Pain. 1988 Jan;32(1):77-88.

A new and sensitive method for measuring thermal nociception in cutaneous hyperalgesia.

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A method to measure cutaneous hyperalgesia to thermal stimulation in unrestrained animals is described. The testing paradigm uses an automated detection of the behavioral end-point; repeated testing does not contribute to the development of the observed hyperalgesia. Carrageenan-induced inflammation resulted in significantly shorter paw withdrawal latencies as compared to saline-treated paws and these latency changes corresponded to a decreased thermal nociceptive threshold. Both the thermal method and the Randall-Selitto mechanical method detected dose-related hyperalgesia and its blockade by either morphine or indomethacin. However, the thermal method showed greater bioassay sensitivity and allowed for the measurement of other behavioral parameters in addition to the nociceptive threshold.