UNDERSTANDING THERMOGRAPHY

Thermography, also known as *Digital Infrared Thermal Imaging (DITI)*, **uses ultra-sensitive, high resolution camera and sophisticated software to measure infrared emissions (heat) that are constantly emitting from the surface of your skin producing a colormap of your body's health.**

In order to understand *thermography*, we need to first understand our skin. As we all know, skin is the largest organ of the human body, it is the most visible organ yet it is the most underappreciated organ. One of the most important functions of skin is to control body's temperature, that is controlling the amount of circulation, or blood flow, in the skin. As a result, our blood vessels widen and allow heat to escape through the skin, we start sweating. On the other hand, when we need to retain heat, the blood vessels narrow and we produce less sweat. This phenomenon, called thermoregulation, is done without conscious thought and it is controlled by the autonomic nervous system.

This simplified and quick overview of skin's physiology can give us a great understanding of the core principle of *thermography*. That is, normal body is
thermally symmetrical, thermal asymmetries can indicate problems. For example, chemical and blood vessel activity in both pre-cancerous tissue (also inflamed tissue) and the area surrounding a developing cancer is almost always higher than in the normal/healthy tissue. In an ever-increasing need for nutrients, cancerous tumors increase circulation to their cells by holding open existing blood vessels, opening dormant vessels, and creating new ones (neoangiogenesis).

Our state of the art, FDA approved camera system, measures body surface temperature, presenting the information as a digitized image. This image,
a thermogram, is made up of individual pixels, with each pixel displaying an accurate temperature measurement sensitive to 0.01 degree Celsius. **We could also look at a thermogram as a colormap or thermal mapping of the surface of your skin**. The spectrum of colors indicates an increase or decrease in the amount of infrared radiation being emitted from the body surface. As mentioned above, with a high degree of thermal symmetry in normal/healthy tissue, subtle abnormal temperature asymmetries can be easily identified.

As any health screening modality, *thermography* is <u>not</u> a stand-alone screening tool. It is used in addition to <u>not</u> as a replacement of any other screening procedure. *Thermography* is used as a prevention tool.