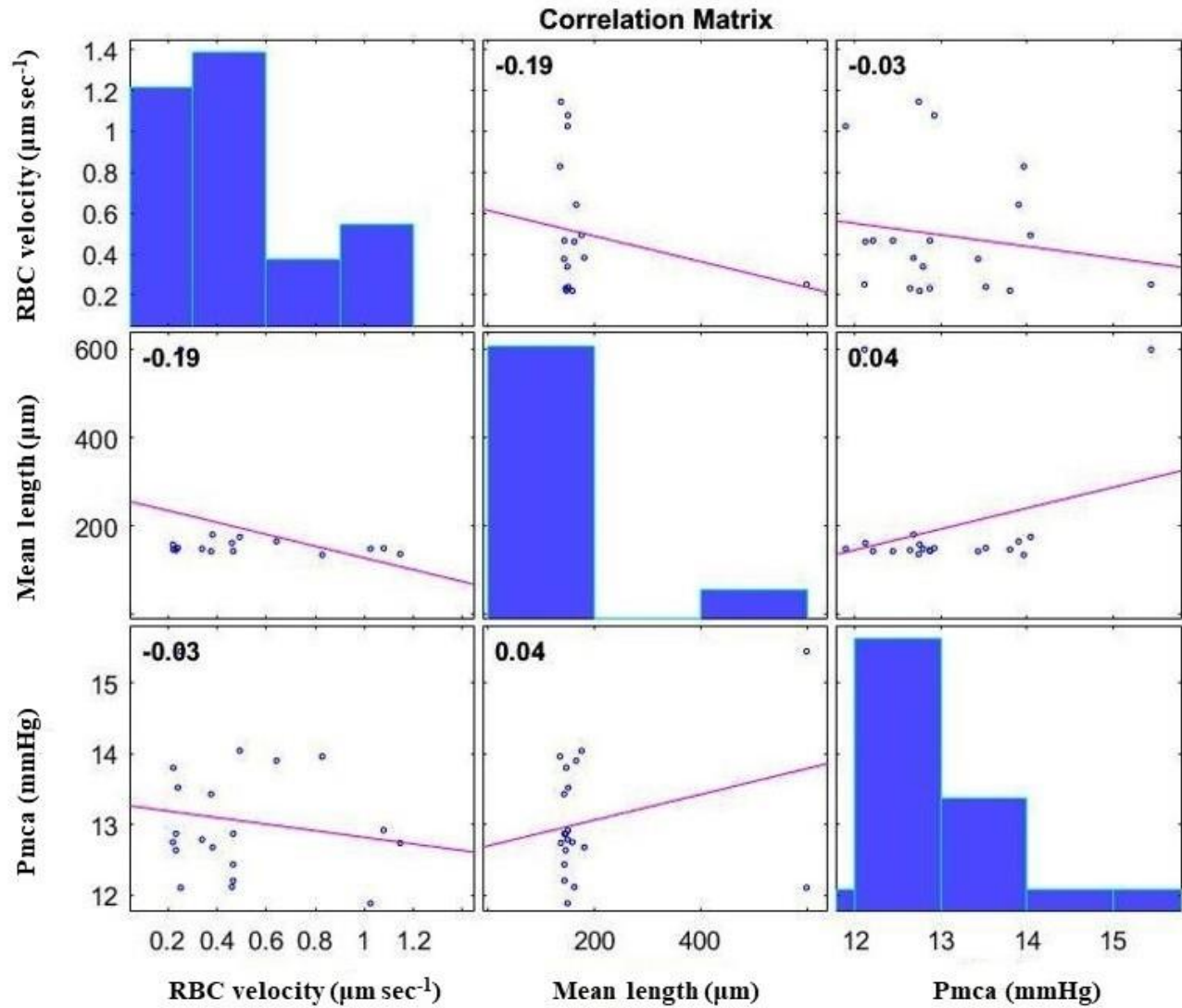
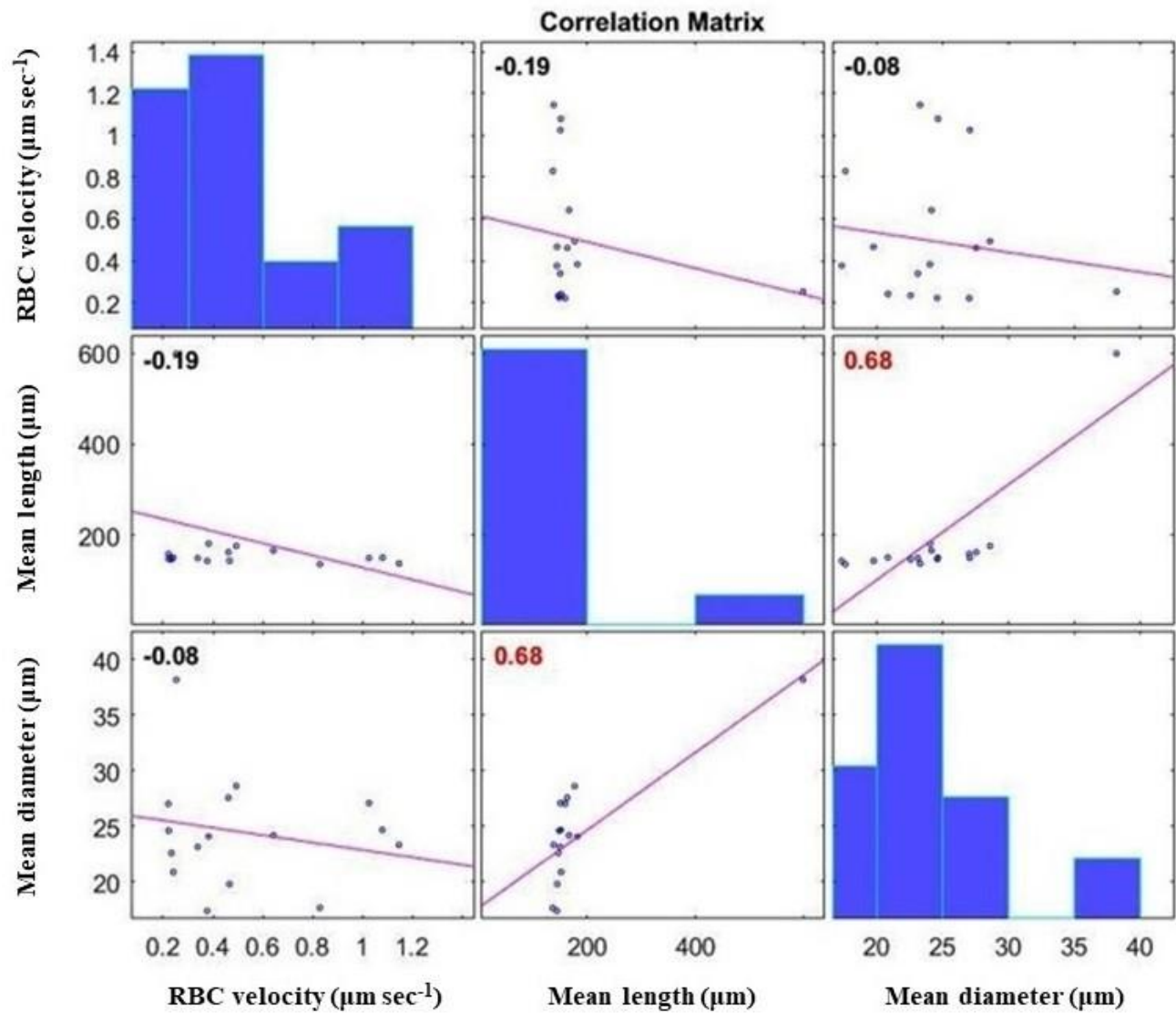
