such as playing defense in soccer, which means keeping the center of mass low and in balance, so you can move in any direction with equal ease.

On flat terrain, have your students take off their snowboards for a static exercise in which they pair up, with Partner 2 responsible for watching Partner 1 practice launching an air and exaggerating a virtual landing by really "squatting it out." After Partner 1 gives this a go several times, have the pairs switch roles, with Partner 1 watching Partner 2 stomp those exaggerated squat landings. Here are three keys for you—and "the watcher"—to look for in "the lander":

- Do the knees line up over the toes?
- Is the back straight and strong?
- Are their eyes looking forward?

To land a jump solidly and in balance, the keys are to line the knees up over the toes, keep the back straight and strong, and look forward.



If your observing students answered “yes” to these three questions, you can proceed to the next drill. If they answered “no” to any of these three, continue to work on the “ready stance” until all three questions are answered in the affirmative. If you were to take a student who hasn’t mastered these three basic ideas to the park or pipe, you’d be setting him or her up for failure—and potentially heightening the risk of injury.

Because it’s anatomically safe, this ready stance is a great position to be in when landing a jump. Knees should be aligned and bent in the direction of the toes in order to help avoid potential ligament damage. The back should be straight and strong, in a position similar to how you might lift a heavy object to avoid back damage. When the back is hunched, all the pressure will go to that point, and injury can result. With regard to the eyes, if you’re not looking where you’re going, bad things may result, and if you’re looking down, it’s often a sign that your back is bent.

Simple

Now revisit that ready stance, but this time take your students to a groomed,

gentle slope and have them put their boards on. The goals are the same as those outlined previously, but this time your students will be moving. Have students slide slowly down the run, practicing their air technique by using both feet to “pop” the board off the snow. Remind the jumpers to land each time in the squatted-out ready position, and the observers to focus on watching their partners’ landings—which should be identical to those practiced in the static exercise, with knees over toes, back straight and strong, and the eyes up. This ready position really is crucial to good landings, because it will provide a platform for balance and safety.

Next, move on to ollies and nollies. Be sure that your students’ feet are landing at the same time. If they’re comfortable with the progression, introduce the next step, which entails taking this drill to more varied terrain. For example, find a roller, a small lip, or slight hip. Because jumping can be a particularly high risk maneuver, these exercises should be practiced until the students are confident that they can perform them instinctually. When getting ready to land, there’s little time to think, only time to react. In all

of these variations, the challenge is to align the knees, hips, and shoulders to the terrain while landing both feet simultaneously. Again, have your students look for the three keys.

Complex

Once your students are reliably landing in the ready position on varied terrain, incorporate speed and precision. Take them to the terrain park, and find a good jump (one that’s groomed and soft, with a landing zone that’s visible from above and a long runoff).

Ask your students to approach the jump as though they are going to hit it, but at a much lower speed. Instead of riding up the ramp, have them miss the jump and pop before the knuckle (where the flat portion of a table top turns into



the landing zone). The goal is to softly put the board back on the snow in the landing zone.

Let students know that it's normal to feel like they're moving faster after landing, but have them resist the temptation to slow down. Many students will try to instantly apply the brakes by turning to their heelside upon landing—sometimes even before they land, which can result in a fall. Braking immediately means that your students are nervous about something, so if you see this take them to a smaller hit or advise a slower speed so they may find success. There's nothing

technique will help you later on with the Ugly landings.

THE BAD

I think it's safe to say we all know how the Bad looks; its variations are infinite but typically result in body parts colliding with the snow, goggles often jumping ship, and loud mention of some choice words that Mom wouldn't approve of. Avoid the Bad at all costs by practicing with the techniques mentioned above; if necessary, go for the Ugly.

THE UGLY

Most Ugly landings take place when there's an attempt at a spin or when an accidental spin occurs. Admit it. We've all done this: You think that you are going to do a straight air. Then, "whoops!" you're slowly rotating frontside, but not fast enough to complete the 180. What do you do? The keys to saving the land-

starting point. The objective is to land back at the starting point. As students grow more comfortable with this exercise, ask them to try to rotate the board a bit more each time, with the goal being a full 90-degree rotation. Then add more pitch, which will create the need to hop faster to avoid sliding down the hill.

Simple

Next comes the fun stuff. Ollie taps and ollie kicks are a safe and fun way to learn to make corrections in the air, and on the fly. You've probably done this or seen it done a hundred times. Start by having your students ride toward a roller at a moderate speed and ollie just before the crest of it. Encourage the rider to get more style out of that air over the roller by extending the back leg, tapping the tail of the board on the roller below, and lifting the tail back up in preparation for a perfect landing.

Those who stick the landing have just successfully gotten air, thrust the board out of good alignment, and then realigned it before landing. As your students become more proficient at this move, have them use the back foot to kick the board to one side or the other (basically the beginnings of a shifty). This rotates the board out of alignment and then realigns it on the fly. Both of these moves offer a fun way to get kids and adults alike to improve their foot speed and coordination without feeling like they're training. The options with these moves are limitless; just use your imagination to come up with colorful combinations.

Complex

This drill is kinda silly, but it helps instill confidence in someone who's new to spinning. Those first attempts to spin can be intimidating for someone who's skilled enough to hit the big jumps but unsure of how to start rotation and control it once they're in the air. Start by taking students back to the basics, practicing 360s on the flats. Then have them hop at random throughout this move. This drill helps students improve their edge awareness and gain confidence. Start slowly; as they become more proficient you can let them increase their speed of rotation

When getting ready to land, there's little time to think, only time to react.

more challenging than coaching through fear, so take your time, and be careful not to push too hard.

Make sure that each landing still satisfies the requirements of the three keys to a solid landing. After a lot of practice, let your students add some speed and variety with ollies and nollies and hips.

