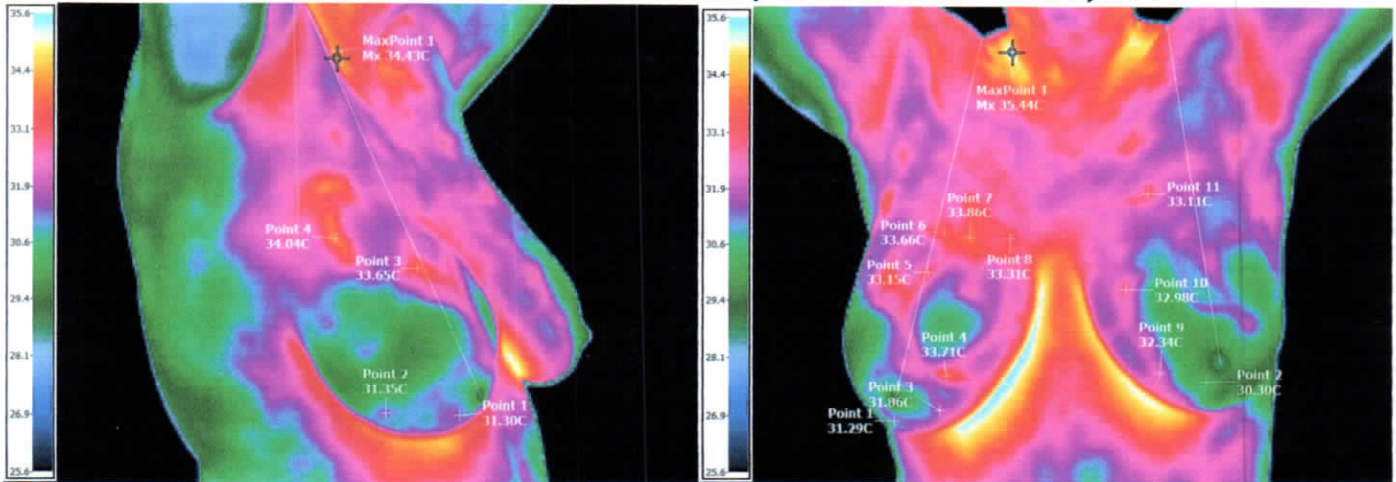


# ANALYSIS OF BREAST THERMOLOGY

George, Sandy, DOB: 24 March 1968

Scan ID: DFXRE for C. Davis, DO. & A. Butcher, PA.



Right Aspect of Thorax

24 October 2018

Frontal Thorax

**BACKGROUND:** Two (2) replicate sets of three (3) high-resolution radiometric infrared images were made of the anterior and the right and left lateral aspects of the thorax to feature the breasts. The second set of images was made immediately after the patient withdrew both hands from a one-minute immersion in cold (approx. 11°C) water. This procedure is a deliberate and simple dynamic functional challenge that anticipates the adaptive constriction of normal blood vessels with consequent cooling of the skin. The challenge is intended to differentially indicate regions of unregulated hyperemia that are reliably and proximally associated with solid cancerous neoplasm. The results of this challenge are coupled with specific features of vascular configuration, quantitative thermal differentials and, when available, time-based evolution of thermal patterns and levels to provide a multi-parametric risk assessment for breast cancer. The patient's related history includes a familial and two (2) personal risk factor(s) for breast cancer. The patient's related history includes no symptom(s) associated with breast disease.

Study Date(s)	Right Breast TH Score	Left Breast TH Score
24 October 2018	TH-3	TH-1
None		

**ANALYSIS:** Quantitative analysis of the infrared images demonstrate:

- An asymmetric, diffuse and vascular-like pattern is discerned in the cranial aspect of the right breast (please refer to Point 3 in the 24 October 2018 Right Aspect of Thorax thermogram and Points 4, 5, 6, 7 & 8 in the 24 October 2018 Frontal Thorax thermogram above for specific features and locations).
- No significant thermal patterns or features are discerned in the left breast (please refer to the 24 October 2018 Frontal Thorax thermogram above).
- Additionally, the post-challenge images demonstrate an adaptive attenuation in the emission levels from all of the thermal features of the right and left breasts.

**RISK ASSESSMENT:** Quantitative analysis of the infrared images defines a single thermology sign in the cranial aspect of the right breast that indicates atypical metabolic and/or vascular processes that establishes minor (<10%) risk for confirming malignant disease at this time. However, in the absence of other specified risks, experience with similar results demonstrate regional inflammation, personal variation or metaplasia as the more likely basis for the described atypical thermal features in the cranial aspect of the right breast. Careful physical examination is indicated and other objective



**24 October 2018, George, Sandy, DOB: 24 March 1968, Scan ID: DFXRE**

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means of evaluation should be considered and are urged if clinically indicated. The risk specified by this analysis should be considered as additive with other risk factors and the results of other objective evaluations. The thermal features of the left breast do not define any thermology signs or criteria associated with risk for malignant disease.