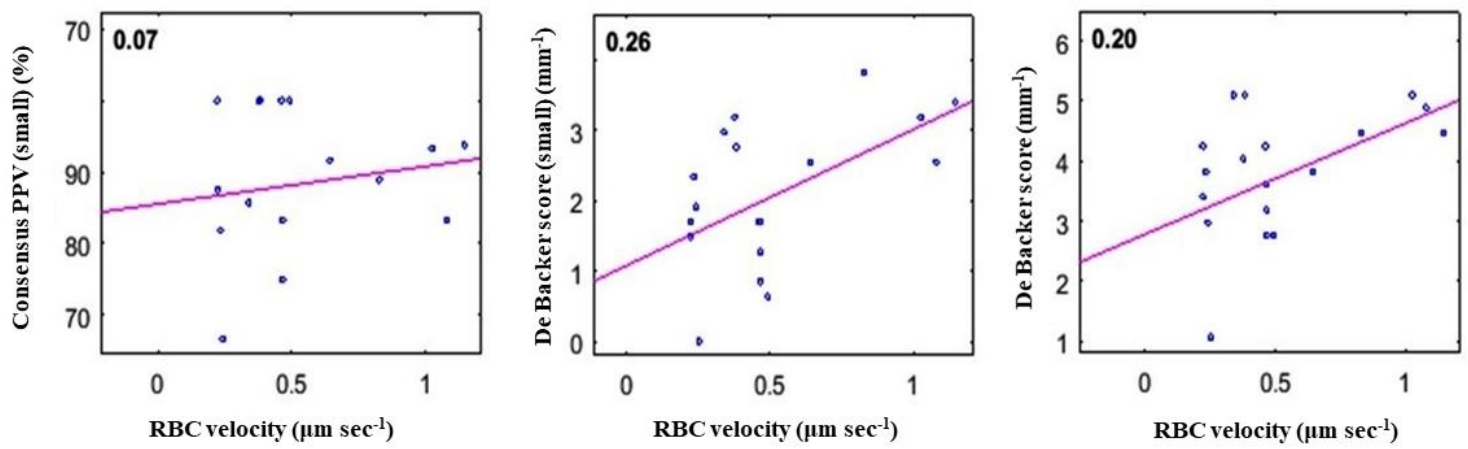
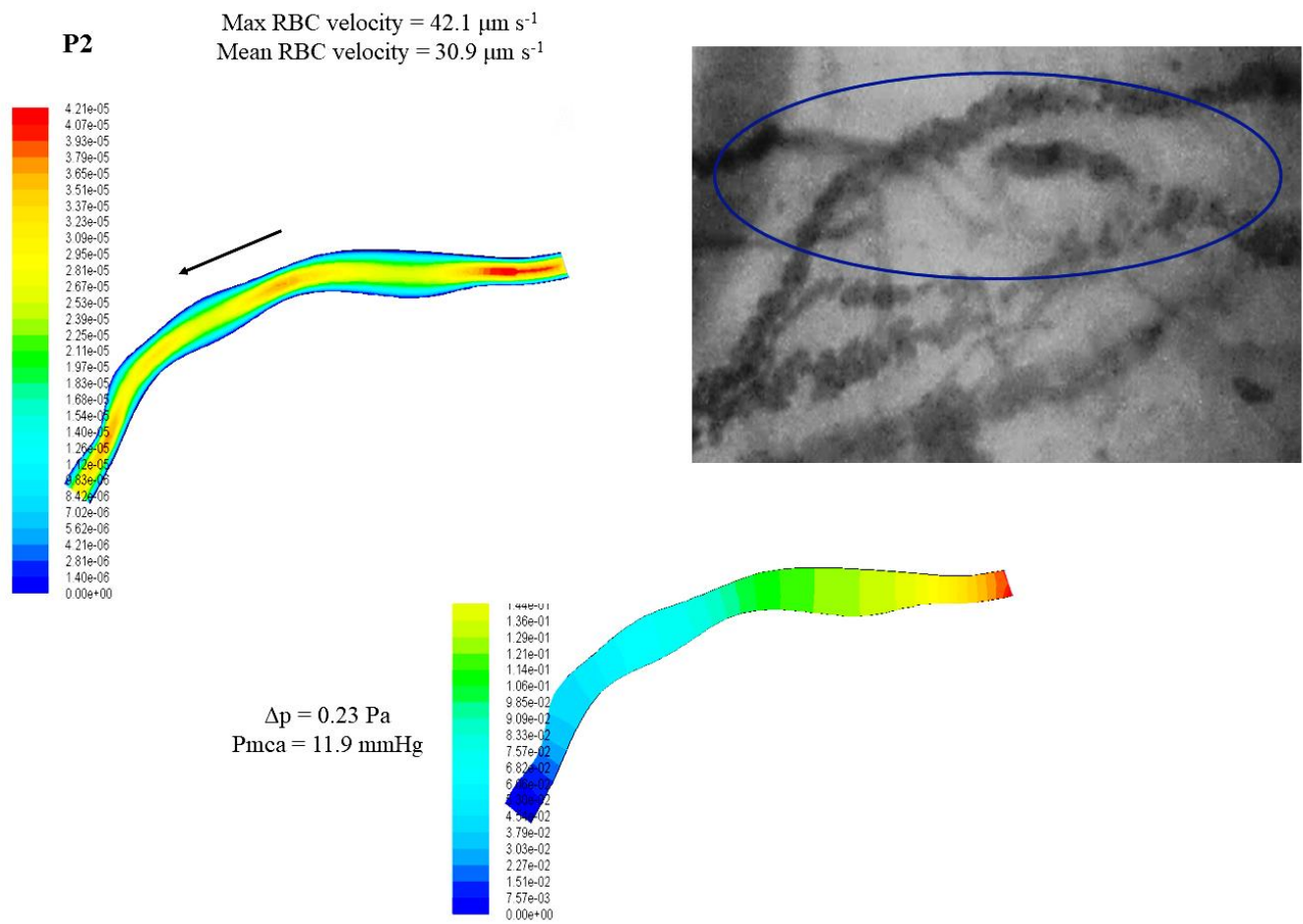


