

Medical Infrared Breast Thermography

Medical Infrared Breast Thermography is a radiation-free, safe and painless process of screening for breast disease. In conjunction with mammography and other tests presently available, the early detection of breast cancer may be as high as 90%. Thermography is a method of the earliest detection of breast abnormalities presently known.

The procedure is based on the principle that chemical and blood vessel activity in both pre-cancerous tissue and the area surrounding a developing breast cancer is almost always higher than in the normal breast. Since pre-cancerous and cancerous masses are highly metabolic tissues, they need an abundant supply of nutrients to maintain their growth. In order to do this they increase circulation to their cells by sending out chemicals to keep existing blood vessels open, recruit dormant vessels, and create new ones (neo-angiogenesis). This process results in an increase in regional surface temperatures of the breast.

Most cancers are detected when the diameter is 1cm (about the size of a pea), which will contain about 1 billion cells. Thermal imaging can detect growth patterns in the 3rd year.

The table below represents the average growth pattern of a typical slow-growing tumor. Most tumors are eight to 10 years old before they are discovered.

Active Cancer Cells Can Double Every 90 Days

Time	Number of Cells
90 days	2
1 year	16
2 years	256
3 years (<i>Change detected with thermography</i>)	4,896
4 years	65,536
5 years (<i>Change still undetectable with mammogram</i>)	1,048,576
6 years	16,777,216
7 years	268,435,456
8 years (<i>Cells doubled 32 times</i>)	4,294,967,296

Source: Buchanan, J.B. et al., *Tumor Growth, doubling time, and inability of the radiologist to diagnose certain cancers.*

Mammograms are a good tool for determining the exact location of a developed tumor but they are *not* an early warning system. The real danger of breast cancer is whether or not it has spread to a vital organ, and if it is going to spread, it has many years to do so. Breast Thermography can detect the blood supply that feeds a tumor in its infancy.

FDA approved breast thermography in 1982. The January 2003 issue of the American Journal of Radiology presents the results of a four-year clinical trial that tested thermographic imaging efficacy in distinguishing between benign and malignant lesions in patients who were scheduled for biopsies. Researchers concluded that "*infrared imaging is an economic and safe modality that provides physiologic data about a lesion. The physiologic view provided by infrared imaging complements the anatomic view provided by mammography... Thus, this ... could be a valuable addition to the physician's armamentarium of diagnostic tools.*"

The Breast Journal, Volume 4, Number 4, 1998, 245-251

Infrared Imaging of the Breast: Initial Reappraisal Using High-Resolution Digital Technology in 100 Successive Cases of Stage I and II Breast Cancer.

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Our initial experience would suggest that, when done concomitantly with clinical exam and mammography, high-resolution digital infrared imaging can provide additional safe, practical, and objective information. Our initial reappraisal would also suggest that infrared imaging, based more on process than structural changes and requiring neither contact, compression, radiation nor venous access, can provide pertinent and practical complementary information to both clinical exam and mammography, our current primary basic detection modalities.

In 1982, the FDA approved breast thermography as an adjunctive breast cancer screening procedure.

- **Breast thermography has undergone extensive research since the late 1950's.**
- **Over 800 peer-reviewed studies on breast thermography exist in the index-medicus literature.**
- **In this database, well over 300,000 women have been included as study participants.**
- **The numbers of participants in many studies are very large -- 10K, 37K, 60K, 85K ...**
- **Some of these studies have followed patients up to 12 years.**
- **Strict standardized interpretation protocols have been established for over 20 years.**
- **Breast thermography has an average sensitivity and specificity of 90%.**
- **An abnormal thermogram is 10 times more significant as a future risk indicator for breast cancer than a first order family history of the disease.**
- **A persistent abnormal thermogram carries with it a 22x higher risk of future breast cancer.**
- **An abnormal infrared image is the single most important marker of high risk for developing breast cancer.**
- **Breast thermography has the ability to detect the first signs that a cancer may be forming up to 10 years before any other procedure can detect it.**
- **Research has shown that breast thermography significantly augments the long-term survival rates of its recipients by as much as 61%.**
- **When used as part of a multimodal approach (clinical examination + mammography + thermography) 95% of early stage cancers will be detected.**

Medical Infrared Breast Thermography provides a physiological assessment of the microcirculation and is quite sensitive for the detection of risk factors regarding several pathological conditions. This test, however, does not replace or discourage clinical findings or mammography and any suspicious lesions should be followed up with additional testing or medical evaluation.

Breast cancer will strike close to 250,000 women in North America and claim close to 50,000 lives in 2007. Every woman should know her risk for breast cancer. With proper risk assessment, the patient is able to determine her risk factors and develop an action plan on how to improve the breast tissue or even reverse the existing trend. The current screening strategy is not enough to protect women from breast cancer. Medical infrared imaging should be added to every woman's regular breast health care.

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