

## **[P06] ESTABLISHING NORMATIVE THERMAL PATTERN DATA FOR THE HANDS AND FEET: A FIRST STEP IN DEVELOPING A DIABETES THERMOGRAPHY PROTOCOL**

Alfred Gatt<sup>1</sup>, Cynthia Formosa<sup>1</sup>, Kevin Cassar<sup>1</sup>, Kenneth Camilleri<sup>1</sup>, Clifford de Raffaele<sup>1</sup>, Anabelle Mizzi<sup>1</sup>, Carl Azzopardi<sup>1</sup>, Stephen Mizzi<sup>1</sup>, Owen Falzon<sup>1</sup>, Stefania Christina<sup>1</sup>, Nachiappan Chockalingham<sup>2</sup>

<sup>1</sup>*University of Malta, Msida, Malta*

<sup>2</sup>*Staffordshire University, United Kingdom*

**Background:** Thermography is an emergent tool for the diagnosis of foot complications in diabetes, which have been shown to alter foot temperatures. However, in order to make this a valid clinical tool, baseline data and patterns for healthy adults must be established. Thus the aim of this study was to collect normative baseline data and identify any significant differences between hand and foot thermographic distribution patterns in a healthy adult population.

**Methods:** Thermographic data was acquired from 50 healthy subjects using a FLIR camera for acquisition of both plantar and dorsal aspects of the feet, volar aspects of the hands, and anterior aspects of the lower limbs under controlled climate conditions.

**Results:** There is general symmetry in skin temperature between the same regions in contralateral limbs, in terms of both magnitude and pattern. There was also minimal intersubject temperature variation with a consistent temperature pattern in toes and fingers. The thumb is the warmest digit with the temperature falling gradually between the 2nd and the 5th fingers. The big toe and the 5th toe are the warmest digits with the 2nd to the 4th toes being cooler.

**Conclusion:** Measurement of skin temperature of the limbs using a thermal camera is feasible and reproducible. Temperature patterns in fingers and toes are consistent with similar temperatures in contralateral limbs in healthy subjects. This study provides the basis for further research to assess the clinical usefulness of thermography in the diagnosis of vascular insufficiency in diabetes.