*Supplemental Material***Figure S1****Figure S1.** Correlations between Pmca, microvessel length, and RBC velocity.

**Figure S2****Figure S2.** Correlations of RBC velocity with microvessel length and diameter.

**Figure S3**

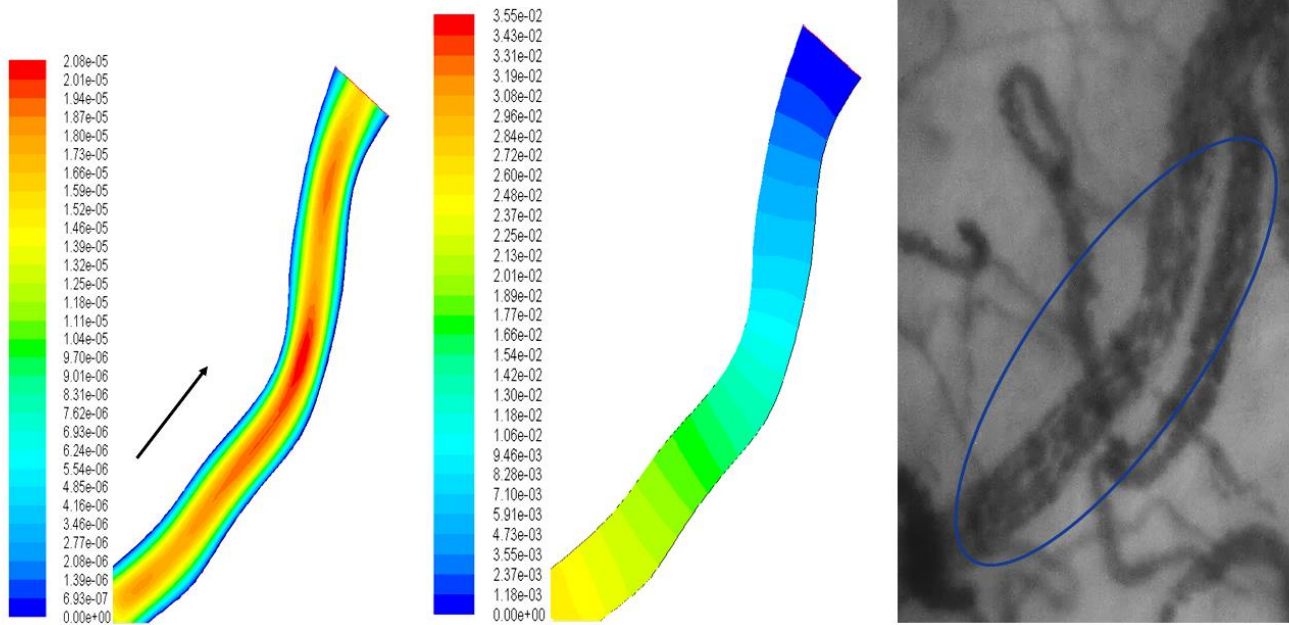
**Figure S3.** Correlation of sublingual RBC velocity with Consensus PPV (small), De Backer score (small), and De Backer score.

**Figure S4****Figure S4.** Reconstruction of the 2D microvessel and application of CFD to evaluate the velocity and pressure fields in microvessels.

