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Effectiveness of a noninvasive digital infrared thermal imaging system in the detection of breast cancer.

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BACKGROUND: Digital infrared thermal imaging (DITI) has resurfaced in this era of modernized computer technology. Its role in the detection of breast cancer is evaluated.

METHODS: In this prospective clinical trial, 92 patients for whom a breast biopsy was recommended based on prior mammogram or ultrasound underwent DITI. Three scores were generated: an overall risk score in the screening mode, a clinical score based on patient information and a third assessment by artificial neural network.

RESULTS: Sixty of 94 biopsies were malignant and 34 were benign. DITI identified 58 of 60 malignancies, with 97% sensitivity, 44% specificity, and 82% negative predictive value depending on the mode used. Compared to an overall risk score of 0, a score of 3 or greater was significantly more likely to be associated with malignancy (30% vs 90%, $P < .03$).

CONCLUSION: DITI is a valuable adjunct to mammography and ultrasound, especially in women with dense breast parenchyma.