Freeride

Before getting into spins, start with this addition to the straight air scenario from the previous section. Encourage students to land on the toe edge. The board should be pointed downhill and tipped on the toes somewhere between 20 and 40 degrees. The real challenge is landing on the toe edge but resisting the temptation to turn. Have your students just jam the edge in by bending the knees, ankles, and hips slightly more than what's required to land flat-footed, while holding the board straight. Emphasize the importance of still landing in the ready position and adhering to the guidelines of the three keys. This

ing are a strong stomach (think "ab crunches strong"), fast feet, and edge awareness. The ideas described below will help you teach your students how to develop these much-needed skills. Note: These skills need to be dialed in to the point of being instinctive, because in the heat of the moment there's not a lot of time to make adjustments for the landing.

Static

The most basic move to work on is something that I call "snap to's." The goal is to use core muscles in the stomach quickly and efficiently to help pull off a counter-rotation move. To start, take your students to a shallow pitch with good snow and have them stand stationary across the hill, on the toe edge.

From this position, ask them to do a two-footed hop and rotate the board a bit so that it's pointing slightly downhill. Encourage them to land two-footed, and quickly, before they begin to slide, hop back up and rotate the board back to the

CONTINUED ON PAGE 94 »

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Can We Talk? Strategies for Parent-Teacher Communication

Text and photos by SHANNON CLAY-GILLETTE

Conducting head counts. Finding wayward mittens. Capturing (and holding onto) attention. Scheduling bathroom breaks. Oh yeah, and somewhere in there teach the kids how to ski or snowboard.

While rewarding in many respects, teaching children's lessons requires a lot of mental juggling. Then when the lesson is over, you face the query: "How did my child do today?" The question can send even the most seasoned instructors scrambling for a tactful response. What's an instructor to do? What should you say or write? And just as important, how do you say it? What exactly does the parent want to hear?

1. Greet parents with enthusiasm.

Your attitude will set the tone for the dialog to follow. If you didn't have an opportunity to meet the parents at the outset of the lesson—or the child was placed in your class after initially starting with a different instructor—begin with a warm, engaging introduction. An outstretched hand, smile, eye contact, and opening line of "Hi, I'm John, and I was the lucky one to teach your child today" will defuse any tension you or the parents might be feeling. Try to retain that cheerful demeanor throughout your conversation, even if you have some not-so-positive things to talk about.

2. Begin your feedback on a positive note. It is important to find something commendable about each child. Without a doubt, we're all more amenable to constructive criticism—even bad news—when someone notices and comments on

our hard work, sincere efforts, and natural abilities. The initial foray into your feedback could be anything that you noticed about the child during the lesson, physically, mentally, or emotionally. Just finished teaching a class for never-ers? Ta-da! Those students will never be "never-ers" again.

Accolades might include "Congratulations, you have a skier!" as you begin to describe the physical skills achieved during the lesson. Or something along the lines of "You have a very helpful child. Another student in our class fell and lost her ski in the powder, and William hiked up to help find it." This comment sheds light on the student's social maturity. Parents take great pride in knowing that their child exhibits good manners away from home. Or how about "Lisa is a good listener, follows directions well, and tries everything asked of her," a testimony to Lisa's ability to focus and use her brains to improve her skills. Each of these opening comments sets the stage for the rest of your report.

3. Question parents about their child's other strengths, interests, and accomplishments, especially if you noticed something special about your student during the lesson. Conveying genuine interest in these other areas helps you understand the child better, which can broaden your conversation or direct it



After the lesson, show parents where you skied so they can revisit familiar terrain with their child.

toward topics that need further discussion. Parents deeply appreciate your observations of their child above and beyond the superficial layers. Consider asking, "Does Suzy play the piano?" You might point out that when you likened side stepping to stepping on a big piano keyboard, Suzy suddenly got the hang of it and was climbing the slope like a champ.

4. Be candid yet nonjudgmental when discussing any difficulties the student experienced during the day. Get right to the point and be factual, not dramatic or emotional. Take, for instance, the case of a preschool-age child who starts to



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Dealing with the Tough Stuff

If you stay in the profession long enough, you'll encounter a difficult parent or challenging situation. This is never fun, but how you handle these issues can make a big difference and say a lot about your overall skill as an instructor. Be aware that what may seem relatively harmless at first can have bigger consequences for you and your snowsports school if handled improperly.

To be prepared, make sure you understand your snowsports school's policies and procedures, as well as what to do when there is an incident or accident on the hill. Visualize potential situations and ask yourself the questions that follow:

- What incidents require that a report be filed?
- When is it necessary to enlist the assistance of a supervisor or manager?
- What's the procedure for informing or following up with the student's parents?

If—based on past encounters or a particular situation—you expect that meeting a parent will be difficult, request that your supervisor be present. Above all, be courteous and professional at all times (and especially when others aren't following suit).

— Shannon Clay-Gillette



Whenever possible, review the lesson with your student, too.

scream and cry upon being dropped off for class, and who proceeds to have meltdowns intermittently throughout the lesson. In the heat of the moment, it's important to remain calm and nurturing, recognizing that separation anxiety is normal at this stage of development. Take the same tack when following up with the parents, and work hard to avoid assigning blame. Acknowledge the situation, empathize with the child's apprehension, and ask for insight as to how you can alleviate the child's anxiety if they want to give it another go the next day or week. Your goal is to provide information and, if needed, enlist the parents' cooperation in resolving difficulties that might arise.

5. Include the student in your conversation with parents, perhaps asking him or her to describe a portion of the day. If that's not possible, make sure the child is engaged in another activity so you can focus fully on the parents. Never ignore the child if he or she is standing right there.

