

Adaptive Snowboarders Equipment

Outside the Box

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I have been an adaptive rider for 16 years and a sport advocate since 2000. Throughout the years of snowboard camps and adaptive competition, I have had the chance to observe what prosthetic products and devices are being used by innovative adaptive snowboarders to make their prosthetics shred ready. These riders are taking conventional prosthetics and using them for activities that most of their designers had never intended.

After many e-mails asking the same questions about these "snowboard prosthetics," I documented which prostheses the riders were using and the modifications they have done to make snowboarding a reality for them. The goal was to cover the full spectrum of snowboard prosthetics and to make this information more available to the adaptive snowsport community.

In the accompanying photos and corresponding text, I have profiled snowboarder Nicole Roundy's above knee prosthesis assembly. She has some great prosthetic ideas that she uses for snowboarding that could work for others.

This profile is not an endorsement of the prosthetic devices; it is just an acknowledgment of what is currently being used to snowboard.

I highly recommend that you do not attempt to use any of this equipment without the endorsement of a certified prosthetist and that you seek professional



Nicole Roundy

snowboard instruction from a certified snowboard instructor.

If you are an individual seeking to use this information to help yourself or a friend, please work with your prosthetist to obtain the componentry best suited for you and send me an e-mail on your progress. I can be reached at LucasG@DiscoverNAC.org.

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Thanks also to the adaptive riders who

agreed to be profiled. Their donation to the adaptive community and more importantly, to future adaptive shredhounds, is priceless.

For more Leg Assembly Profiles, visit www.originalgimp.org.

For more information on the National Ability Center, visit www.discovernac.org.



Nicole Roundy, a Utah native, lost her leg at the age of eight due to a rare form of bone cancer. A decade later, she was doing things that kept her able-bodied peers in awe. She took on snowboarding, wakeboarding, and other cross-training activities. Snowboarding is her passion, and it has now led her to be a participant with Park City's National Ability Center and the Park City Snowboard Team. Last year, Nicole competed in the World Snowboard Federation's first ever Adaptive World Cup and brought home the silver medal. She has also competed as an adaptive rider with The United States of America Snowboard Association. This year she will be back on the hills of Park City after a summer that saw her winning a gold medal in wakeboarding at the Extremity Games in July. Participating in these sports takes its toll on prosthetic limbs, but Nicole thinks she has found a great recipe for success that keeps her on the hill and on the podium.

[evolve]



"I know feet. Designing and testing them is what I do. The Onyx has become my all-around favorite foot, whether just walking around or aggressively bouldering. The Onyx provides excellent terrain compliance and cushioning, and the dynamic pylon truly is dynamic."

- Chris Johnson, mechanical engineer





Photo 1: Nicole rides on an Ossur VSP Flex-Foot which is a moderate/high activity foot. The prosthetic foot is set close to a standard walking alignment with the pyramid system set about 3° to the back. Nicole prefers to use a Flex-Foot that is rated for twice her own weight in order to get more performance out of the carbon spring while carving. She finds this foot to be particularly good for Alpine events like Slalom and GS. Unlike some other adaptive riders, she does not notice any torsional twisting in the shock unit. This could be due to her light weight.

Photo 2: This wedge is a 2" heel lift created from a block of wood and is covered in duct tape to prevent damage to the snowboard boot.

Please note: this wedge is used in conjunction with the middle hole setting on the bottom of the XT9 and the red aluminum wedge to mimic the proper knee and ankle flexion of an able-bodied stance.

Photo 3: The XT9 prosthetic knee is designed by SymbiotechsUSA. Due to Nicole's lighter weight and the wedges, the bottom bolt of the shock is set to the middle hole in the framework of the XT9. This placement also gives her greater spring response in the cut of a strong carve or when landing a jump. Please note the difference from the other XT9 users. This setting, along with the Trunion Mount (red part and screw dial on the shock), bolt setting, and wedges, mimics able-bodied ankle and knee flexion. This way of setting the XT9 gives consistent energy return for her needs.

Photo 4: This aluminum stock wedge is a 3/8" lift; it is set between the XT9 and the male end of the pyramid alignment system. As stated above, this wedge completes the proper flexion and extension snowboard stance alignment.

Photo 5: The socket is made of carbon fiber with a cosmetic foam cover. The rim of the socket has a low profile on the inner thigh which allows a little more movement while riding. It is good for doing a Nose Press. The socket also has small holes in the front and bottom that work in conjunction with the liner/KISS suspension system.

Photo 6: The liner is a silicone Ohio Willow Wood model that creates suction to the residual limb and helps prevent slippage. It also has the Velcro strip attached to the bottom, instead of a pin, to attach it to the prosthetic limb.

Photos 7 & 8: The KISS system is a simple and effective way of securing the liner to the socket. It uses two contact points and a weave of Velcro strapping. The first point of contact is at the bottom of the liner. The Velcro strap slides through the bottom hole in the socket. The second point of contact is at the midpoint of the socket. A Velcro strap slides through the disc-like hole to fasten with the bottom strap. There is also a metal coin-like disc on the liner that fits snugly into the top hole. This helps prevent torsional twisting while riding and can prevent injury. Between the socket, liner, and KISS system there is a strong bond created ideal for shredding down the mountain.

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