

Reconstruction of Thermographic Signals to Map Perforator Vessels in Humans

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Abstract

Thermal representations of perforator vessels on the surface of a human forearm have previously been mapped via recovery-enhanced infrared imaging performed as skin blood flow recovered following cooling of the forearm. We noted that the same vessels could also be observed during reactive hyperaemia tests after complete 5-min occlusion of the forearm by an inflatable cuff. However, not all subjects showed vessels with acceptable contrast. Therefore, we applied a thermographic signal reconstruction algorithm to reactive hyperaemia testing, which substantially enhanced signal-to-noise ratios between perforator vessels and their surroundings, thereby enabling their mapping with higher accuracy and a shorter occlusion period.

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