6. Actively listen to the parents. Active listening focuses your attention squarely on the parents and conveys that you are trying to understand their point of view. Perhaps they feel as though their child wasn't challenged enough during the lesson. Take care to concen-

trate on the parents fully, and then when appropriate, rephrase what you believe was said. You do not have to agree with the parents; just state what you think they said. This assures parents that you really understood what they had to say. If you did not, parents can clarify. Hopefully, the parents will return the benefit of actively listening to you as you explain your rationale for going about your lesson the way you did. Active listening is an effective way to calm upset parents who oftentimes just want you to understand their perspective.

7. Put some thought into your student's progress card; it's an item that might be treasured for years. Some parents have been known to frame several years' worth of progress cards and hang them in their homes or offices. Be neat in your penmanship, correct in your spelling, and positive in your remarks. Just as you would if you were meeting the parents face to face, start with an upbeat sentence such as "It was a delight to be Steven's teacher today ..."

8. Provide parents with contact information (yours or that of the snowsports school), and encourage them to get in touch if they have future questions or concerns. Write your contact information on the progress card. Business cards are another inexpensive yet professional



Information THAT STAYS WITH YOU

Introducing the Movement Matrix. The Movement Matrix is the premier online video source for PSIA-AASI members to perfect alpine, snowboard, and nordic instruction methods. Featuring live-action learning modules for skills concepts, situational skiing and riding, drills, and certification standards, it's the perfect complement to your manuals. For an annual subscription fee of \$14.95, you'll have access to a fully customizable tool to help you filter thousands of selections and find real-life explanations. **Log on to the Members Only section at www.TheSnowPros.org and subscribe today.**



way of expressing your desire to keep the communication lines open.

9. Be prepared. Even if you know that you won't be meeting the parents or preparing a written progress card, prepare as if you were. End the lesson with your student with some of the points mentioned above. Take the time to review the lesson, emphasizing the positive and offering solutions to the challenges.

10. End with enthusiasm. Be sure to thank your student for a great day on the slopes, thank the parents for the conversation, and let everyone know you look forward to seeing them again.

CONCLUSION

Communication is the lifeblood of our profession. The approach instructors use to convey information affects the student, the parents, and even the snowsports school program and resort. Use the strategies listed to improve your confidence and enhance professionalism. Positive



Take your time and put some careful thought into noting each student's progress.

communication, no matter how it is presented, is crucial to creating a memorable experience for your students—and one that they and their parents hopefully will want to re-create in the years to come.

SUGGESTED READING

Gerrish, Stacey, Johanna Hall, Rachael Milner, and Earl Saline. *Children's Instruction Manual*, 2nd ed. Lakewood, CO: American Snowsports Education Association Education Foundation, 2008.

Partin, Ronald L. *Classroom Teacher's Survival Guide: Practical Strategies,*

Management Techniques and Reproducibles for New and Experienced Teachers.

San Francisco, CA: Jossey-Bass, 2005.

Singer, Dorothy G., Roberta M. Golinkoff, and Kathy Hirsh-Pasek. *Play = Learning: How Play Motivates and Enhances Children's Cognitive and Social-Emotional Growth.* New York: Oxford Press, 2006. **32°**

Shannon Clay-Gillette is a 22-year full-time Level III alpine instructor and staff trainer specializing in children's instruction and development at Snowbird Ski and Summer Resort in Utah.





There's an easier way.



If you think teaching kids requires outrageous gimmicks, over-the-top fanfare, and sweaty synthetic fur, think again. Trade in your costume collection for a copy of the revised *Children's Instruction Manual* and get some guidance on delivering creative and inspirational, yet totally pro lessons for the kiddos. It's packed with core information as well as helpful hints, tricks, and tips to guide you in educating and entertaining young skiers and riders. Get yours at www.TheSnowPros.org, or from the *PSIA-AASI Accessories Catalog*.

Twin Tips: They're Not Identical

An interview with DAVID OLIVER

Photos by JULIE SHIPMAN

For skiers on the hunt for new gear, twin tips offer an intriguing range of options. These babies are fun and versatile. Of course, if you want to get the most out of them, you might want to play matchmaker and put on the right skis for the right situation. Then let the sparks fly!

For more insight into today's twin tips, we did a little question and answer session with a man who's definitely in the know—PSIA Alpine Team member and freestyle specialist David Oliver. A trainer and instructor with the Breckenridge (Colorado) Ski & Ride School, Oliver has been a park ski tester for Freeskier Magazine for three years. Racing since he was a pup, he's also competed in freeskiing events for at least a decade. Says Oliver, "I guess I can tell what a ski does just from a construction standpoint."

How do you go about choosing which skis to ride for the various park uses?

Choosing is kind of difficult. What makes a ski good for the pipe makes it horrible for slopestyle. If it's a great jibbing ski, then it usually doesn't do well in the pipe. With twin tips used just playing around on the mountain, you can change their behavior just by where you mount the bindings. I find a ski that fits my taste for performance and then work my way around that brand for specific types of twins. Let me see if I can break it down for you.

Pipe Skis: Generally these are going to be stiff like "Boo-yah!" stiff, a.k.a. DH- or Super G-stiff. Most companies make a pipe-specific ski, which means the tail is just a bit stiffer than the tip. This type of tail aids the "boost pump" skiers use to get great air. Pipe skis are sharp and fast, usually tuned aggressively with a slalom flat base pattern as well as razor-sharp edges (3- to 4-degree side bevels are not uncommon). These skis never see rails; they are pipe rockets only.

Slopestyle Skis: A very stiff—yet very light—ski with a sidecut radius that exceeds 20 meters. The perfect waist size for these is 80 to 90 millimeters. A true center mount is essential to take advantage of the engineering that makes these skis as effective and responsive skiing switch as going forward—or sideways on a rail for that matter. The tune is not as aggressive as for a pipe ski, but still very fast. Maybe a 1-to-1 bevel (1 degree on the side and 1 degree on the base) or flat

For park and pipe play, consider adding twin tips to your quiver.





