

Addressing Limb Volume Fluctuation: A Different Approach

by Richard M. Greenwald, PhD

Simbex LLC has also addressed the problem of limb volume fluctuations and their effect on prosthetic fitting.

The company's Active Contact System™ — a self-actuated, liquid pump that fills the dynamically changing space between the limb and the socket — “automatically and continuously maintains a stable fit for transfemoral suction sockets even as the residual limb changes volume,” the company says. “A change in limb volume causes the Actiflow Circuit to detect a pressure change in the suction socket and activates the system to add or remove fluid from the socket, thus maintaining a comfortable and stable fit. The natural motion of walking provides the only power necessary!”

Robert C. Dean, ScD, is an adjunct professor at the Thayer School of Engineering at Dartmouth College, a former assistant professor at MIT, and the chairman and co-founder of Simbex. He has also used transfemoral prostheses for more than 60 years. “The one common problem they all shared,” he says, “was the inability to fit securely all day long. As my residual limb became smaller during the day, I was less able to remain active unless I spent the time and energy to find seclusion to don additional stump socks for a good fit. I knew there had to be a better way.”

Simbex released its first product, the IC-110 Volume Manager in March 2003. Next came



a second new product called the Socket Renewer (SR-80), an easy add-on to an existing transfemoral prosthesis to improve the comfort and performance for those who cannot maintain an intimate fit due to natural limb volume fluctuation. This product uses Simbex's Active Contact System™ technology and can easily be mounted to the prosthesis internally or externally. ●

For more information, call 603/448-2367 or e-mail rgreenwald@simbex.com



About the Author

Richard M. Greenwald, PhD, a biomedical engineer, founded Simbex LLC (rehabilitation engineering and sports-protective-equipment product development) in May 2000.