**SUMMARY:** Atypical thermology sign with minor risk for malignant disease in the cranial aspect of the right breast; graded TH-3. Normal thermology of the left breast; graded TH-1. A comparative restudy is recommended in 120-180 days.

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American Board of Thermology

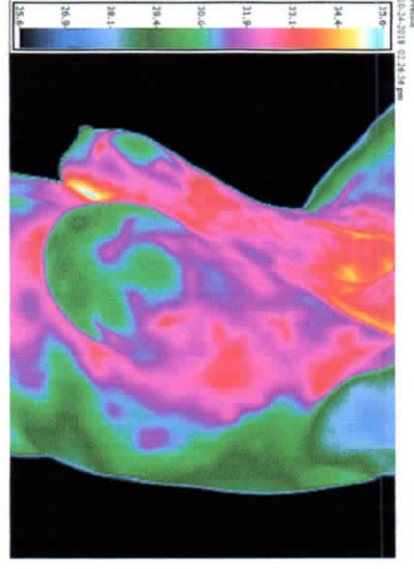
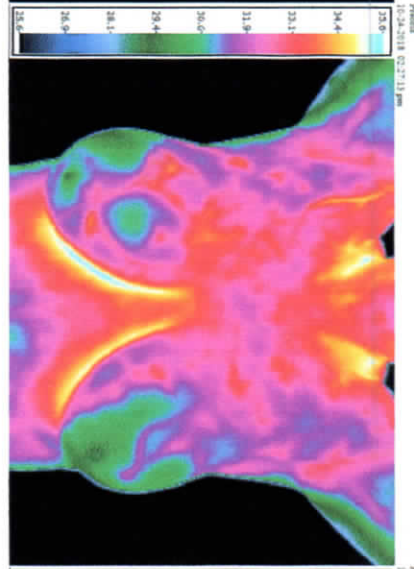
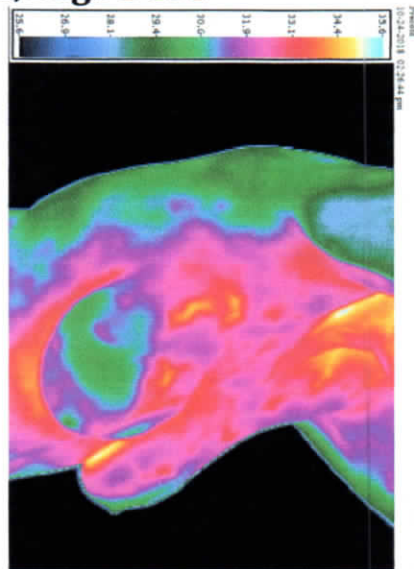
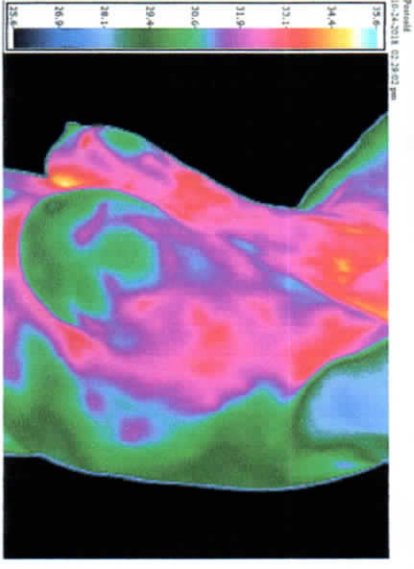
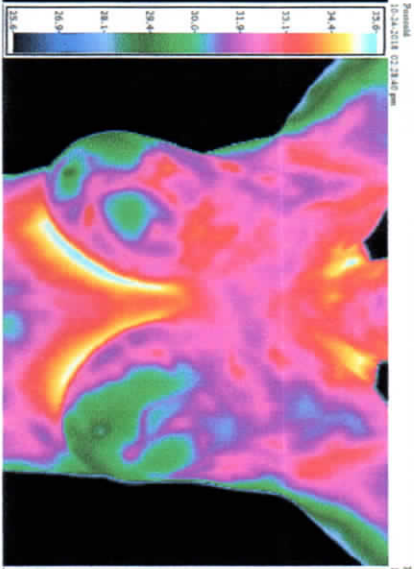
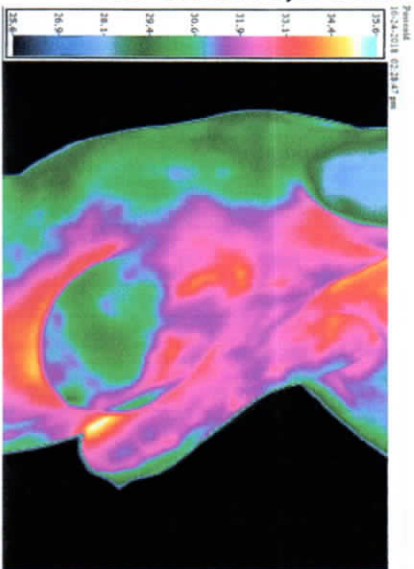