CHA-CHING

Your PSIA-AASI membership makes it easy to go big and save big when you shop the Patagonia Online Pro Program. Easy as 1-2-3, actually.

1. Visit the Members Only section at www.TheSnowPros.org. 2. Go to the "Promotional Offers" page. 3. Click on the Patagonia logo. You can also check out the **PSIA-AASI Accessories Catalog** for Patagonia apparel selected especially for instructors. Either way, you'll find some of the nicest outdoor gear on the planet, available to you as a professional courtesy through the Patagonia Pro Purchase Program. **patagonia®**



90 degrees works very well. Whereas regular skis might be de-tuned at the tip and tail to keep them from hooking up in a turn, slopestyle skis are detuned under the foot so they don't catch on the rails.

Jibbing Skis: What I consider a "jibbing ski" is widely known as an introductory twin tip. Almost all ski companies carry them, and they are at the low end of the price point. The jibbing ski is softer and lighter than normal and they are typically offered in introductory sizes (156 cm, 161 cm, 165 cm, and 166 cm). Usually a good jibbing ski is pretty worthless for anything other than being in an introductory or intermediate park. Its lightweight construction increases the "playability" of the ski and your ability to maneuver it. The more you can jump around and get silly with your skis the better they are for jibbing. Because of the construction and sizing, you won't find these skis in the upper-level park; they tend to be less stable at speed than slopestyle skis. With this in mind, these skis are perfect for slower "jib sessions," where you are trying to work on specific tricks and hiking a feature multiple times. They are very forgiving to introductory park learners.

Playing-around Skis/ All-mountain Twins: These skis tend to be a little wider, so that you can really play around the mountain. They're generally not center-mounted because of the utility of a setup that favors mostly forward skiing. In essence, these twin tips are more for the all-mountain jibber who hucks off of rocks and skis switch, yet still finds him- or herself in the bumps or steeps. These skis are the weapons of choice for instructors and ski patrollers because of their utility of medium stiffness and versatile sidecuts. They accept tele and alpine binding setups very well, but to get the stiffness that you desire you might have to try a multitude of different brands because there is a huge range of flex pattern from one company to another. As always, your selection will depend on your personal preferences.

Urban Rail Skis: These tend to be last season's slopestyle skis with a slight modification. The edges (if there are any left) are aggressively rounded off with a flat file in order to increase the slidability in urban settings, which tend to be available stair rails and concrete ledges. Tuning these is useless since flat concrete landings are usually the norm. Urban skis are the new-school version of the rock ski. Any respectable set of "urbans" will also come complete with a sick sticker job.

Fat Twins: Fatties, or backcountry twins, are the replacement ski for the powder skis of old. With waists resembling those of snowboards (100 mm to 200 mm), the fatties are just bigger/wider versions of the park/slopestyle ski. These larger-than-life twins are built for floating big air in backcountry pow. They are on the frontline of all big-mountain freeskiing competitions and Alaska powder lines. Don't bring these bad boys to the lift lines unless there's 30 inches of new snow or you find your-

self in Snowbird, Utah; Silverton, Colorado; or Thompson Pass, Alaska.

What differentiates all these choices?

Well, most companies offer all of the above (except the urban). It really comes down to choice, just like you'd expect of any other ski quiver. Some of the competition-level twins on the market are so similar in stiffness and flex pattern that, in essence, you can almost get the same ski across the spectrum of companies, the only difference being the torsional rigidity. Depending on the manufacturer, you can get a completely different feel of agility from the torsion. That said, it comes down to personal preference and what makes you feel the most comfy when pushing your envelope. If you can get only one pair of skis, try to get the pair that will give you many options in the park scene as well as on the mountain.

Pro models are awesome if you're looking to support your favorite pro, however, keep in mind that these skis are designed around a particular pro and his or her movement patterns. So unless you ride exactly like that pro, you'll have a hard time adjusting. You will need to demo them to find out what you think. Ultimately, regardless of who your favorite pro is you should select a ski that works for your movements and gives you the most options for fun.

What is most misunderstood about twin tips?

The public tends to think of twin tips as being toys or long snowblades/trick skis. Nothing could be farther from the truth. These skis are borne of years of testing and rider-influenced modifications. In fact, most competition-level twin tips are built on racing stock foundations.

Their value in the park is just one part of twin-tip technology; most twin tips can be very versatile all over the mountain. I've found that they handle anything in any condition, and if you hit a rock they kinda just grin and ask for more. The bottom line? You don't have to be a jibber to be a part of the twin-tip nation. **32**

David Oliver rides for Dynastar/Lange and his personal preference is the 6th Sense Series; the Spin (181 cm), the SuperPipe (181 cm), and the Distorter (186 cm).

Retracing Fatal Family Lines

by R. MARK ELLING

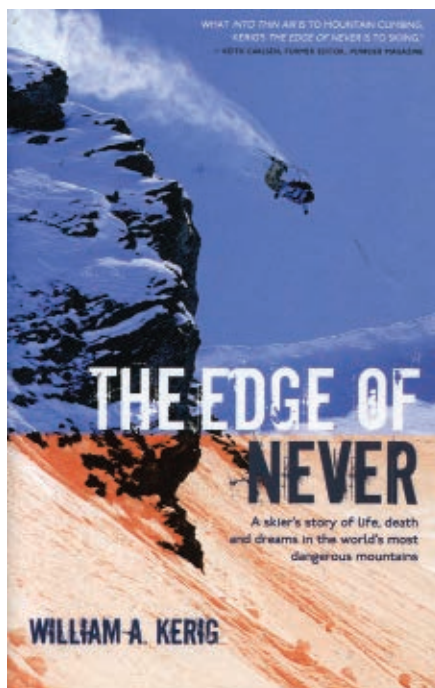
William A. Kerig. *The Edge of Never*. Stone Creek Publications, 2008. 320 pages. \$16.

