Supplementary material

Supplementary Table S1: Summary of methods for manipulating blood pressure.

Methods	BP change	Description and Experimental Protocol	Record time	Number of studies
NS-15 infusion	decrease	15 ml · kg−1 of normal saline (NS) was administered. The ABP and CBFv waveforms were averaged for each 6-min measurement.	6 min	1
LPS injection	decrease	Purified lipopolysaccharide (LPS) was administered as an intravenous bolus injection at a dose of 2 ng/kg body weight in 1 min. BP and CBFv were recorded continuously, starting 2 h before administration of LPS until 8 h after LPS administration.	10 hours	1
Phenylephrine	increase	An intravenous bolus injection of 150 μg Phenylephrine (PE) was administered with continuous recording. Data were recorded throughout a 10-min supine period.	10 min	10
SNP	decrease	An intravenous bolus injection of 100 μg sodium nitroprusside (SNP) was administered with continuous recording. Data were recorded throughout a 10-min supine period.	10 min	5
ATP	decrease	The injection rate of ATP was 0.16 mg/kg/min which is a common dose used for myocardial perfusion studies. ATP injection was started 3 min before the start of emission scan and continued for 5 min. Emission scan was performed for 10 min.	10 min	1
L-NMMA	increase	In a double-blind, placebo-controlled, cross-over design, each subject was randomised to receive either A: placebo (5% dextrose) or L-NMMA (B: 0.3 mg/kg, C: 1 mg/kg, D: 3 mg/kg) intravenously over 5 min on four different days separated by at least 1 week. CBFv and MAP were recorded every 5 min until 60 min after start of the L-NMMA/placebo infusion.	2 hours	1
Propofol	decrease	Drugs were administered after recording baseline data for 6 minutes after at least 30 minutes of rest. Propofol was infused at an dose of 2.0 mg/kg/h for 5 minutes. Drug administration data were recorded for 6 minutes.	6 min	1
Tilt	decrease	Each participant performed an orthostatic tilt test which involved resting for 5 min in the supineposition followed by 5 min in upright tilt at an angle of 70◦.	5 min	2
HUT	decrease	The protocol consisted of 10 min of recording at rest in supine position followed by head-up tilt test	5 min	6

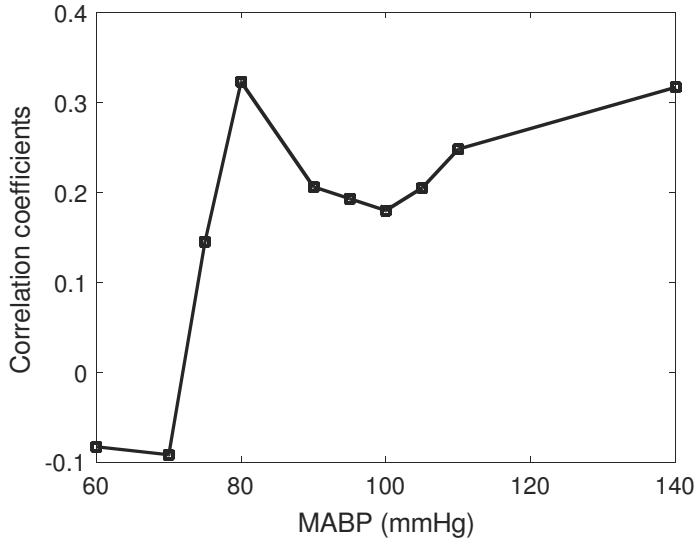
		(HUT). HUT was performed in a controlled environment, with subjects laying on the tilt table supported by two belts at the level of thigh and waist and with both feet touching the footrest of the table. The tilt table inclination was 60°. The maximum duration of the HUT session was 40 min.		
HDT	increase	MAP and CBFv were obtained in the upright sitting posture during the 0.5h before head-down tilt (HDT). The subjects were then positioned horizontal supine on a gurney for 5 min and then transferred to 6° HDT on a tilted bed where they remained for the next 24h.	5 min	1
LBNP	decrease	The lower body negative pressure (LBNP) protocol began with a 5-min baseline period (0-mmHg LBNP) followed by a 5-min period with chamber pressures set at 15, 30, 45, and 60 mmHg. Continuous, non-invasive blood pressure and hemodynamic measurements were collected before and during the progressively stepwise LBNP protocol. MAP remained relatively constant during LBNP.	5 min	10
LBPP	increase	Participants lay supine in a custom-made LBPP box, sealed distal to the iliac crest. Following instrumentation and 20 min of supine rest, baseline values of all measures were recorded. All LBPP stages were 5 min in duration.	5 min	3
Cold stress	increase	Cold stress test was achieved by the water-perfused suit. The total time of the trial was 60 min, consisting of three consecutive stages: baseline normothermic conditions (10 min with 33 °C water through the suit), mild cold stress (20 min with 25 °C water), and post-cold recovery (30 min with 33 °C water). Hemodynamic measurements were conducted continuously throughout the trial.	10 min	1
Gravity	decrease	Exposure to each level of gravity was performed using a tilt chair or a centrifuge. Baseline data were collected for 6 min after 15 min of quiet rest in the centrifuge chair, following which the centrifugation was begun. Data collection at each level of hypergravity was performed for 6 min from 15 min after exposure.	6 min	1

Supplementary Table S2: Description statistics of slopes before and after CO2 correction.