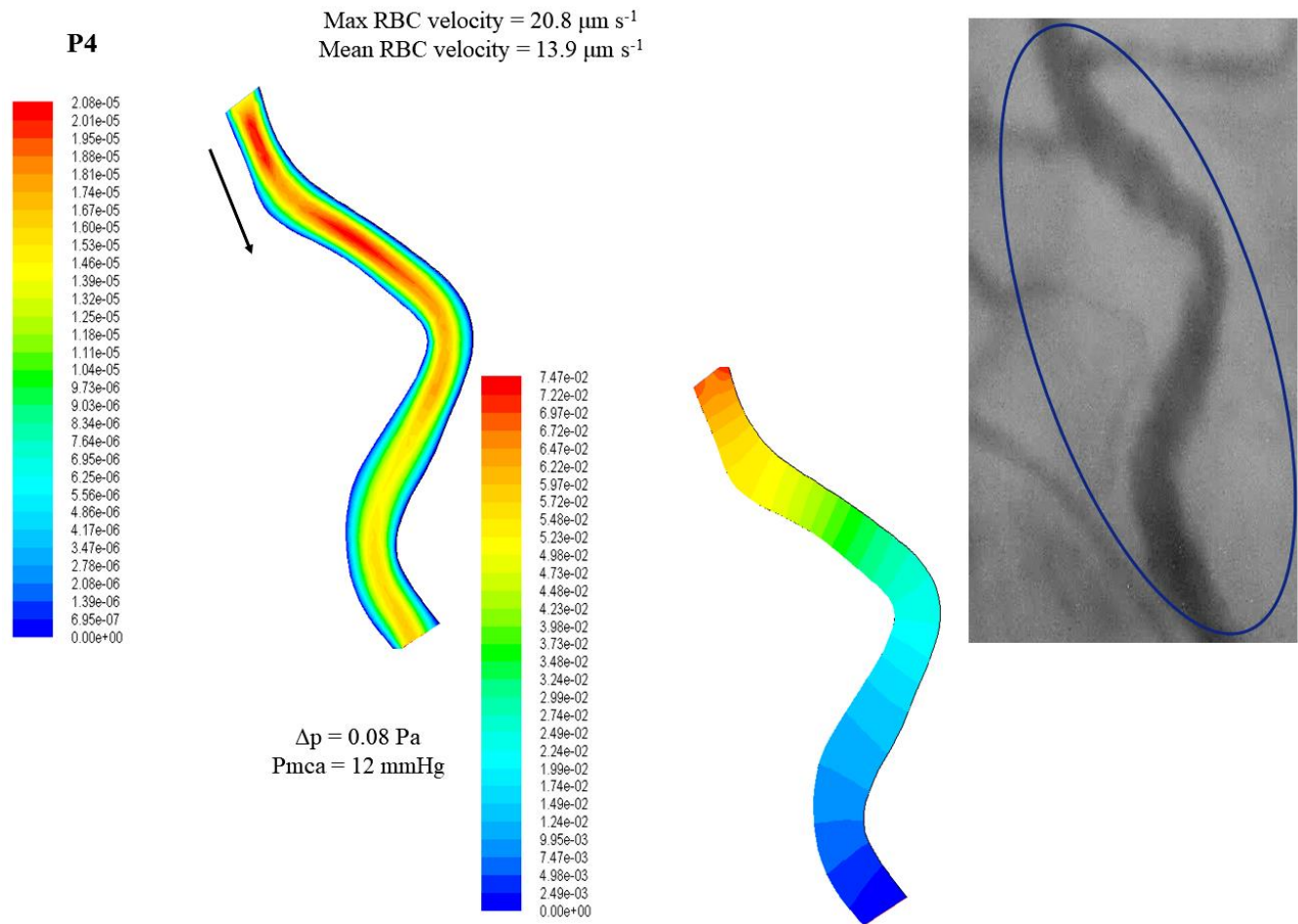
**Figure S5****P3**

Max RBC velocity =  $20.8 \mu\text{m s}^{-1}$   
 Mean RBC velocity =  $11.5 \mu\text{m s}^{-1}$

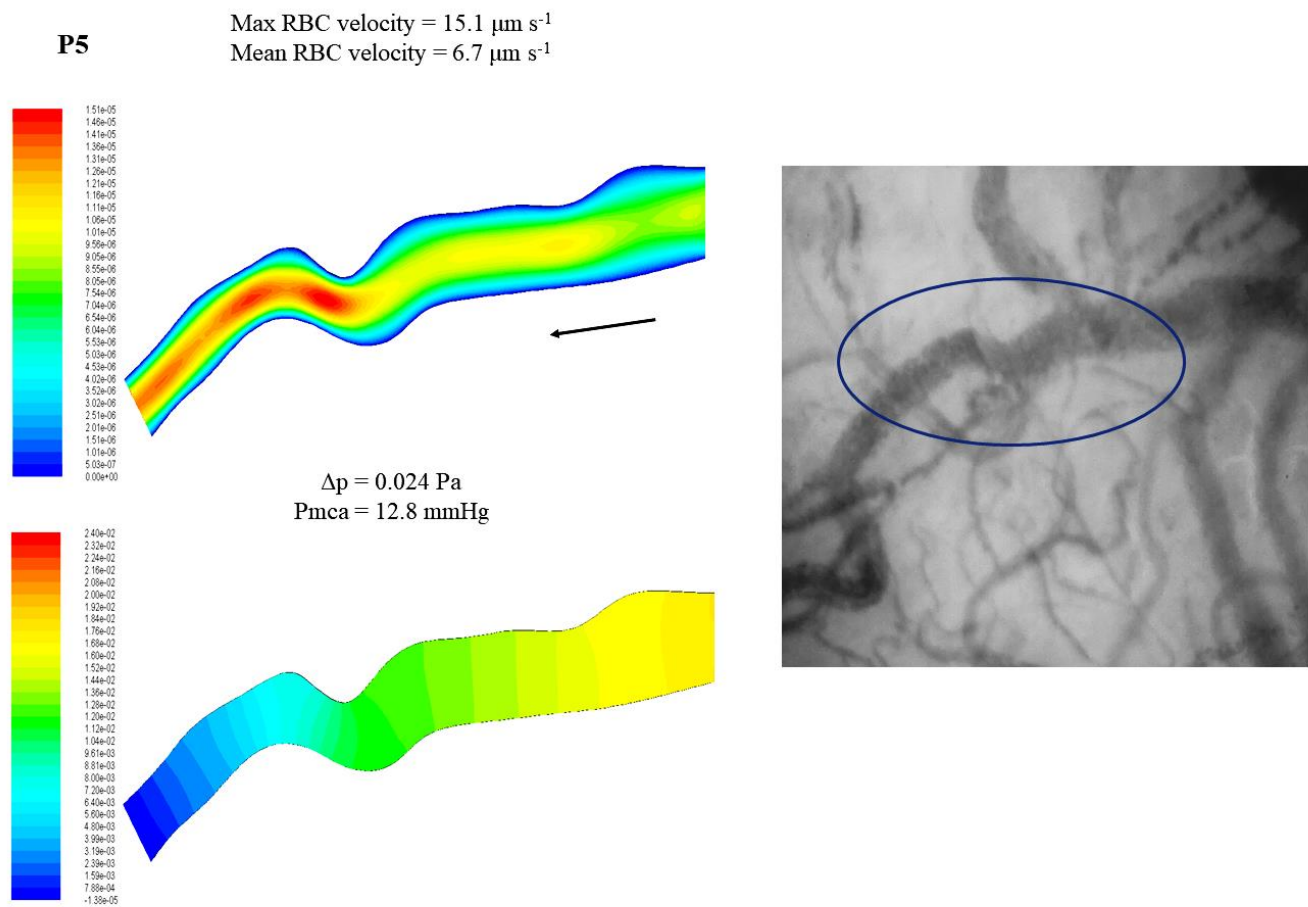
$\Delta p = 0.04 \text{ Pa}$   
 $P_{mca} = 12.7 \text{ mmHg}$



**Figure S5.** Reconstruction of the 2D microvessel and application of CFD to evaluate the velocity and pressure fields in microvessels.