I began reading William A. Kerig's *The Edge of Never* a few days after the death of extreme skier Shane McConkey, a strange coincidence that colored my experience with this book about professional freeskier Trevor Petersen, who died in 1996 while skiing in Chamonix, and his son, professional freeskier Kye Petersen. The book's action kicks in immediately—like any good ski movie's opening shots—and I was transported, gripped by Kerig's description of a fateful photo shoot as a skier drops in and a horrified camera crew looks on helplessly as the cliff-drop goes very, very wrong.

I wondered, *Is this family history repeating itself?* A story of superstardom and the hazards of big air, photo-incentive contracts, life on the extreme edge? A tale like that could go down so many wrong and well-worn paths. As a lifelong skier and reader of skiing literature who can hardly stand to flip through a ski magazine anymore, I was almost afraid to continue reading. And then an unexpected thing happened as I continued to turn pages: a thoughtful and touching story emerged.

Kerig's account of Trevor Petersen's death and the arrival of the late skier's 15-year-old son Kye in Chamonix is a byproduct of Kerig's extreme-skiing documentary that would ultimately be released with the title *Steep*. Kye's journey to Chamonix was conceived of as both a memorial visitation and an elaborate coming-of-age ritual, and the trip miraculously comes together with the logistics of it all turning into a drama itself. One of the main narrative threads of *The Edge of Never*, however, spools out via the film's re-creation of the events at the site of Trevor's fate. It's a dramatic element within the structure of his ski documentary, as the hook in his sales pitch, and Kerig almost cannot bear

this fact. Although the author's narrative voice is sure and often eloquent throughout the story, it betrays his inner conflict over the subject matter. That is, he's preoccupied by the idea that his endeavor is capitalizing on the elder Petersen's death and the raw loss exhibited by the son, and by the thought that he will unduly place the boy in harm's way. It is also this



shadow of guilt and fear of an insider's perspective that makes the story so compelling as it describes journeys into the mountains with Trevor, Kye, and a whole host of classic characters.

Much of the pleasure of reading *The Edge of Never* stems from Kerig's description of skiers and their exploits in the heart of the French Alps. Two-thousand-meter-high trams ply their way amid towering rock spires, couloirs bear names such as Poubelle and Mallory, and vast glaciers, crevasses, and steep descents are commonplace. This is the stage set for Kye's entrance into his own youthful and insolent show, but at the first hint of teenage arrogance, father figures and

mentors such as extreme ski legend Glen Plake and famed ski mountaineer Anselme Baud bring him under their sway. From the boot camp Kye endures in Chamonix to the subsequent parade of recognizable names from skidom, it's an action-packed buildup to his attempt on the same descent where his father was killed in an avalanche almost a decade before.

The movie camera becomes an omnipresent character in *The Edge of Never* as the events of the story unfold within the overarching documentary film project. There's always a sense of an intended viewer, a potential audience and market in the recounting of this story—the sponsor weighs heavily here and in professional skiing, whether it's Rossignol or the producer Kerig works for, a company created by the late newscaster Peter Jennings. And Kerig's unease with his shared responsibility to both his subjects and his creditors is palpable, but the worrisome conflicts of interest are counterbalanced by the positive relationships that build between Kye and Plake and Baud, and by Kye's growth as a skier and a young man.

The most enjoyable part of reading *The Edge of Never* was the ease at which I entered a community that should have felt more restricted—too tragic, too famous, perhaps too cool for the reader. But the way Kerig evokes our common language of skiing, describing its movements and habits will make any skier at home here and a welcome member of this gathering that remembers one of its brothers while it celebrates one of its sons. 32°

R. Mark Elling is the author of The All-Mountain Skier: The Way to Expert Skiing (now in its second edition from McGraw-Hill/Ragged Mountain Press). Last winter he served as the Northwest correspondent for www.SkiNet.com. He also works as a bootfitter at Mount Bachelor in Bend, Oregon, and teaches bootfitting seminars internationally for Masterfit University. In addition, Elling guides part-time for Cat Ski Mount Bailey in southern Oregon.

Do You Tele Because It's Trendy?

No One Cares That You Tele.” Dare we pose such slander to the nordic community, we pondered fiendishly at the end of one long Friday this summer. How will they react? Is it certain doom for us next time we see the PSIA Nordic Team at training this fall? Will it end in slashed tires, or alpine heels that have been unexpectedly freed? What are the consequences going to be?

In the end, our impish ways prevailed and we leaked it out. But, equal opportunity offenders that we are, in the grand tradition of this column you can count on every discipline being routinely trashed for your reading pleasure.

And so the question was posed, “Do you tele because it’s trendy?” along with some ground rules (i.e., refrain from profanities) for the response. In a final devastating blow, we reminded the nords to keep their eyes peeled for the familiar bumper sticker quip, “No One Cares That You Tele.”

This sparked some passion, as you can imagine, going way beyond the “free your heel and your mind will follow,” blasé retort. We were left with a dissertation’s worth of argument, from which we’ve plucked the most profound and/or cutting remarks.