European Association of Thermology

*A. P. Butcher, III, D.D., DABT*









### **About Breast Thermology**

Medical Infrared Imaging obtains highly detailed and sensitive infrared images of the human body. Thermology is the diagnostic analysis of those images by a Board-Certified medical specialist by use of objective and quantitative methods derived from extensive medical science and sixty years of clinical development. Thermology (thermography) is listed by the US Dept. Health and Human Services as an adjunctive diagnostic modality for pathology of the female breast. Thermology evaluates tissue function and is distinctly different from tissue structure modalities, such as mammography, MRI and ultrasound. Thermology does not replace other diagnostic modalities but rather, they add to its diagnostic power and complement it as part of a comprehensive program of screening. Thermology is especially useful in instances where the diagnostic power of mammography is compromised; such as women that are pre-menopausal, have used hormone replacement therapy (HRT), have glandular or dense breasts, have fibrocystic disease, had prior biopsies, have implants or had breast reductions, are pregnant or nursing or have small or large breasts. Thermology has a very high (approx. 95%) sensitivity for the detection of breast cancer.<sup>1,2</sup> However, the specificity of thermology is compromised by tissue inflammation, infection, hormone imbalances of certain rare types of blood vessel abnormalities. The presence of these conditions may cause false-positive conclusions, especially on initial studies of an individual. Over time and with repeated studies, a questionable thermology feature will either resolve, demonstrate stability or evolve to reveal features distinctive of breast cancer. False-negative errors are rare and usually a consequence of an indolent (latent, non-growing) stage in the development of breast cancer. Masses, physical distortions and recent development of skin thickening, rashes or discharge from the nipple require further evaluation regardless of the thermology results.

### **About the Scoring System**

In 1972, a group of physicians and medical scientists at the renowned Pasteur Institute in Marseilles, France established an objective scoring system for breast thermology. This system provides for TH-1 through TH-5 scores based on specific thermology features, termed Signs and Criteria, to indicate a statistical risk for breast cancer.<sup>3</sup> The Marseille System was validated in a 1975 large-scale clinical outcomes study and is the international standard by convention.<sup>4</sup> The Marseille System long predates the American College of Radiology's BI-RADS® scoring system but is similar in concept and provides parallel indications.

### **Understanding This Report**

The TH-3 score for the right breast defines an unusual result by the detection of a single thermology Sign with a statistical association for a minor (less than 10%) risk for breast cancer. It is more likely that the described thermology sign is a consequence of benign (non-cancer) changes, such as local inflammation, infection, fibrocystic disease or a personal variation; especially on an initial study. We recommend follow-up that is medically appropriate to the patient's overall risk profile and concerns in order to better understand the significance of the TH-3 result. Clinical experience has determined targeted ultrasound as the single most effective modality follow-up to an unusual thermology study.<sup>5</sup> A thermology restudy provides comparative data to evaluate time-based changes of the described thermology Sign and usually enables the differentiation of benign conditions from breast cancer. The absence of positive evolution in the thermal features that define the thermology Sign over sufficient time will abate its associated risk for breast cancer.

The TH-1 score for the left breast defines a normal result with none of the thermology features associated with risk for confirming breast cancer. We also recommend annual thermology studies for comparative restudy that will enable us to detect trends of concern. More frequent comparative restudy may be necessary with a strong familial or personal risk factors, concerning results from other testing modalities or if new physical symptoms arise. Any new physical symptoms should not be ignored and other means of routine evaluation should not be neglected.

Ongoing breast care is a valuable part of an overall health maintenance program and should include the review of breast thermology reports by primary care and specialist physicians. Healthcare





professionals may obtain more information on breast thermology by reviewing the **PROFESSIONAL** section of <http://thermascan.com> website or contacting our knowledgeable staff. ©Copyright 2001-2018. This report format, its text and image color pallet are copyrighted and may not be duplicated or replicated in any manner. All Rights Strictly Reserved. Therma-Scan Reference Laboratory, LLC. 6239 E. Brown Rd. Suite 101, Mesa, AZ 85205 USA. +248.593.8700 <http://thermascan.com>

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