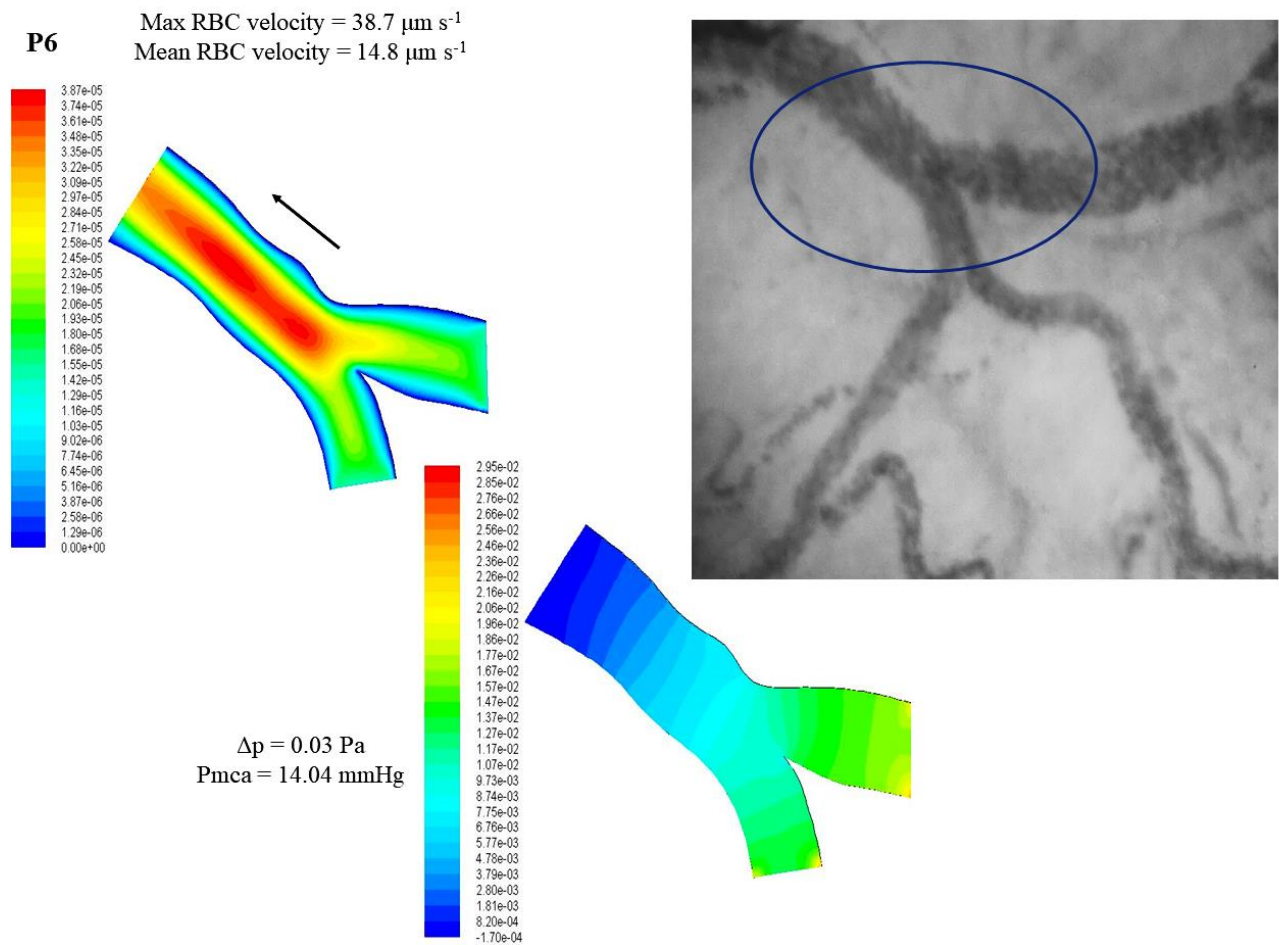
**Figure S6**

**Figure S6.** Reconstruction of the 2D microvessel and application of CFD to evaluate the velocity and pressure fields in microvessels.

