

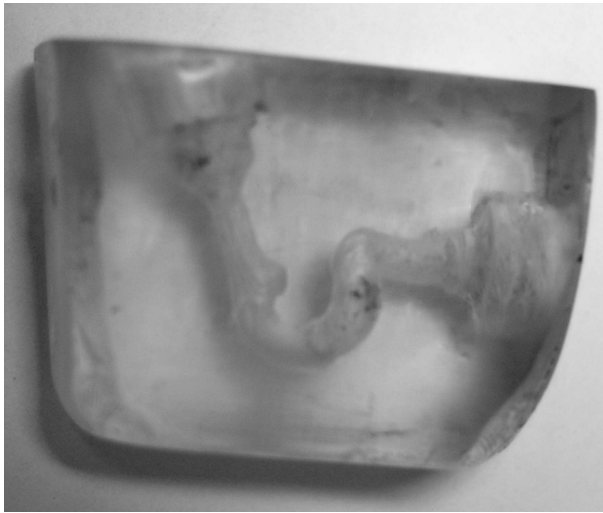
Supplementary Material

Table S1. PIV vs. Flowmeter Bland-Atlman Analysis Statistics

	r^2	Bias* (mL/s) p value	Std. Dev. of Differences (mL/s)	CoV (%)	Sample Mean (mL/s)
Time Average	.959	-0.060 (> .5)	0.374	5.57	10.46
Peak	.962	0.088 (> .5)	0.330	2.05	16.09

*Bias is reported as PIV value minus Flowmeter value.

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(a) Model A



(b) Model B

Figure S1. Photographs of the in vitro models.1
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Validation of Endovascular Doppler-derived Flow Rates

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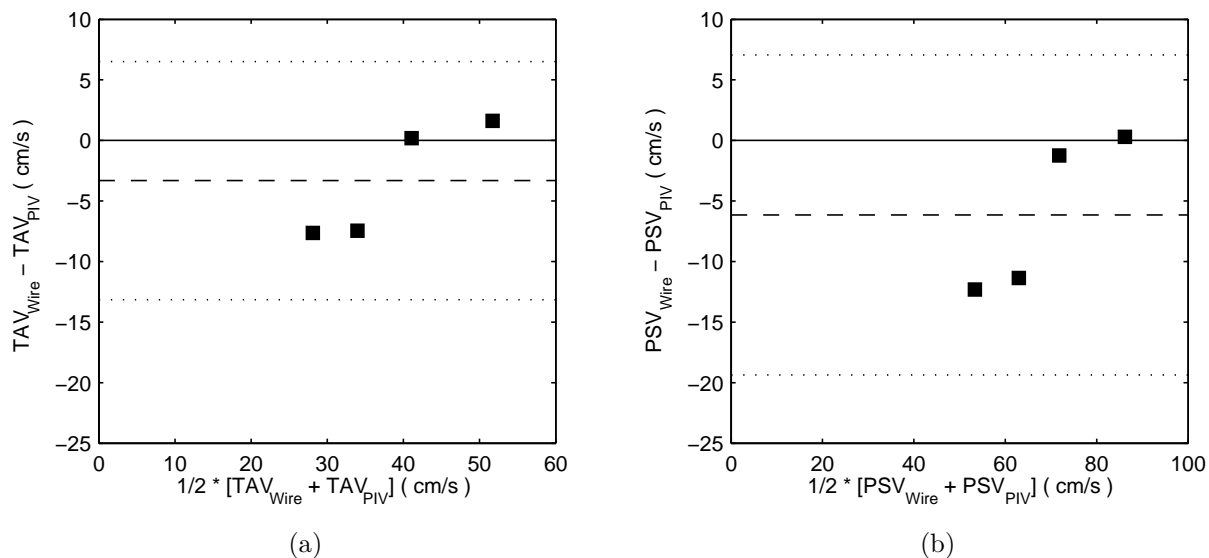


Figure S2. Bland-Altman plots for velocity by wire vs. PIV in straight segments of vessels: (a) time-averaged velocity (b) peak systolic velocity. Symbols are data points, dashed line is the mean difference, and dotted lines are ± 2 SD of the difference.

