

Supporting Information

Drew et al. 10.1073/pnas.1100428108

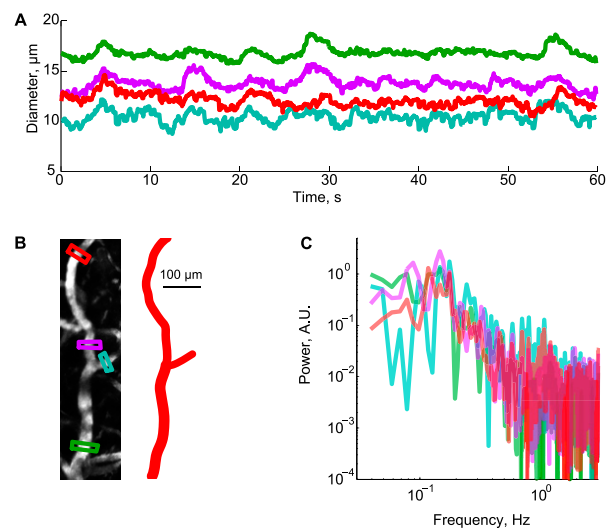


Fig. S1. Example of spontaneous oscillations in arterial diameter in an awake animal. (A) Plot of vessel diameters of a quietly resting mouse from a representative 1-min period. (B) *Left:* Image of surface vasculature taken where diameter measurements in A were taken. *Right:* Schematic showing position of artery in the image. (C) Power spectrum of the fluctuations in diameter of the same vessels.

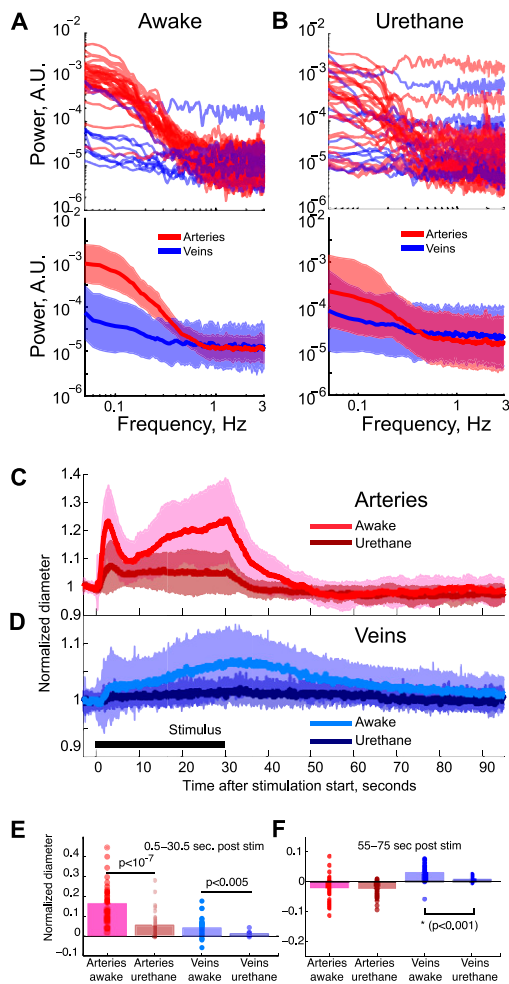


Fig. S2. Comparison of anesthetized and awake dynamics in awake and anesthetized mice. *Upper:* Power spectra for >500-s-long traces of arterial (red, $n = 34$ vessels) and venous (blue, $n = 7$ vessels) diameters from awake mice. *Lower:* Mean \pm SD. *(B)* Power spectra for >500-s-long traces of arterial (red, $n = 30$ vessels) and venous (blue, $n = 11$ vessels) diameters from urethane-anesthetized mice. There is a significant reduction in spectral power for arterioles in the 0.1- to 1-Hz range between the awake and anesthetized animals (Kolmogorov–Smirnov test done on log-transformed data, $P < 0.001$). *(C)* Averaged relative response of arteries to vibrissa stimuli in the awake ($n = 39$ vessels) and urethane-anesthetized ($n = 39$ vessels) stimulus conditions. *(D)* Averaged normalized responses of veins in awake ($n = 45$) and urethane-anesthetized animals ($n = 18$ vessels). *(E)* Responses of arteries and veins averaged over stimuli for the period 0.5–30.5 s after stimulus onset. *(F)* Poststimulus responses of arteries and veins after a 30-s stimulus. Data is from 55–75 s after stimulus onset.

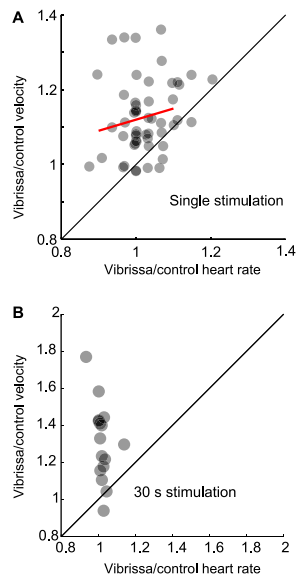


Fig. S5. Changes in heart rate do not explain differences between control and stimulus evoked changes. (A) Plot of ratio of vibrissa evoked speedup/control evoked speedup to vibrissa/control heart rate for single air puff stimuli. $r^2 = 0.04$ and slope 0.12. (B) Plot of ratio of vibrissa evoked speedup/control evoked speedup to vibrissa/control heart rate during 30-s stimulation. Heart rate is determined from the peak in the power spectrum of the velocity.