

If the title has already sucked you in. If you are now drawn to this article like a fifteen year old boys hand to the centerfold, you are probably aware that in our sport footbeds, or foot orthotics as we used to call them are given near mystical abilities. "My feet hurt!" Get a foot bed. "My turns suck!" Get a footbed. "I wish I didn't always need to pee in the middle of each run!!" Get a footbed. "I am buying new ski boots." Definitely, get a footbed.

Probably you have been in shops where the pressure to buy a footbed with new boots requires Zen meditation courses to resist. The question I hope to help you answer is "Are they really necessary?"

In skiing it has been said, "A bio-mechanically stable foot will increase athletic efficiency and reduce the incidence of injury." Similarly in boarding "Stabilizing the foot enhances the range of dorsiflexion available for rolling the board onto its heel side edge." We should acknowledge that the great seething, hulking evil thought to prevent a stable foot is pronation. In a shop we are often told that foot orthotics are the key to achieving a "bio-mechanically stable foot" because they prevent or reduce pronation.

Is it reasonable to believe that for most skiers, foot orthotics have the ability to both reduce injuries and increase efficiency in skiing (more simply efficiency = performance)?

Most of the theory on the relationship between foot orthotics, pronation and injury has been developed from studies of runners. Foot orthotics seem to be effective in treating runners with existing injuries. Research data on whether or not orthotics reduce pronation, however, is all over the map. A new theory on the block suggests that orthotics work not so much by limiting movement, but by changing the way we activate our muscles to produce the movement.") It has been stated that up to 75% of the population pronates. Despite the unstable condition this is thought to cause, there are many, many of us with pronated

To further complicate the matter, the parallel between running and skiing biomechanics is not clear. The goals of the movements are different, and the forces generated by the human body in each of the movements are different. The types of injuries typically observed in runners are over-use injuries, whereas ski injuries are most often traumatic, single event, blowups. The idea that footbeds will reduce injuries in skiing by reducing pronation seems to be a stretch.

Most skiers that voluntarily use foot orthotics do so because they are thought to be a necessary and easy way to improve performance. In addition to thinking orthotics reduce pronation it is also believed orthotics reposition the foot to a more powerful and stable neutral position. Even if we assume repositioning is successful, in the medical community there are several definitions and methods of finding neutral and they can result in different foot positions. Further, unless medically necessary to treat pain it may be reasonable to assume that our bodies may not happily go where they have not gone before. Thank you Captain Kirk. Decades of positioning may not easily die.

Finally, since foot motion and tibia rotation are coupled at the ankle (if you move one the other must move), anything that acts to resist pronation also resists leg rotation necessary to edge skis and resists the subtle foot motion so necessary for easy and effective balance.

So where are we? If scientists, those great purveyors of all knowledge can't agree, as skiers what should our position be?

First, regardless of function we all know people that are in pain "A properly designed foot bed should not hinder the natural motions of the foot." when walking or running, maybe simply standing all day without orthotics. With orthotics, no pain. Use your orthotics if they have successfully treated a medical condition that is present during skiing.

Many skiers report they are more comfortable with foot orthotics inserted. Possibly we appreciate arch support in our boots, since years in shoes have accustomed us to support. Better pressure distribution beneath our feet may make us feel better connected to our boots. More comfort equals more smiles, so use them. But orthotics improperly made can actually hinder your skiing and may even cause painful foot cramps. What to look for?

Unless medically necessary, in the arch they should not be so firm and supportive they work to block foot motion. If they do, they promote cramps and reduce subtle foot motions helpful for balance. Remember pronation is a natural and necessary part of skiing.

Orthotics such as the DFP (Dynamic Foot Positioning) pictured here or the Conformable Custom Pro TX are heated and directly molded to your foot, resulting in comfortable even pressure. However, they are supple and the arch will actually move lower as a foot pronates during each turn.

It is however possible, but in our opinion more difficult to have success with a firmer footbed or one with a solid arch. Typically, some of the arch material can be ground away resulting in more compliance.

Apologies for difficulties understanding this article. The human body is complex as is its reaction to changes. We should not be so glib as to simply assume pronation is bad, orthotics good. Go orthotics!