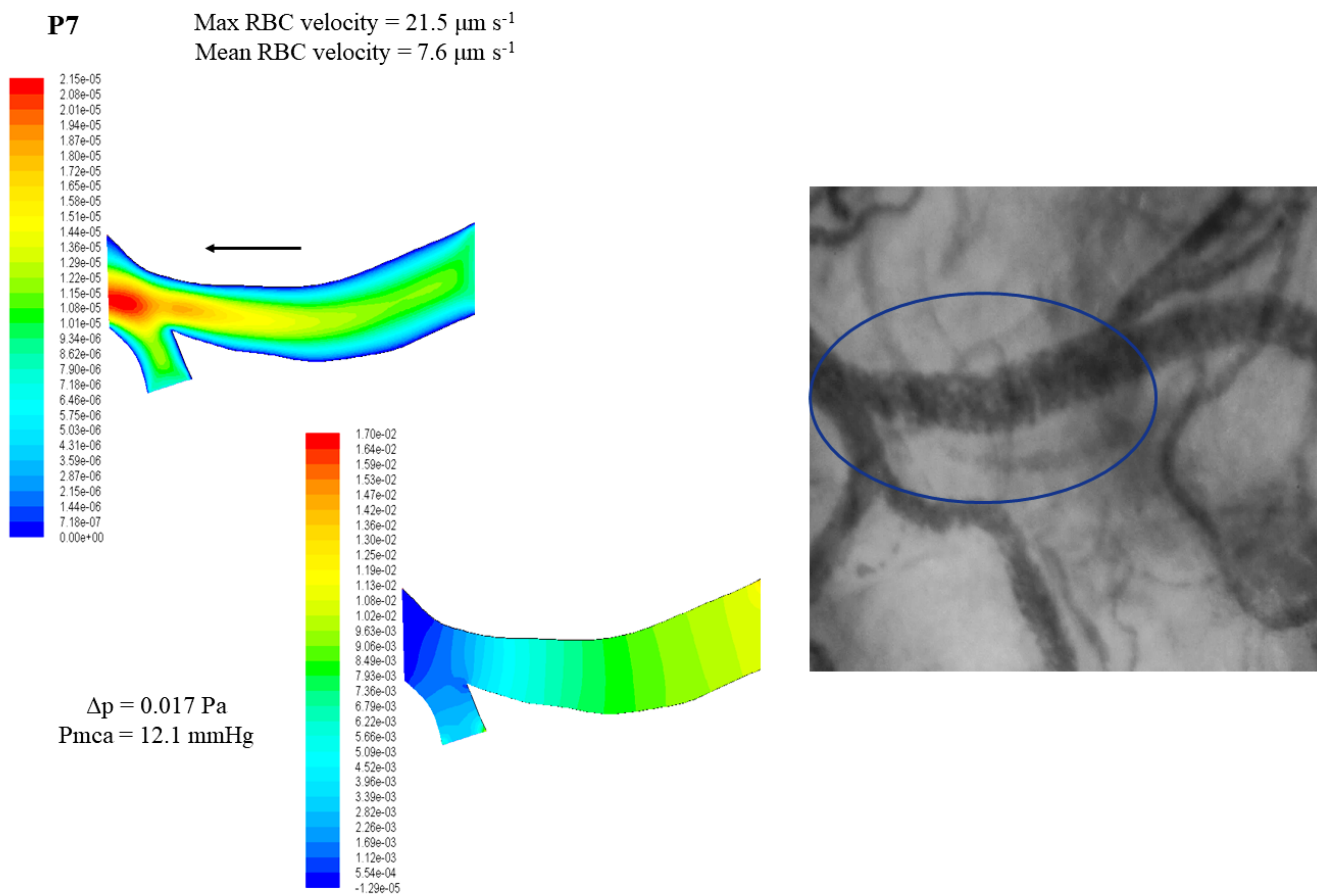
**Figure S7**

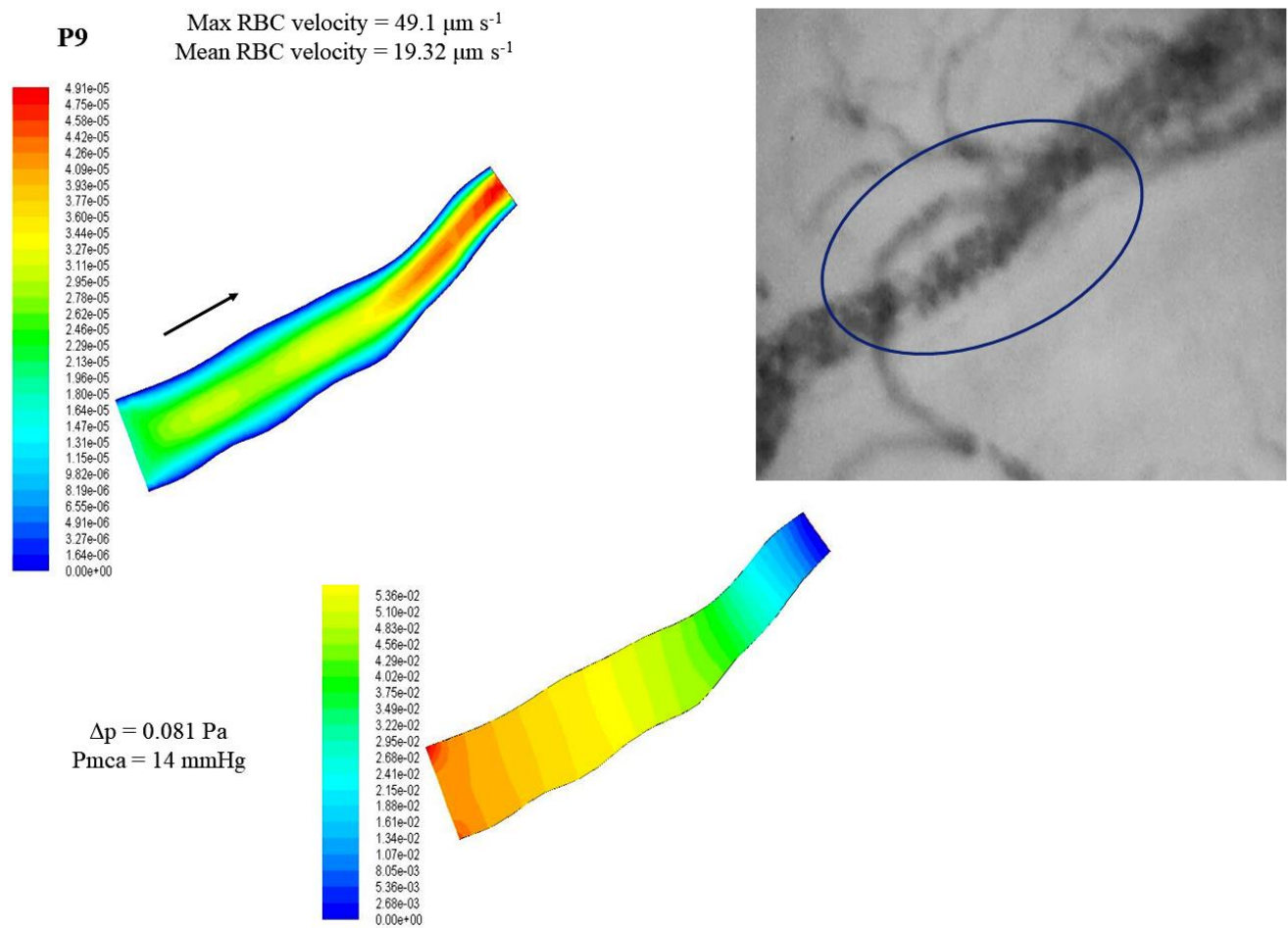
**Figure S7.** Reconstruction of the 2D microvessel and application of CFD to evaluate the velocity and pressure fields in microvessels.



