

## **The perfusion index as a noninvasive method for continuous monitoring of peripheral perfusion: A baseline study to assess the perfusion index in healthy adult volunteers**

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The survival of a replanted finger depends on both, the surgeon's skills and the adequate postoperative monitoring of microvascular anastomoses. The main complications are represented by arterial and venous perfusion disturbances. As clinical assessment of color, turgor, temperature and capillary refill largely depends on the rater's experience, a standardized monitoring method would be of great significance for the successful monitoring of replanted fingers. For this purpose, the perfusion index (PI), a parameter that is calculated from the transmission ratio between pulsatile and non-pulsatile components of the blood flow by using the photoelectric plethysmography function of a pulse oximeter, could be a useful tool. The idea was promoted in a clinical study, in which clinical monitoring of the perfusion of free flaps and replanted fingers was combined with continuous measurement of the PI.

The present study consists of two trials (each involving 15 subjects), which analyzes the basic characteristics of the PI in healthy volunteers to gather basic information about this parameter. Additionally, we analyze whether use of the disinfectant Braunol® (aqueous povidone-iodine solution; B. Braunol Melsungen AG, Melsungen Germany), which is regularly used in surgical disinfection, has an influence on the accuracy of the measured PI values. The disinfectant trial was inspired by the analysis of Hakverdioğlu et al. He observed that extrinsic factors, such as colored nail polish, can lead to an increased absorption of the light emitted by the pulse oximeter, which holds the potential to impact the measurement.