Validation of Endovascular Doppler-derived Flow Rates

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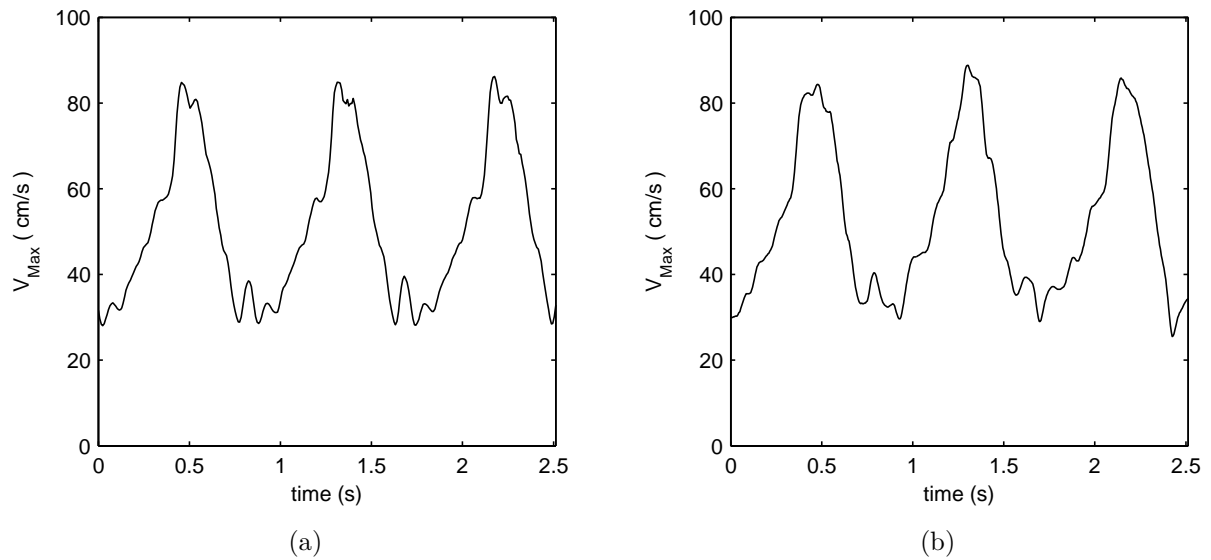


Figure S3. Maximum velocity vs. time for a heart rate of 70 bpm in straight vessel segments as measured by (a) PIV and (b) Doppler wire. The Doppler wire measurements agree with the PIV measurements in with respect to both the magnitude of the velocity and the shape of the waveform.

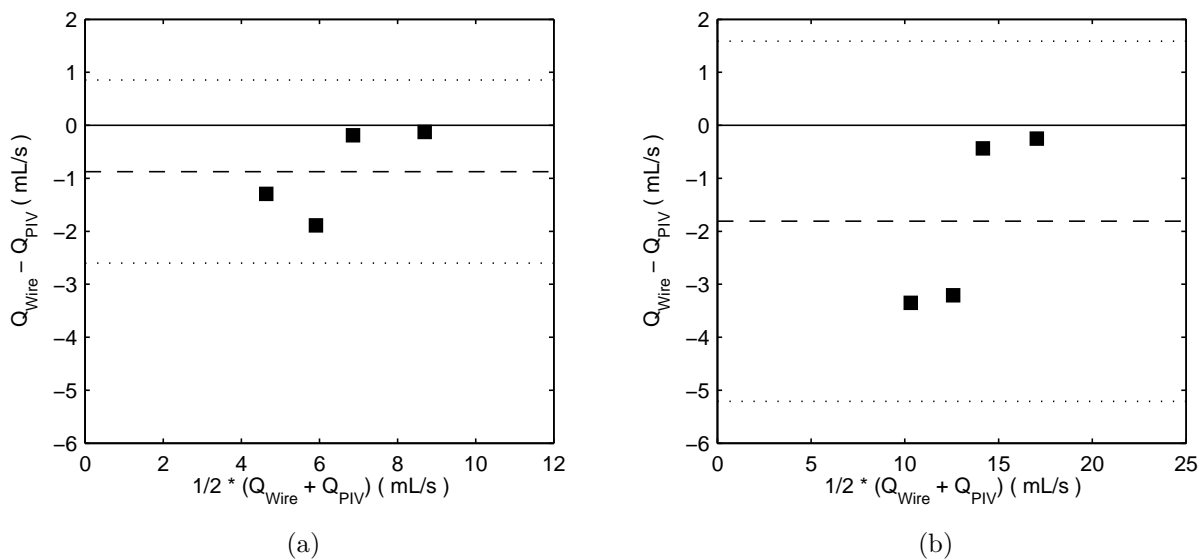


Figure S4. Bland-Altman plots for flow rate by wire vs. PIV in straight segments of vessels: (a) time-averaged flow rate (b) peak systolic flow rate. Symbols are data points, dashed line is the mean difference, and dotted lines are $\pm 2SD$ of the difference.