“I think you know where I stand . . . trendy?” — Ross Matlock, Nordic Team



“Asking why skiers tele is like asking why a winter wren sings or a raven flies. To answer, I could tell how the original rear-tip-against-the-front-arch position creates one long-but-curved ski out of two long-but-straight skis to make turning easier. Or how the split-footed stance adds stability to a skier negotiating the downhills in low leather boots on skinny skis. But that would be like telling you that the wren sings to establish territory or the raven flies to find food. Both true, but those facts can’t explain the thrill of hearing the wren’s song deep in your own chest while walking the woods, or the joy of flying with the raven as you watch her soar, tumble, and croak through the storm.” — Steve Hindman, Nordic Team Alum



“As for the ‘Nobody Cares’ argument . . . nobody cares that you can’t. Tele’s a kind of badge of honor that you have to learn through mileage and hard knocks, and if you don’t want to wear that badge, well, we’ll see you at the bottom of the run.” — Scotty McGee, Nordic Team Coach



“I started telemarking because, among other things, I saw this bearded hobbit of a man in the back bowls of Vail in the late ’70s who, on a pair of 45 mm-wide Karhu touring skis and in low-cut leather boots, proceeded to rip these beautiful long turns in knee-deep powder. He more than held his own in a pack of alpine skiers with equipment light and less powerful than his group—an albatross in a sky of more heavily muscled birds.” — Charlie MacArthur, Nordic Team

“It never occurred to me that anyone could, should, or would care that I tele.” — Steve Hindman, Nordic Team Alum



“Please note, I kinda like the bumper sticker, because to me, skiing down a mountain is fun no matter the gear. And if you are good at it, it doesn’t matter if you are on alpine, snowboard, or teles.” — Tom Marshall, Nordic Team **32**

Previously, divisional systems ranged from handwritten three-by-five-inch index cards to highly sophisticated and customized programs. The coordination of 10 very diverse business models into one system has required unprecedented cooperation by all involved. The resulting benefits will be more (and higher levels of) service for members; far greater standardization of services throughout the country; more speed, accuracy, and efficiencies; and a new web portal through which you will be able to keep abreast of new features and services as they are made available. The promise of “seamless” operations between the national office and our divisions is finally being realized.

We're in a good place educationally, with several projects in process—such as revised snowboard certification standards, national children's accreditation, and additions to the *Movement Matrix*. Our Educational Advisory Committee (EAC), team coaches, and Education Managers Ben Roberts and Earl Saline have had a chance to examine our programs with a big-picture, long-term focus in mind, which has been helpful. In the past,

we've often had to come up with stop-gap measures to fill pressing needs, choose between several compelling—but competing—new proposals, or decide which discipline is “due” to get something. It seems like a perfect time to change the paradigm from one of reaction to one of proaction. In fact, it's become clear that education doesn't stand alone. There are common threads that link not only the obvious categories of certification/accreditation, but governance and operations as well. The importance of standardization and a commitment to move forward together is critical in everything we do.

In creating a strategy to ensure that every member receives the same high quality products and services, the EAC has developed four primary goals:

- Increase ease of member access to PSIA-AASI products, programs, and services; develop and communicate clear paths to success in our educational system.
- Develop a quality assurance system to uphold standards.
- Define success measures in order to evaluate education offerings.
- Implement a leadership development program to ensure a broad pool of

President's Message

volunteers that will generate exciting ideas and energy to create new products, programs, and services.

In other news, plans are well underway for a couple of major events on PSIA-AASI's horizon. The International Ski Instructors Congress, or Interski, will be held in January 2011 in St. Anton, Austria, and we will be active participants. The two seasons leading into Interski offer an excellent opportunity to evaluate and hone our overall technical focus. Closer to home, PSIA will be marking its 50th anniversary in April 2011. (Yes, most divisions are even older than that, but PSIA was incorporated as a national entity in 1961.) Stay tuned for more details on what's sure to be a great celebration.

The snow is beginning to fly once again and a new season, with challenges both anticipated and unknown, is upon us. Let's turn them all into opportunities and work together to keep ourselves viable by being visible and valuable to the rest of the industry. 32

**Those that march to the beat of their own drum,
count on us to keep them warm.**



Your Space

Letters

« CONTINUED FROM PAGE 6

may even learn more about what we do and how we do it!

— Greg Luce
Division clinician, PSIA-Northwest

Editor's note: Thanks, Greg, for your letter. We couldn't agree more! Members unfamiliar with PSIA-AASI's website can log onto www.TheSnowPros.org to find the Member Forum and much, much more!

Location, Location, Location

I work at Snowshoe Mountain, West Virginia, and the 2008–09 season was my first as a part-time ski instructor. My first issue of *32 Degrees* was outstanding! Thanks for all the great teaching tips. I did, however, spot an error in your Last Chair department. Can you let everyone know that Snowshoe Mountain is not in Roanoke, West Virginia?

— Greg Still
Snowshoe Mountain, WV

Editor's note: Yes, Virginia—and West Virginia—there is a mistake in the credit information for the winning anecdote in Last Chair (spring 2009). Gordon Hamilton, the author of the winning anecdote,

lives in Roanoke, Virginia, and teaches at Snowshoe Mountain Resort in West Virginia. We errantly placed Roanoke in West Virginia. Sorry for the geographical mix-up.

No Lace on the Lift

I like lacy lingerie as much as the next person, but there's a time and a place for it. I don't think that a photo in *32 Degrees* of a jibber doing a grab on the chairlift is that place, especially in a piece that follows John Armstrong's excellent article on professionalism.

— Barbara Schneider
Durham, ME

Reach Out in 'Your Space'!

32 Degrees welcomes your views! Feel free to write a letter to the editor, opine on a topic near and dear to your heart, or submit an essay on "What PSIA-AASI Has Done for Me." Submissions to the "Your Space" department may be sent by fax (in care of *32 Degrees*) to 303-987-9489, by e-mail to 32Degrees@thesnowpros.org, or by conventional mail to *32 Degrees*, 133 South Van Gordon Street, Suite 200, Lakewood, Colorado, 80228-1700. Please include your full name, address, and daytime telephone number.

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You ski, ride, and teach on the whole mountain, but you never know where your insurance policy may not go. Get extra coverage through the Sports Insurance supplementary accident and professional liability program. This policy is designed specifically for PSIA and AASI members who are certified level I and above. \$185 may help get to those places your current insurance might miss. For more information, visit the Members Only section at www.TheSnowPros.org



I was fortunate enough to be an instructor for Adventure Women at my home mountain of Bridger Bowl (Montana), recently described by examiners visiting from Colorado as “a completely wild mountain with lift access.”