BP direction (N)			Min	Max	Mean	SD
Increase (11)	corrected	%CBF/%MABP	-0.88	1.16	0.1181	0.5169
		%CBF/mmHg MABP	-1.01	1.46	0.1539	0.6237

Decrease (18)	uncorrected	%CBF/%MABP	-0.33	1.39	0.3721	0.3789
		%CBF/mmHg MABP	-0.40	1.54	0.4508	0.4456
	corrected	%CBF/%MABP	-0.84	1.98	0.5311	0.5293
		%CBF/mmHg MABP	-1.04	2.06	0.5948	0.6014
	uncorrected	%CBF/%MABP	0.19	3.24	1.4701	0.7144
		%CBF/mmHg MABP	0.22	3.35	1.6075	0.7323

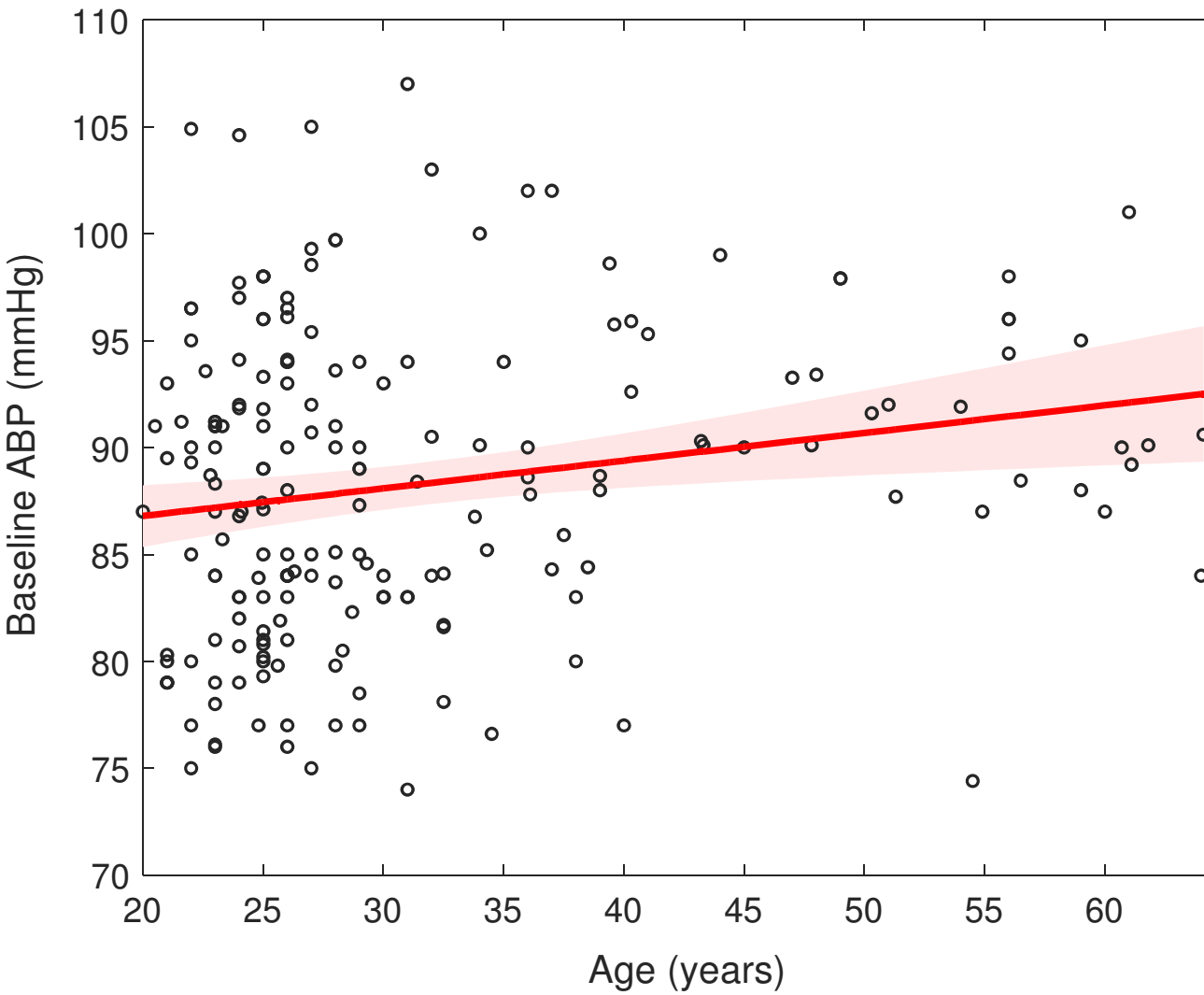
Supplementary Figure S3: Correlation coefficients for MABP and CBF. The correlation coefficient at 100 mmHg refers to the correlation between MABP and MCAv calculated for all data points with a range of MABP changes between 53 mmHg and 100 mmHg. The remaining data points are derived in the same way.