Validation of Endovascular Doppler-derived Flow Rates

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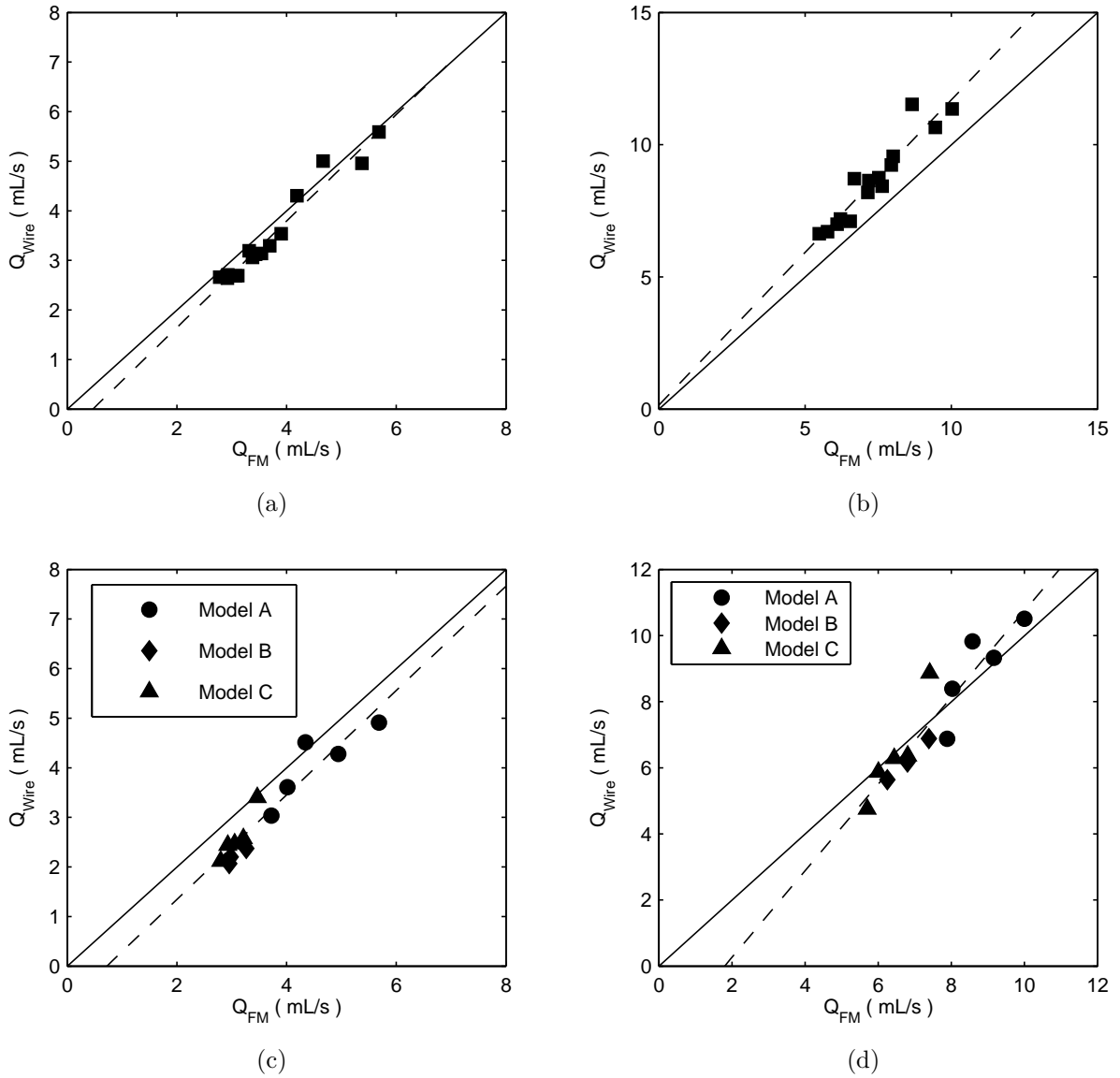


Figure S5. Scatter plots for flow rate by wire vs. flowmeter: (a) time-averaged flow rate in straight segments (b) peak flow rate in straight segments (c) time-averaged flow rate in aneurysm models (d) Peak flow rate in aneurysm models. Symbols are individual data points, solid line is the identity line, and dashed line is the linear regression.

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Validation of Endovascular Doppler-derived Flow Rates

Movie S1. Unsteady fluid velocity profile over time as measured by PIV inside a 6.47 mm inner diameter tube at a heart rate of 70 bpm. The movie is slowed by a factor of $\frac{1}{2}$.