Several things set Bridger Bowl apart from other mountains; it's one of the hidden gems of Montana skiing. For starters, the snow is unusual. It's called “cold smoke” because in the thick of the ski season, the moisture content drops to about 3 percent, creating incredible, blower powder.

Bridger features 2,000 acres of skiable terrain (20 percent beginner, 30 percent intermediate, 20 percent advanced, and 30 percent extreme). Expert-only terrain is available off the new Schlasman's chairlift and on the renowned “Ridge.”

With expert women ski instructors and small group sizes that permit individual attention, women of any ability level will improve not only their skiing skills, but increase their confidence and

the mountain is so varied, you have the opportunity to gain confidence in your ability to help your own clients out of their comfort zones and into the off-piste.

Explore tactics for handling the ungroomed, cement knowledge you already have, or challenge yourself on some of the gnarliest off-piste terrain in the country, with excellent instruction and nonexistent lift lines, all in the beautiful mountain town of Bozeman, Montana.

For details, go to www.BridgerBowl.com.

[Decoding the Feminine Mystique]

Quite honestly, I had never really understood the reasoning behind women's groups. I don't want to ski like a girl; I want to ski like a person who knows how to ski! I was even, I'll admit, a bit offended by the idea of women-only groups. Didn't it weaken us to need to ski together? Why couldn't we just hang with the boys?

My friend Angela Patnode, a nordic instructor at Bridger Bowl in Montana, helped me see the light. Perhaps the rea-

Quite honestly, I had never really understood the reasoning behind women's groups. I don't want to ski like a girl; I want to ski like a person who knows how to ski!

expand their comfort zones. The camaraderie of skiing together with other women and the female instructors is what attendees of past clinics have said they valued as the most important aspect of the week—a stress-free environment that provides an emotionally safe space where each participant can learn to develop her skiing abilities and progress at her own pace.

WHAT YOU CAN DO:

Challenge yourself in incredible powder, and experience the wilds of Montana. Skiing Bridger Bowl offers you the opportunity to stick to the safety of well-groomed runs, but offers easily accessed off-piste terrain in a variety of pitches. Because no two turns are the same, and

son I'd been so resistant to the idea is that I'd always skied with men. And I'd always enjoyed it. But getting out into the backcountry for the first time with Angela was a whole new experience.

Women who ski, and who teach skiing, tend to be strong and independent. We want to be treated equally by our peers. Part of the problem I was having was that there never seemed to be “men only” ski camps, and if there were, wouldn't we have a huge uproar about how sexist this is?


However, I've come to see that skiing in any kind of supportive group is helpful, and there are definitely times when the boys go out and ski together, feed off their own energy, and have a blast. When women get together, there's some

sort of supportive and encouraging base that appears. Couple that with the exciting sport that we're all addicted to, and you have a gentle space in which to make mistakes, meet new friends, and learn to go big.

After skiing in the backcountry with Angela, I wanted to learn to get some air. And it just so happened that the camp I came across was Alison Gannett's Rippin Chix camp. I didn't really care that it was a women-only event; I just wanted to learn to get into the air and land.

But when I got to this camp, and found I was surrounded by 62 truly rippin' chicks—instructors, real estate agents, psychologists, moms, all psyched to play in the snow—something unique happened. While I love skiing with the boys, it was an amazingly freeing experience to be surrounded by a pack of feral women, all of whom were ready to charge, and all of whom were incredibly supportive of each other.

Women's camps, contrary to my old belief, are not like early women's gear, i.e., men's gear that has been tuned down, made softer and easier so a woman can handle it. Women's camps are everything a coed camp is, going just as hard as you want to go, but with the unique support that only an all-women's group can give to its participants.

Skiing in an all-women's camp, for me, was eye-opening and incredibly fun, and it changed my skiing in a profound way. I made a ton of new friends, but the thing that I kept—aside from five types of air—was a sense of belonging. And the realization that it's okay for me to wear sundresses, paint my toenails, and huck myself off a rock into the wild blue. 

Kate Howe is a PSIA-certified Level III alpine instructor who currently teaches at Aspen Mountain in Colorado. To read about Howe's adventures, visit www.SkiingInTheShower.blogspot.com.

Snowboard

TO AIR IS HUMAN; TO LAND, A REQUIREMENT « CONTINUED FROM PAGE 78

Practicing this movement will help students learn to land the board at all sorts of awkward angles to the fall line, forcing them to use their ankles and the edge angle of the board to make small, instantaneous changes that will keep them on their feet.

Freeride

There are two big things I like to play with at the high end of learning in order to help students cope with landing Ugly. The first will sound completely ludicrous to the uninitiated. Take your students to a bump field and ask them to try the random spins and hops of the complex drills . . . but among the small moguls. This really teaches riders to react to a landing. It helps them keep

their ankles soft, encourages precision, and instills confidence.

The second drill is something I recommend to help my more advanced students avoid Ugly landings in the first place. Have them focus on toe-edge landings. It's possible (and relatively easy) to ride a high edge angle straight down the hill with little to no turning. The faster the rider's going, the easier this is. Linked toeside turns are nothing new. The twist on this old trick is to get rid of the turn shape, and do it straight down the fall line. Ask students to get on about a 30- to 45-degree edge angle on the toe side and head straight down the hill, then pop a 180 to do the same thing switch. The heels never need to hit the ground.

The last move I insert into this drill is usually a backside 180 (in which the rider hits a jump or a knoll, spins 180 degrees—so that his or her back moves in the direction of travel while airborne—and then lands switch). Most people already land this on their toe edge, but now I try to get them to stick the board's edge in the snow with a carve. This helps

the rider build a solid platform on which to land, one that won't send them spinning out of control when landing with a lot of rotation from the jump. Tell students to think about what they see when Shaun White lands.

