

Vibrating Insole May Aid Diabetic Nerve Damage

Specially designed vibrating insoles might improve feeling in people with diabetes who have damaged nerves in their feet, early research suggests.

Nerve damage in the feet is a common complication of diabetes, and as it progresses, the waning nerve function can lead to foot ulceration and, in severe cases, amputation.

The problem is that the nerve damage dulls pain perception, and diabetics may be unaware of minor cuts and other irritations that can then worsen into serious wounds. On top of this, diabetics often have poor blood circulation, which makes wounds slower to heal and more prone to infection.

The new study, of 20 people with diabetes-related nerve damage, found that exposing patients' bare feet to imperceptible vibration improved sensation in the sole of the foot. The study results suggest it is possible to treat diabetic nerve damage with shoes outfitted with specially designed insoles, study author Dr. Aristidis Veves told Reuters Health.

However, the new study is just a "proof of concept," and more research is needed to see whether such foot stimulation provides long-term improvements in nerve function, according to Veves, a researcher at Beth Israel Deaconess Medical Center in Boston.

He and his colleagues report the findings in the December issue of the journal *Diabetes Care*. Two other researchers on the study are with Providence, Rhode Island-based Afferent Corporation, which is developing vibrating insoles for a number of medical uses.

Veves said that if vibrating insoles can boost nerve input from the feet over the long term, they might cut the risk of foot ulceration, as patients will be better able to perceive pain.

In addition, he noted, the devices might help prevent falls, a major cause of bone breaks and disability in older adults. Better nerve function in the feet could improve balance. A small study published earlier this year showed that vibrating insoles appeared to improve balance control in elderly adults.

SOURCE: *Diabetes Care*, December 2003.