Significant Decline of the Force of Contraction in Tendon Reflexes as Early as Three Weeks Following the Onset of Diabetes in STZ Diabetic Rats.

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Diabetic Neuropathy-resulting in: pain, a lost of sensation, balance, and change in gait—has an effect on proprioceptor function and the force of contraction through the medial gastrocnemious muscle in rats with STZ induced diabetes. An evaluation of proprioceptor function was made stimulating a monosynaptic pathway through the medial gastrocnemious, then recording the muscle’s force of contraction, and electromyogram. The study used four groups of Wistar female rats: untreated, three week, six week, and vehicle-injected. The achilles tendon was attached to a servomotor that vibrated the muscle at frequencies of ten, twenty, fifty, one hundred, one hundred sixty-seven, two hundred fifty, and five hundred hertz, with amplitude of eighty microns. The experiments showed an overall decrease in the force of contraction through the medial gastrocnemious with distinct effects on the muscle at the various vibrations through other measurements. This loss of force contraction was noticed as early as three weeks, and as late as six weeks following the onset of diabetes. The implications of the study show how soon diabetes can have an effect on the nervous system, and may provide a foundation for further investigation into the finite functioning of muscle fibers, proprioceptors, motor neurons and their interrelations, in STZ diabetic rats.