Abstracts

Differing Effects of Pulsed and CW Microwave Energy Upon Nerve Function as Detected by Birefringence Measurement

P.V.K. Brown and L.E. Larsen. "Differing Effects of Pulsed and CW Microwave Energy Upon Nerve Function as Detected by Birefringence Measurement." 1980 Transactions on Microwave Theory and Techniques 28.10 (Oct. 1980 [T-MTT]): 1126-1133.

The change in resting birefringence of crab nerve coincident with propagation of the action potential was used as a measure of peripheral nerve response to microwave radiation. Birefringence indicates membrane permeability changes associated with the ionic currents of the action potential. The use of an optical dependent variable has the advantage that no field perturbations are introduced by sensing electrodes. Statistical analysis of the data indicated that pulsed microwave energy degraded the birefringence amplitude a greater amount and more rapidly than did either continuous wave (CW) energy of the same average power or commensurate heating. CW energy and heating caused no changes from the control condition.

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