

Boot Fitting Essentials

By Dave Peszek

This is the sixth in a series of technical articles that will appear this season in Ski Racing. Each issue, we'll tackle different topics that arise for skiers & riders of all types. The author will attempt to answer any tech questions that you may have – Pez@holmenkol.us.

In the Backshop series so far, we have spent some time discussing the particulars of how to best make your skis perform to their best. I'd like to take some time to discuss how to best improve your performance – through well fit ski boots.

Becoming an experienced boot fitter is no easy task. It requires continual mastery of several key components: knowledge of the human anatomy, current ski technique, broad technical knowledge about the mechanics of many types of racing boots, the right tools (and the knowledge to use them correctly), great communication ability; perhaps most importantly, is an inherent trait to always think through every boot fitting challenge and create a practical solution for that individual. It is very easy to become dogmatic as a bootfitter; in my experience, the best boot technicians are always the most humble and most open minded, approaching every challenge with forethought and respect.

I checked in with PJ Dewey, owner of Race Stock Sports (Waterbury, VT www.racestocksports.com) and former 10 year World Cup serviceman at Lange for some thoughts. While impossible to convey all the particular nuances of boot fitting in any one article, or even a book, PJ offered up some great advice for racers of all types to help ensure they can achieve their personal best:

- Sizing – “SKI BOOTS ARE BY FAR YOU MOST IMPORTANT PIECE OF EQUIPMENT. You could have the fastest skis in the world, the best coach, and you will still suck if your boots aren't dialed” says PJ. “When purchasing a race boot, utilize shell sizing to guarantee you don't get a boot too big (new liners give a false impression of a boot that is too small). Place your foot in the shell with toes touching the front - juniors (feet that are still growing) should not have more than 2 fingers (on top of one another) between the heel of the foot and the back of the shell. If foot is done growing then 1 finger space between the heel and the back of the boot is fine. BUY YOUR BOOTS SMALL AND WORK WITH A COMPETENT BOOT FITTER TO MAKE THE SHELL BIGGER WHERE NECESSARY. Typical build for a World Cup boot fit is around 1.5 hours (with a WC boot technician doing the work).”
- Fit Nights / Flex Sessions – “Be cautious of making hasty decisions at flex sessions in the fall. These frantic “fit nights” can lead to improper fit and impulse decisions. Go to the flex session, speak with coaches, successful athletes, then go to your local pro shop to confirm that the information you have gathered all computes” advises PJ. Remember that just because your best friend finds success with brand X of boot doesn't mean that you will – make the best choice for your own skiing ability, anatomy, and needs.
- Flex – “Buy boots that are appropriate for your weight and ability. Do not buy boots that say “race” just because you are a racer. Cutting boots to make them flex is a bad call. You shouldn't squash a boot when flexing, but the ability to flex is an integral part of a good set up. If you lack dorsiflexion (the ability to pull your forefoot towards your knee) then you do not need a flexible boot...buy a stiff one or stiffen the one you have.

- Boot Fitting – The boot technician should have a device that opens the boot wide allowing he/she to really see what is happening inside while they work on the boot. “Put lip stick on the “hot spots” of the skier’s foot. Put the foot bed in the shell and then the marked foot inside (no liner).” Advises PJ. “Always punch first, grind second; except ankles, which should be punches only. Remember that inside ankle punch is slightly forward of the mark and outside ankle is slightly back. Heat the shell slowly using a heat gun, and be patient - boiling shells is a bad idea. When grinding, work in circles and ovals to create a pocket. Don’t slack on getting your boots dialed and you will be a much happier camper for the whole season.” Most skiers are amazed at the amount of room and fitting that can be done to today’s race boots, esp. the so called “plug” models. “Plug” boots are really just low volume race boots with extra thick plastic, creating the need for internal grinding, stretching, and fitting to make them comfortable and highly unique to the racer.
- Stance/Canting – PJ recommend that the “center of knee mass be adjusted so it falls on the mold line of the boot. This stance allows today’s “athletic skier” to utilize the down hill & UP HILL edges effectively. Slightly inside the seam is ok but no more than a few mm. Sole canting is a reality and should be addressed if necessary. Minor tweaks to the sole of the boot can make an incredible difference in the performance of the equipment and the success of the athlete.” I suggest working with an experienced boot technician who utilizes the industry standard method of sole planing, then lifting (to within FIS limits) to achieve the best results. Ask around, consult your coaches, and work with someone who is experienced. At national team level, there is great interaction between coaches and boot technicians to get it just right for the athlete. Try to create the same situation with your local boot technician.
- Fore/Aft balancing – Again, working closely with your coaches and boot technician, and being mindful of your skiing ability, stance, and range of flexion at the ankle, fore/aft balancing can be crucial for success. There is a reason why the FIS measures stand height at the heel and not the toe of the binding – many top skiers today make adaptations to the boot board (zeppa) or use shims under the toe piece to achieve perfect fore/aft balance (esp. in SL). Also be aware that the optimal “delta” angle (net angle of the boot from toe to heel) will be different from slalom to giant slalom, and again for speed. Just because any one setup works for your favorite racer does not mean it is correct for you – work with your coaches and boot technician to get it right and then leave it alone! PJ comments that “Zeroing the delta on bindings with a lot of ramp can really bring a skier out of the back seat and get them on the front of the ski.”
- Footbeds/Orthotics – “A must – they are the foundation. They are a large part of “canting” and alignment. There are many systems and theories but one thing is for sure... that they are only as good as the guy making them” says PJ.

I hope that cans of worms is enough for everyone to chew on! If you have any doubts, check with your factory rep, local boot technician, and coach. Remember, your race boots should be comfortable for your peak performance this season!

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