

StokoTM

THE EMBRACE SYSTEMTM

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The purpose of this document is to give medical professionals a deeper understanding of how the Stoko K1 Embrace SystemTM provides knee stability and how it differentiates from traditional rigid braces.

The Embrace System™

The musculoskeletal system works through a system of pushing and pulling. Bones provide support and structure for your body to move by **pushing** against each other. Joints are needed to help bones move in relation to one another and are connected with ligaments. Ligaments create tension, **pulling** the bones together and preventing separation throughout the joints' range of motion.

Knee braces provide stability to the joint by applying restorative forces that return the knee to its natural alignment. The biggest difference between a traditional rigid brace and the Stoko K1 is how it provides mechanical support. Traditional rigid braces **push**, the Stoko K1 **pulls**.

For over 30 years, traditional rigid braces have worked by providing a rigid structure for the leg to **push** against. When the knee moves out of alignment, the knee brace pushes the knee back into alignment. While the body uses ligaments to connect two bones together, the two halves of a traditional rigid brace uses a geared connection. Gearing is unnatural for the body and can

lead to brace migration and discomfort [[Stoko K1 Comfort and Compliance](#)].

The Stoko K1 works through its cabling system which **pulls** your knee into alignment. When the knee moves out of alignment, our non-extensible cabling pulls into tension stabilizing your mechanics. Similar to ligaments, the Stoko K1 cables are able to smoothly articulate through range of motion and provide tension when the knee goes out of alignment.

The following pages will take a deep dive into how the Stoko K1 provides mechanical stabilization for valgus, varus, and tibial translation.

Valgus/Varus Stabilization

When the knee moves out of alignment into valgus/varus positions [Figure 1] the stress in the medial collateral ligament or lateral collateral ligament increases. This stress pulls the knee back into alignment, but can lead to injury if it exceeds the strength of the tissue. Injuries induced through valgus or varus mechanisms include non-contact planting, cutting, and jump landing, in addition to contact injuries such as a football tackle, and more

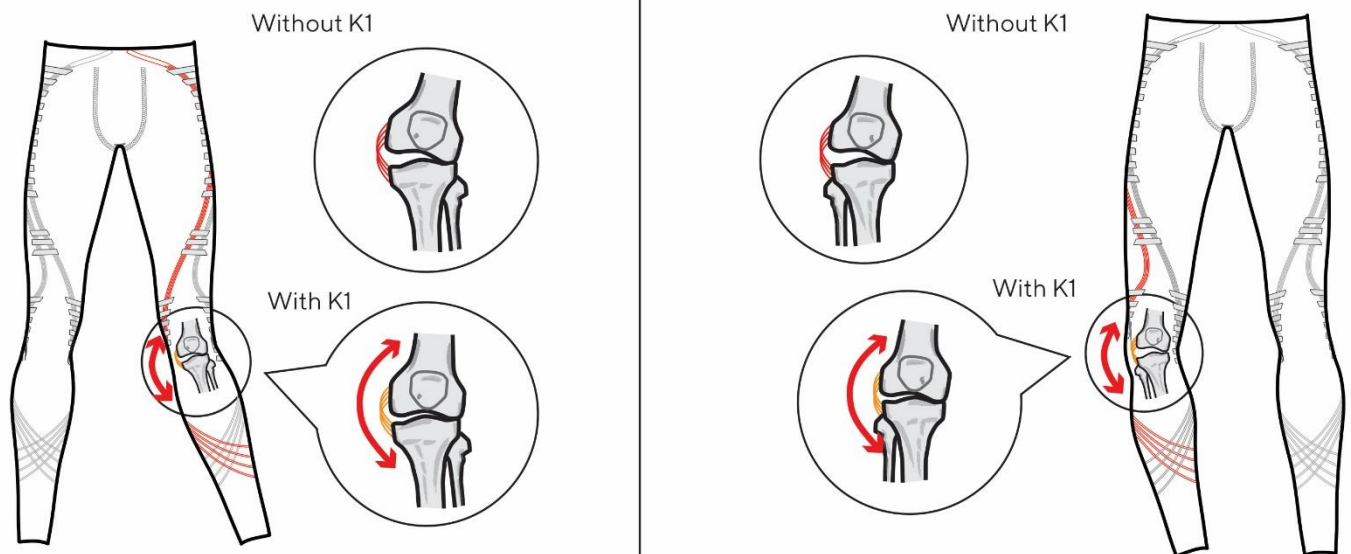


Figure 1. Effect of Embrace System Cabling on valgus and varus knee

The Stoko Embrace System™ within the K1 provides valgus/varus stabilization. While wearing the K1, if the knee moves into a valgus/varus position the tension in the cables on the medial knee increases [Figure 1]. The cables pull on the anchor points at the hips and calf, creating a knee abduction or adduction moment, giving support to the collateral ligaments. See our [Stoko K1 Support Verification](#), for more details on this stabilization.

