Abstracts

The Effect of Scanning Speed on Temperature and Equivalent Thermal Exposure Distributions During Ultrasound Hyperthermia in Vivo

K. Hynynen, R. Roemer, E. Moros, C. Johnson and D. Anhalt. "The Effect of Scanning Speed on Temperature and Equivalent Thermal Exposure Distributions During Ultrasound Hyperthermia in Vivo." 1986 Transactions on Microwave Theory and Techniques 34.5 (May 1986 [T-MTT] (Special Issue on Phased Arrays for Hyperthermia Treatment of Cancer)): 552-559.

Experiments on eight dogs using scanned, focused ultrasound to heat thighs in vivo were performed using extensive thermometry (56 thermocouples) to measure the temperahrre fields produced. The effects of scanning speed, bIood perfusion, and applied power level are investigated. The results show that the temperature fluctuations present at low scanning speeds can significantly enhance the equivalent thermal exposure of the tissue. A theoretical analysis substantiates the major experimental results.

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