

The ProStretch® : Increase muscular strength, endurance, and flexibility

By Richard Blair Lyon, PT and Michelle Chapwick, BS

Injuries of the foot, ankle and leg account for over 50% of the injuries in sports where the foot contacts the ground. Gastrocnemius muscle inflexibility is the causative factor in many of these injuries. Traditionally, the exercise prescribed to stretch this muscle is the wall push-up.

This brings us to Chris Smith, a recreational hockey player and professional auto mechanic, who was frustrated with the tightness in his leg after a severe knee injury. The slow progress of his rehabilitation prompted him to weld two brake shoes together to make a platform that would allow him to put his foot in a position that would facilitate stretching of his gastroc muscle. After four weeks of using his homemade device to stretch his gastroc muscle he was back on the ice. The ProStretch was born.

The device itself is elegant in its simplicity. A semicircular rocker bottom is topped by a stable platform that dorsiflexes the forefoot 40° relative to the rearfoot. By dorsiflexing the forefoot, the ProStretch applies a gentle, controlled stretch to the plantar fascia. This is useful in treatment of plantar fasciitis and related plantar heel pain syndromes.

We use the ProStretch primarily as a tool to facilitate the flexibility of the gastroc muscle, and as a direct result, the dorsiflexion motion of the ankle joint. It has been our clinical experience that stretching the gastroc muscle with the ProStretch device is more effective than the traditional wall pushup stretch. We hypothesize that the reason it is so much more effective is that biomechanically, the shape of the rocker bottom of the device mirrors the curved shape of the dorsal surface of the talus. When

using the ProStretch, the patient rocks the device downwards and backwards. The curved shape of the device duplicates the gliding motion of the talus in the ankle mortise. This results in a natural, controlled stretching of the connective tissue that we are targeting.

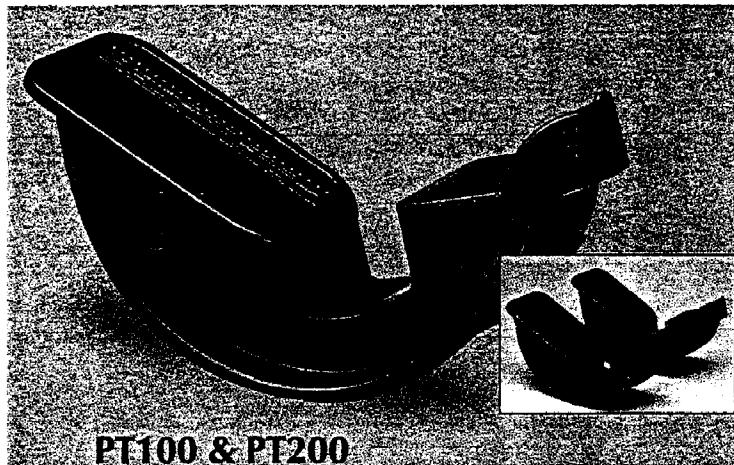
Clinically, we use the ProStretch device in two different positions to stretch the two different calf muscles. To stretch the gastroc muscle, the device must be used in a standing position with the knee in full

the problem to develop. This can be done because of the position of the forefoot relative to the rearfoot imposed on the foot by the shape of the device.

The device can be fitted with range limiter that allows the clinician to apply a controlled stretch to the gastroc/soleus of the patient who has a surgically repaired Achilles tendon. In addition to being used as a tool to facilitate gastroc and soleus flexibility, the ProStretch has a few other uses. It can be used as a proprioceptive trainer in the anterior-posterior plane as a preparatory activity for more challenging balance activities. It can be used to position the leg to stretch the hamstrings and the anterior compartment muscles. And finally, it can be used for light strength training of the anterior tibialis and gastroc/soleus muscles.

Our personal and clinical experience has been that stretching the gastroc muscle with the ProStretch device is more effective than traditional stretching exercises in improving ankle joint dorsiflexion. Research is in progress in our facilities to document these clinical findings. We find the ProStretch to be highly cost effective for both clinical and home use. Prices range from \$30 for the single foot model to \$60 for the dual foot model.

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extension. Stretching the soleus muscle can be done in a standing position with the knee flexed, or in a seated position. With both of these exercises it is essential to have the patient slightly supinate the foot to approximate a subtalar joint neutral position, the position of the foot just before heel lift in gait.

We have our patients maintain the stretch position for 30-60 seconds at a low to moderate intensity to get a nice plastic deformation of the connective tissue. Using the ProStretch to treat plantar fasciitis is particularly effective because the device allows the patient to stretch both the plantar fascia and the gastroc muscle, simulating the forces in gait that cause

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