

Progressive exercise training may benefit diabetic neuropathy

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(HealthDay)—In a rat model of diabetes, exercise is associated with decreased diabetes-associated neuropathic pain, which correlates with increased expression of heat shock protein 72 (Hsp72), according to a study published in the February issue of *Anesthesia & Analgesia*.

Yu-Wen Chen, Ph.D., from the China Medical University in Taichung, Taiwan, and colleagues examined whether exercise regulates Hsp72, tumor necrosis factor- α (TNF- α), and interleukin-6 (IL-6) expression in a [rat model](#) of streptozotocin (STZ)-induced diabetes. Thermal withdrawal latency and mechanical withdrawal threshold as well as Hsp72, TNF- α , and IL-6 expression were assessed in four groups of [rats](#): normal sedentary, normal with exercise, sedentary STZ-diabetic (SS) rats, and STZ-diabetic rats with exercise.

The researchers identified a marked and sustained hypersensitivity to von Frey tactile and heat stimuli two weeks after STZ injection in sedentary rats. In contrast, delayed progress of tactile and thermal hypersensitivity was seen in STZ-diabetic rats undergoing exercise. Diabetes-induced blood glucose levels and body weight loss were suppressed by exercise, although they were not restored to control levels. Levels of TNF- α and IL-6 were significantly elevated in SS rats compared with normal sedentary rats. Fourteen days after STZ treatment, elevated Hsp72 expression was seen in STZ-diabetic rats with exercise, while TNF- α and IL-6 expression was comparable to the SS group in the spinal cord and peripheral nerves.

"These results suggest that progressive exercise training markedly decreases [diabetes](#)-associated neuropathic pain, including thermal hyperalgesia and mechanical allodynia," the authors write. "Elucidating the methods by which [exercise](#) enhances Hsp72 expression, but not inhibition of inflammatory cytokine (TNF- α or IL-6) overexpression, in the spinal cord and peripheral nerves may present new opportunities for the development of non-pharmacologic adjunctive therapeutic strategies for the management of painful diabetic neuropathy."

More information: [Abstract](#)
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