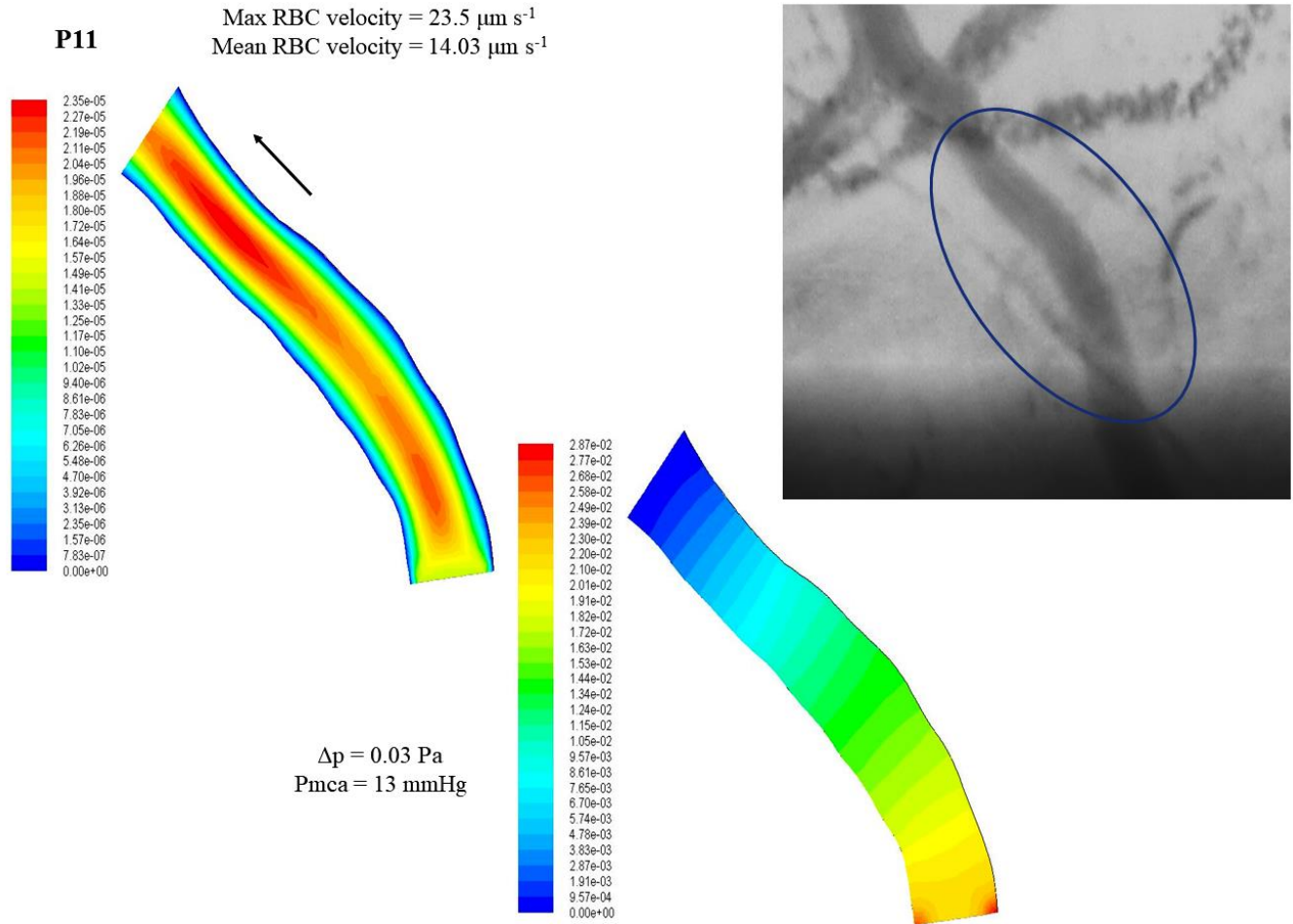
**Figure S8****Figure S8.** Reconstruction of the 2D microvessel and application of CFD to evaluate the velocity and pressure fields in microvessels.



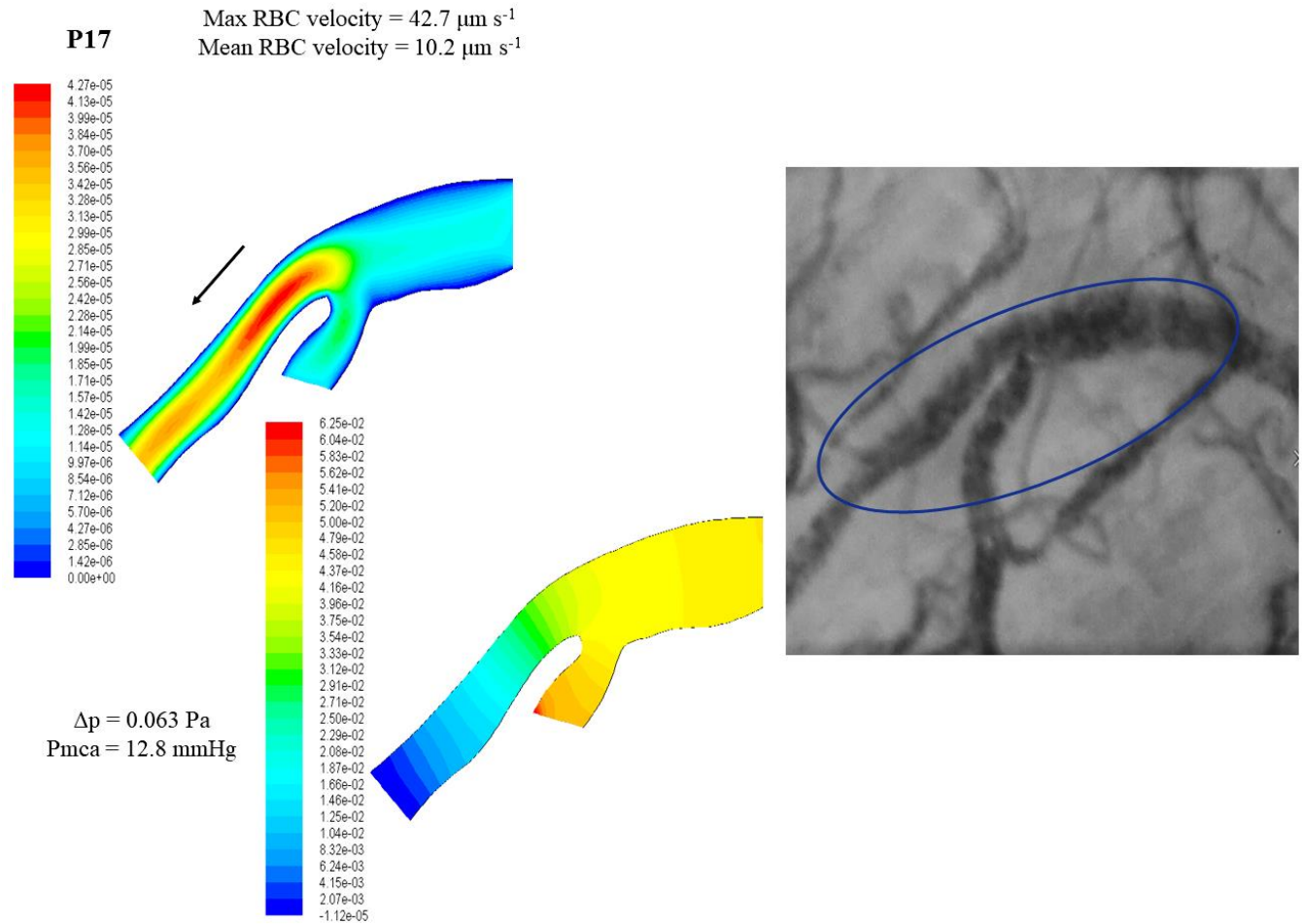
**Figure S9****Figure S9.** Reconstruction of the 2D microvessel and application of CFD to evaluate the velocity and pressure fields in microvessels.

