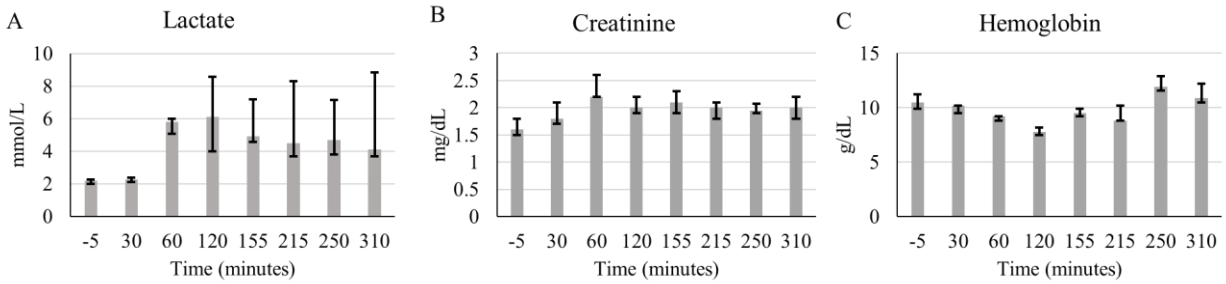


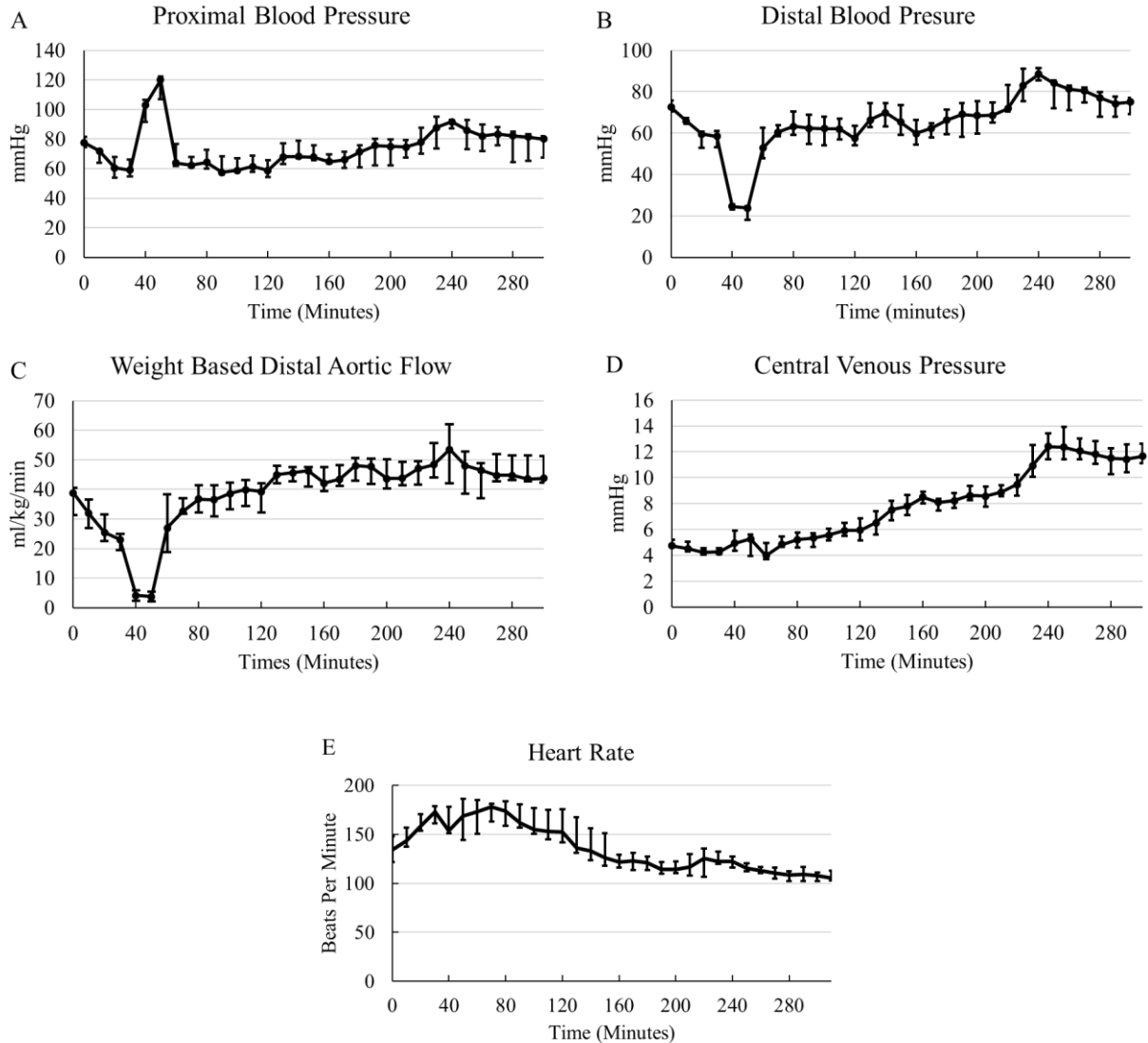
Supplemental 1. Baseline characteristics at start of experiment, presented as medians with interquartile ranges.

	Complete Occlusion	Partial Occlusion
Included	3	6
Excluded	3	2
Weight (kg)	82.65 (78.82 - 83.98)	80 (75.95 - 80.53)
Lactate (mmol/L)	2.25 (2.15 - 2.36)	2.08 (1.87 - 2.22)
pH	7.38 (7.38 - 7.40)	7.41 (7.40 - 7.43)
Hemoglobin (g/dL)	11.2 (10.3 - 11.4)	10.5 (10.1 - 11.0)
White blood cell count (10 ⁹ cells/L)	13.3 (11.6 - 14.8)	21.14 (18.6 - 21.4)
Creatinine (mg/dL)	1.5 (1.5 - 1.5)	1.7 (1.6 - 1.9)
Blood Urea (mg/dL)	10 (7 - 11)	7 (6.3 - 7.8)
Potassium (mmol/L)	3.7 (3.65 - 3.75)	3.85 (3.80 - 3.90)
Glucose (mg/dL)	111 (103 - 111)	110 (108 - 111)
Baseline Norepinephrine Dose (mcg/kg/min)	0.02 (0.02 - 0.03)	0.02 (0.02 - 0.02)

Supplemental 2. Lactate (A), creatinine (B), and hemoglobin (C) at timepoints during the experiment. Time -5 is 5 minutes before the start of the experiment and 30 is at the end of the controlled hemorrhage phase. Time 60 and 120 are at the start and end of state I. 155 and 215 are at the start and end of state II. Time 250 and 310 are at the start and the end of state III. Represented as median with interquartile range as the error bars.



Supplemental 3. Hemodynamics during the experiment for the group. Proximal mean arterial blood pressure (A), distal mean arterial blood pressure (B), weight-based distal aortic flow (C), central venous pressure (D), and heart rate (E). Data is binned into 10 minutes and presented as median with interquartile range as the error bars.



Supplemental 4. Number of boluses included for analysis and classification of increase in distal aortic flow by 10% or 15%. This was used as the gold standard for building a receiver operating curve for cutoffs based on percentage change from start of bolus to end of bolus.

Count of Boluses	NIRS	Mixed central venous oxygen saturation	Proximal mean arterial blood pressure	Central Venous Pressure	Continuous Cardiac Output
10% Increase in distal aortic flow	44	36	44	44	12
15% Increase in distal aortic flow	32	25	32	32	5
Adequate Boluses	98	84	98	98	33
Inadequate Boluses	10	24	10	10	75