

## INTRODUCTION

Laser-speckle contrast imaging (LSCI) is a well-accepted methodology to assess cutaneous microvascular function, and is frequently applied in clinical research. However, little is known about the influence of skin tone on these measurements. Therefore an exploratory study was performed to assess the effect of skin tone (categorized by the Fitzpatrick skin tone score; (FST)) on LSCI-derived measures for microvascular function. Results were benchmarked against arterial and venous retinal blood flow velocity.

## METHODS

- 8 healthy volunteers with FST V-VI (aged 18-65) versus 12 healthy volunteers with FST I-III;
- RFI and LSCI assessments
- Endpoints:
  - LSCI: basal flow, peak flow during/after brachial arterial occlusion, ratio peak/basal flow
  - RFI: retinal arterial flow and venous flow
- Contrasts were analyzed with a mixed model of variance.



Figure 1: LSCI measurements

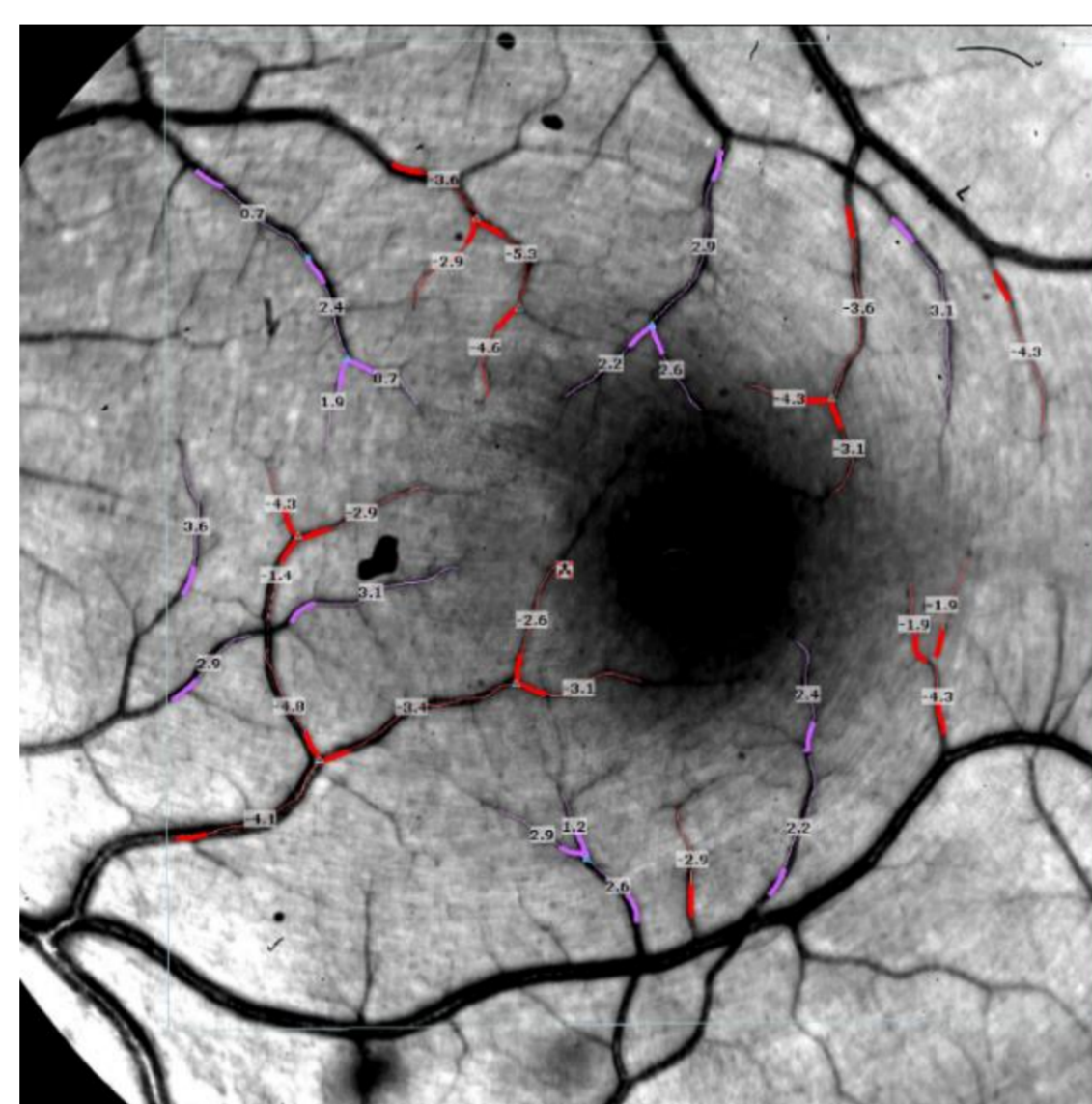
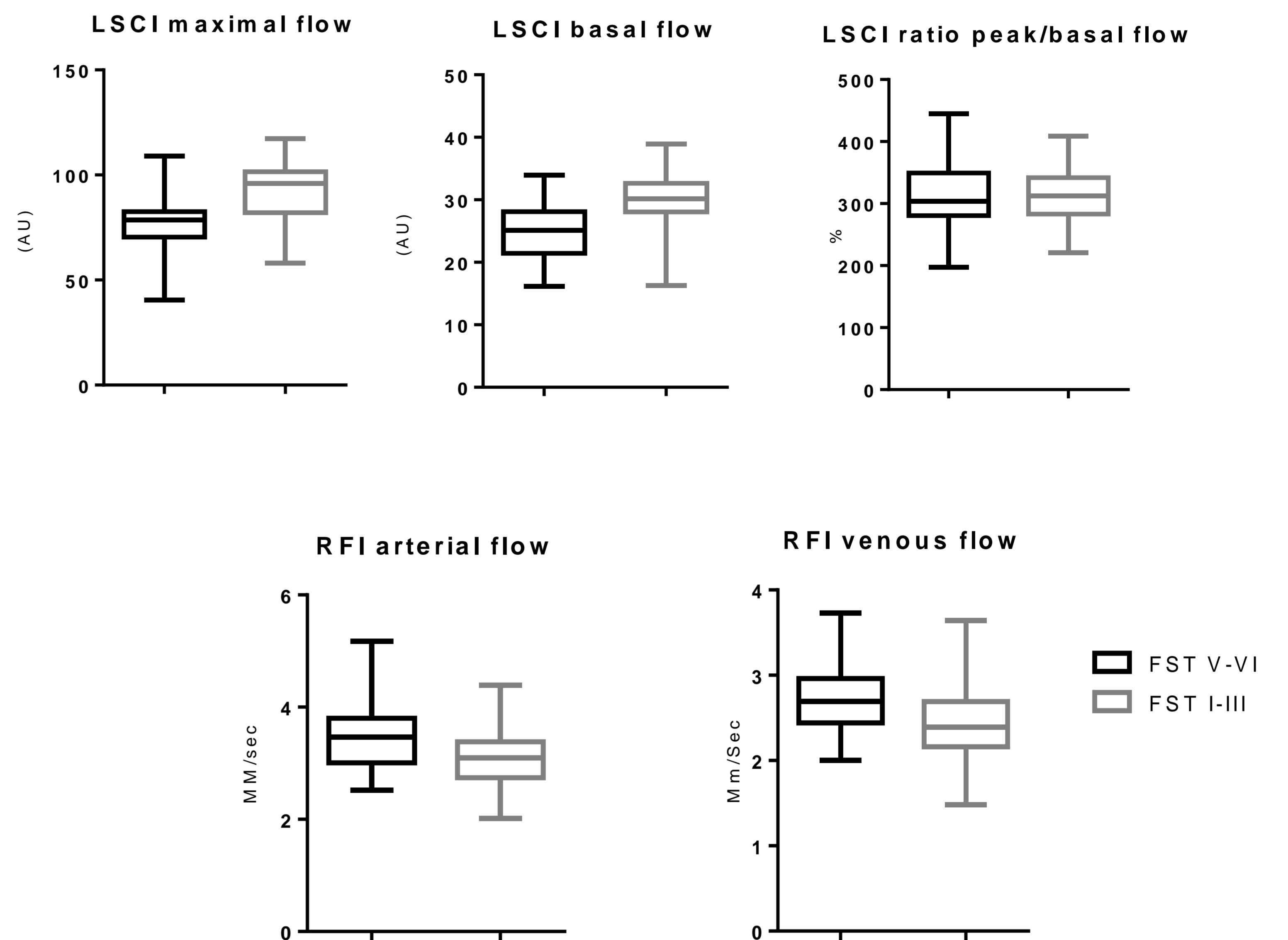