**Figure S10**

**Figure S10.** Reconstruction of the 2D microvessel and application of CFD to evaluate the velocity and pressure fields in microvessels.

**Figure S11**

**Figure S11.** Reconstruction of the 2D microvessel and application of CFD to evaluate the velocity and pressure fields in microvessels.

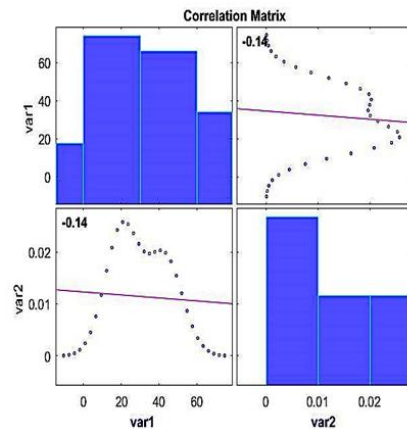
**Figure S12**

**Figure S12.** Reconstruction of the 2D microvessel and application of CFD to evaluate the velocity and pressure fields in microvessels.

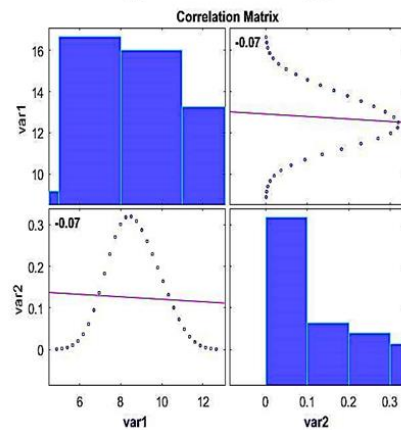
**Figure S13**

# Bootstrapping

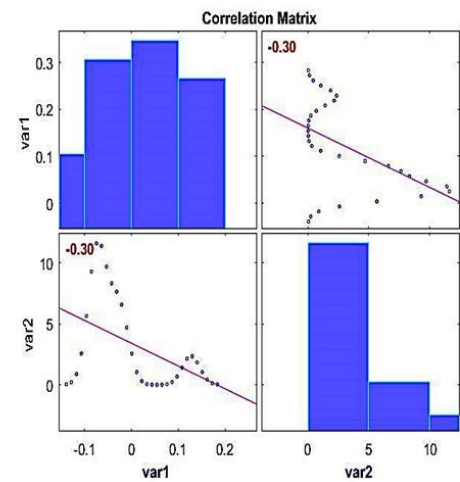
Pmca vs. max RBC velocity  
 $r = -0.14$ ,  $p = 0.28$   
 $n = 30$



Pmca vs. mean RBC velocity  
 $r = -0.07$ ,  $p = 0.61$   
 $n = 30$



Pmca vs.  $\Delta p$   
 $r = -0.30$ ,  $p = 0.02$   
 $n = 30$



**Figure S13.** Bootstrapping metrics analysis ( $n=30$ ) investigating the correlation between Pmca and  $\Delta p$ .

**Table S1. Baseline characteristics of the patients**

Age (years), median (IQR)	39.5 (35.5-44.5)
Sex - male, n (%)	12 (60)
Sex - female, n (%)	8 (40)
BMI (kg m <sup>-2</sup> ), median (IQR)	25.1 (23.15-25.8)
Body Surface Area (m <sup>2</sup> ), median (IQR)	1.94 (1.83-2.02)
Type of planned surgery	
Gastrointestinal, n (%)	7 (35)
Gynecological, n (%)	3 (15)
Thyroidectomy, n (%)	2 (10)
Urological, n (%)	8 (40)

**Table S2. Baseline anesthetic parameters 30 min after induction of anesthesia (mean  $\pm$  SD)**

Bispectral index	42.5 $\pm$ 1.5
Temperature ( $^{\circ}$ C)	36.7 $\pm$ 0.1
Tidal volume (ml kg <sup>-1</sup> IBW)	560 $\pm$ 52.2
Respiratory rate (min <sup>-1</sup> )	13.7 $\pm$ 1.1
Positive end-expiratory pressure (cmH <sub>2</sub> O)	5 $\pm$ 0
End-tidal carbon dioxide (mmHg)	36.9 $\pm$ 0.9
Peak inspiratory pressure (cmH <sub>2</sub> O)	17.8 $\pm$ 1.3
Plateau pressure (cmH <sub>2</sub> O)	16 $\pm$ 1.4

IBW, ideal body weight.



**Table S3. Correlation of sublingual RBC velocity with sublingual density and flow variables**

	RBC velocity	Consensus PPV (small)	Consensus PPV	De Backer score (small)	De Backer score
RBC velocity		<b>0.07</b>	-0.02	<b>0.26</b>	<b>0.2</b>
Consensus PPV (small)	<b>0.07</b>		<b>0.84</b>	<b>0.19</b>	<b>0.32</b>
Consensus PPV	-0.02	<b>0.84</b>		-0.13	<b>0.04</b>
De Backer score (small)	<b>0.26</b>	<b>0.19</b>	-0.13		<b>0.68</b>
De Backer score	<b>0.2</b>	<b>0.32</b>	<b>0.04</b>	<b>0.68</b>	

Red color: statistically significant positive correlations; Black bold: positive correlations.