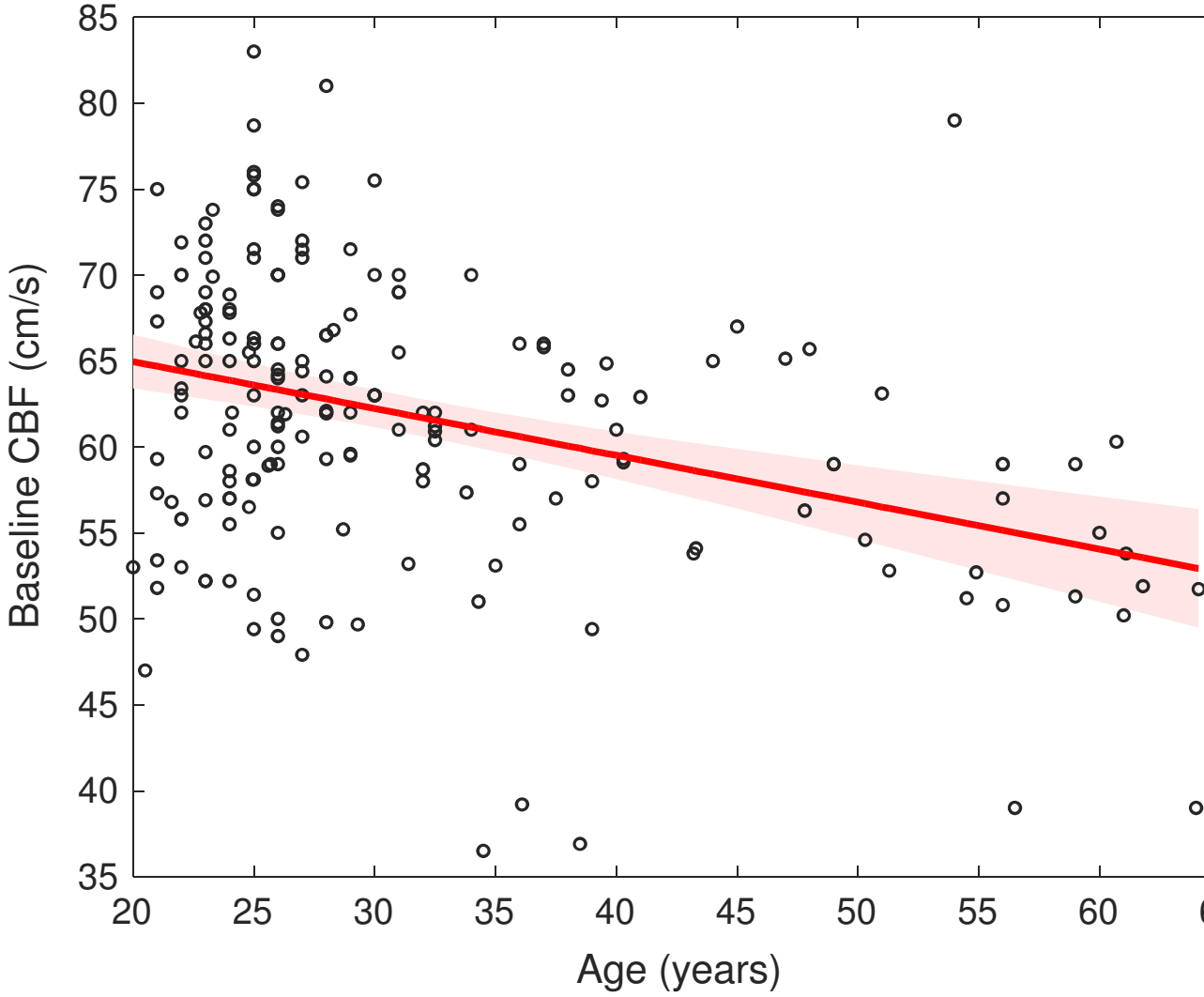
Supplementary Figure S4: Linear regression analysis of the relationship between age and baseline ABP.

Linear model Poly1:
    f(x) = p1*x + p2
Coefficients (with 95% confidence bounds):
      p1 =   0.1294 (0.03745, 0.2214)
      p2 =   84.21 (81.16, 87.26)

Goodness of fit:
  SSE: 9445
  R-square: 0.03858
  Adjusted R-square: 0.03357
  RMSE: 7.014


110
105
100
95
90
85
80
75
70
Baseline ABP (mmHg)
20
25
30
35
40
45
50
55
60
Age (years)

Supplementary Figure S5: Linear regression analysis of the relationship between age and baseline CBF.



Linear model Poly1:
    f(x) = p1*x + p2
Coefficients (with 95% confidence bounds):
      p1 =   -0.2729 (-0.373, -0.1728)
      p2 =   70.42 (67.1, 73.74)

Goodness of fit:
  SSE: 1.119e+04
  R-square: 0.1309
  Adjusted R-square: 0.1263
  RMSE: 7.634