Figure 2: mapping of vessels in RFI

## RESULTS



Parameter	Matched controls	Contrast	p-value
LSCI basal flow (AU)	24.5	29.8	p=.002
LSCI maximal flow (AU)	76.8	91.5	p=.002
Ratio peak/basal flow (%)	319	312	p=0.7
RFI average arterial flow (mm/sec)	3.42	3.01	p=<0.11
RFI average venous flow (mm/sec)	2.68	2.42	p=0.12

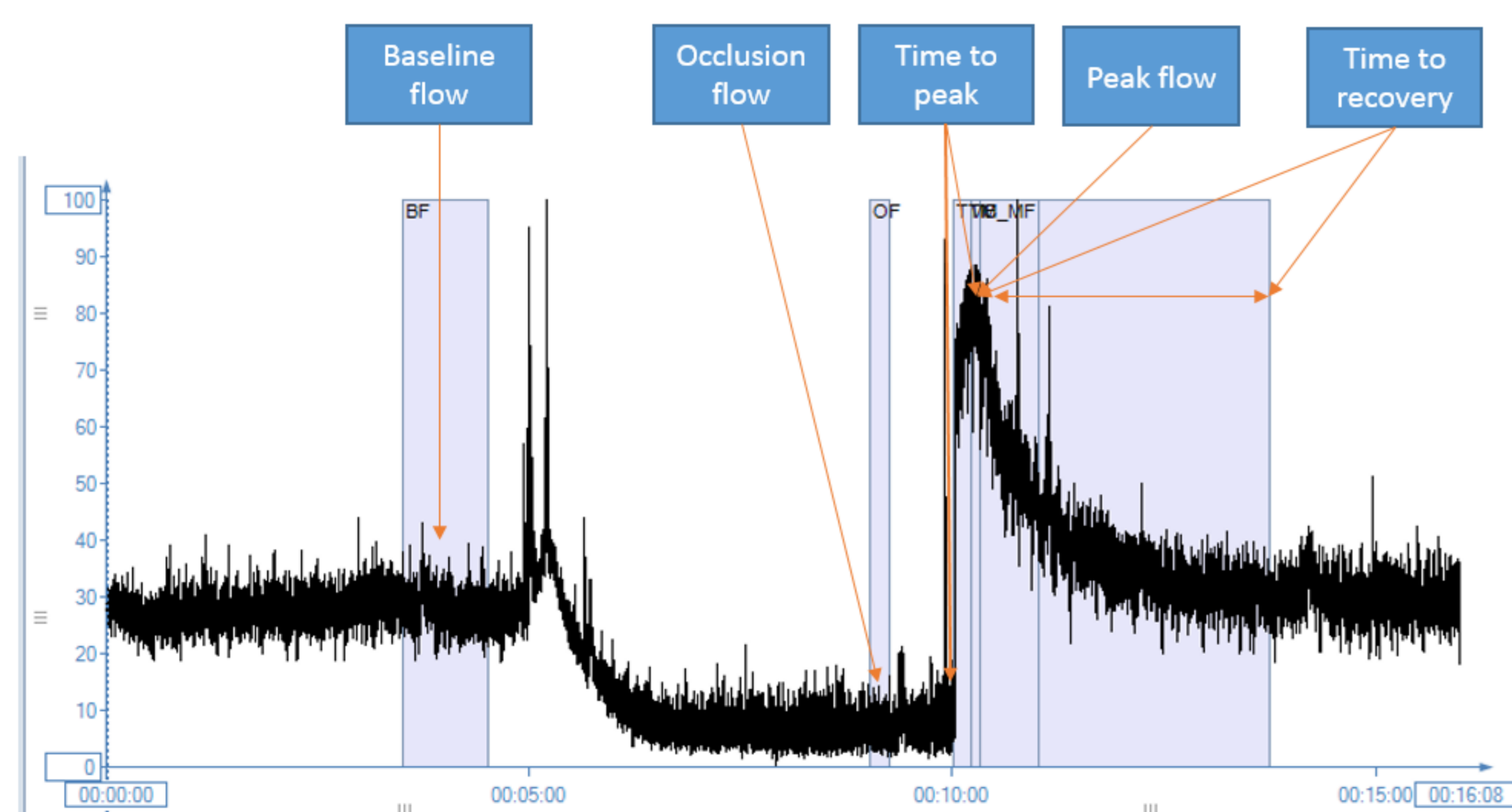


Figure 3: analysis of LSCI

## CONCLUSIONS

- Skin tone may affect absolute microvascular measurements by LSCI;
- Occlusion-reperfusion effects seem to be unaffected by skin tone;
- No skin tone-related differences in retinal blood flow were observed.