Tibial Stabilization

The Stoko K1 provides tibial stabilization. The anterior and posterior cables are cross linked at the shin and calf muscles, allowing for balanced forces to restrain the tibia.

Anterior Tibial Stabilization. Figure 2-Left shows how the cables capture the anterior tibia to produce

posterior forces. Furthermore, the cables anchored at the hip and calf create compressive stabilization forces. Anterior tibial stabilization, as delivered via the Stoko Embrace System™, may be prescribed for injuries to the ACL or meniscus.

Posterior Tibial Stabilization. Figure 2-Centre shows how the cables capture the posterior tibia to produce anterior forces on the calf. Furthermore, the cables anchored at the hip and calf create compressive stabilization forces. Posterior tibial stabilization, as delivered via the Stoko Embrace System™, may be prescribed for injuries to the PCL or meniscus.

The combination of the anterior and posterior tibial stabilization plus our targeted compression [Figure 2-Right] can support many other knee injuries and feel great for aches and pains.

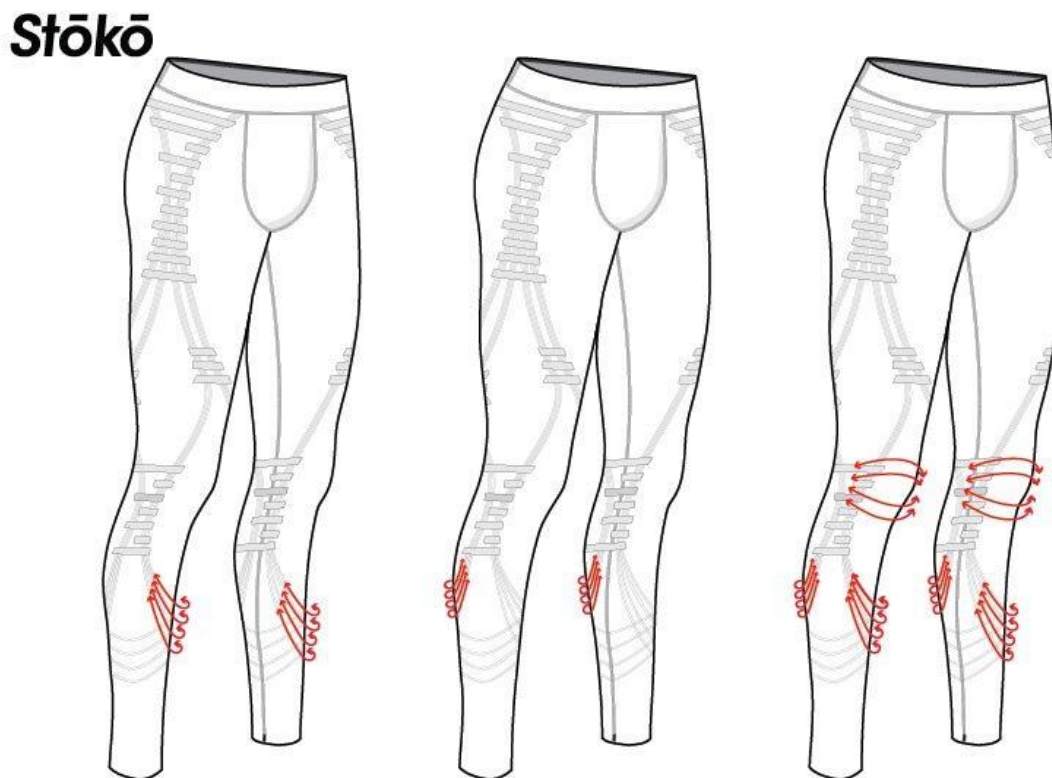


Figure 2. Stabilization Systems of the K1 Embrace

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