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Diode laser irradiation selectively diminishes slow component of axonal volleys to dorsal roots from the saphenous nerve in the rat

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Abstract

Ga-Al-As laser irradiation (830 nm wavelength) inhibits the action potentials in the dorsal roots elicited from the saphenous nerve of the rat. Following laser irradiation to the saphenous nerve, the amplitude of slower conduction parts of action potentials (conduction velocity <12 m/s) were suppressed. This suppression was irradiation time dependent. After 3 min irradiation, slowest conduction velocity group (<1.3 m/s) were totally diminished and 1.3–12 m/s group were reduced to 12–67%. In contrast, faster component (>12 m/s) was unaffected by laser irradiation. These findings suggest that laser irradiation may selectively target fibers conducting at slow velocities which include afferent axons from nociceptors.

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