COOLING VALIDATION STUDY

OBJECTIVE:

To quantify the efficacy of EON's proprietary, non-contact skin cooling method on live tissue and to determine the temperature rise-time and fall-time of adipose tissue at various depths and power densities while being heated by the laser.

METHODS:

EON's laser/cooling head, which incorporates a 1064nm diode laser and skin cooling technology, was used on a live porcine model. Embedded thermocouples at various depths measured and recorded temperatures for the adipose tissue, and a calibrated sensor measured and recorded skin temperatures continuously. A number of different system parameter combinations were tested (power levels, scan times, dwell times etc.) and post-treatment pathology was performed.

RESULTS:

Kept skin surface temperatures at or below 40°C on live tissue during the laser heating of subcutaneous adipose tissue to 49°C, thereby mitigating the risk of collateral thermal tissue damage, both at the skin surface as well as beyond the subcutaneous adipose tissue layer.

Raised and maintained the subcutaneous adipose tissue temperature levels to 42°C – 49°C on live tissue.

Constrained skin surface temperature in live tissue below 40°C when the scanning system was employed in a different treatment location.

Effectively treated multiple areas at a high-power setting with short placement times over each treatment region.

CONCLUSION:

The efficacy of the skin cooling system was established by maintaining skin temperatures to 40°C or less while using three times the typical treatment power densities with no skin damage.

The thermal dynamic observations confirmed EON can immediately move to additional adjacent locations to effectively deliver treatment. This allows EON to treat larger surface areas than offered by other fixed contact systems, and to allow continuous intra-session treatment.