THE GOOD, AGAIN

And finally, another brief mention of the Good. This is the goal: hit the jump, spin, and—just at the right moment—the stars align and the board lines up with the landing, underneath the rider. When this happens, there's nothing to worry about, and tricks like this look easy. Unfortunately, this isn't what happens most of the time. So give your students the skills to achieve the Good, avoid the Bad, and prepare for the Ugly. Then tell them to practice, practice, and practice . . . to air with less potential to err. 32°

Dave Lynch is a member of the AASI Snowboard Team and a member of the PSIA-E Education Staff. He works for Gould Academy in western Maine as a snowboard coach and a math teacher.



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Book Reviews



By Mike Shank

The AASI Snowboard Instructor's Guide

Leave it to the American Association of Snowboard Instructors to craft a meticulous piece of writing whose main plot centers around snowboard instruction. It is a book about them, for them, written by them. It may seem a little insider for some readers, and that's because it is. But this reviewer found a whole new world opening up in front of him. This page-turner combines the best of AASI's Snowboard Teaching system with the latest advances in riding and current knowledge. Take off your gloves when reading it, as turning the pages will be much easier. The book truly is an essential guide to help AASI instructors deliver snowboard lessons with precision and personality. Not to mention, it has lots of nice pictures and line drawings. It's the book your entire crew will be excited about. And it will even fit in your cargo pocket.

★★★★★ 1/2





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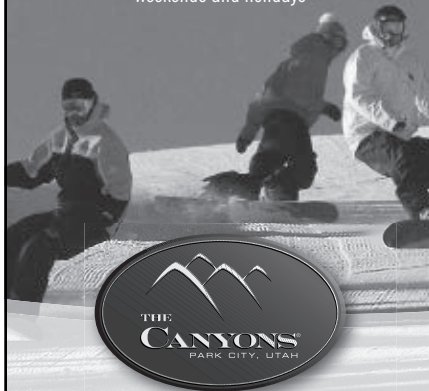
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LAST CHAIR

GO ALONG FOR THE RIDE

With this issue of *32 Degrees*, we bid adieu to the caption contest and introduce four new opportunities to plunk yourself into the Last Chair:

Through the Lens — Send in photos that capture the essence of snowsports or snowsports instruction. (Digital pics must be 150 dpi or more.)

Lesson Learned — Regale us with your “lightbulb moments” or snowsports life lessons learned the hard way.

Laugh Tracks — Share the hysterical anecdote that made them all bust a gut at après.

Inquiring Minds — We’ll offer a story and/or question (maybe both), you chime in with your take.

This issue kicks off with “Through the Lens” and “Lesson Learned.” Next issue? Well, that’s up to you! Send your submissions to 32Degrees@thesnowpros.org, with the subject line “Last Chair.” PSIA-AASI members whose contributions make it onto this page will win a \$25 gift certificate to the *Accessories Catalog*.

THROUGH THE LENS

The coaches for the Development Program at Mount Snow (Vermont) aren’t quite as “hands-on” as this photo by Mount Snow instructor Nancy Peck-Cook might suggest. At the moment Cook snapped the photo, Freestyle Team Coach Murray Johnson was directing traffic—not hoisting this freestyle athlete as he pulled a trick at the top of his jump.



Nancy Peck-Cook



Matt Evans

WINNING CAPTIONS SPRING 2009

THE WINNER

In a photo finish at the Hackensack Downhill Sod Classic, Leonard demonstrates once and for all that skis are faster than snowboards.

— Gordon Carr, Sugar Mountain, NC

Runners-Up

1. Woo hoo, first bus . . . no friends on a powder day!

— Ron Shepard, Crystal Mountain, MI

2. We heard that bus 85 takes you to the top of the mountain, and it’s a lot cheaper than a lift ticket.

— Linda L. Dunn, Liberty Mountain, PA

3. It’s a long wait, but we WILL be first on the bus for first tracks next year.

— Ray Dupree, Brundage Mountain Resort, ID

Actual Caption

Fran Monroe and Level III alpine instructor Russ Philips bide their time while waiting for the bus to Snowbird.

LESSON LEARNED WALK A MILE IN THESE BOOTS



One of my mountain days as a ski instructor at West Virginia’s Canaan Valley Resort started with an unfortunate discovery. Imagine my surprise—not to mention slight sense of panic—when I pulled into the resort parking lot and found that I’d left my skis, poles, and boots at home, with home being miles away.

My ski school director suggested I use Canaan’s rental gear. This seemed like a logical plan, especially since I had attended many PSIA clinics in which examiners told me time and time again to “try out the rental gear to see what the customers are dealing with.”

Shortly thereafter, I walked out of the rental department with my gear. Since I had no lesson waiting at lineup, I headed out to make a run. And what a run it was.

I genuinely felt like a bowling ball hurtling forward. My boots were so loose I could hardly apply any pressure to make turns. I whizzed past the pines, past mountain patrollers encouraging me to slow down, past skiers and snowboarders who were a blur. There was a rush to the feeling of speed, but a fright that I really had no control, and I am a girl who likes to cruise and enjoy my ride. The skis and boots felt like they had little jets attached to them, and those jets knew one speed: power up.

The skis were quite difficult to turn. Since the boots were roomy, it was challenging to use the mechanics of my body to bring the runaway system to a stop. I didn’t feel like I could apply proper pressure.

I can now sympathize with what our guests may go through when strapping on equipment that is unfamiliar to them and learning a sport that requires many nuances of movement. Before I assume that struggling students lack the desire to improve or aren’t “getting” my instructions, I’ll think about the equipment they’re dealing with.

And I’ve learned one other thing over the years as I have spent countless hours on the snow in all kinds of weather—from sun, to rain, to subzero temperatures. After my experience with rental equipment, I now know that part of the credit for my improvement is due to my old Atomic black and gray boots and my steel Volant skis, the personalized gear I know to never again leave behind.

— Debra Wolf, Canaan Valley Resort, WV

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