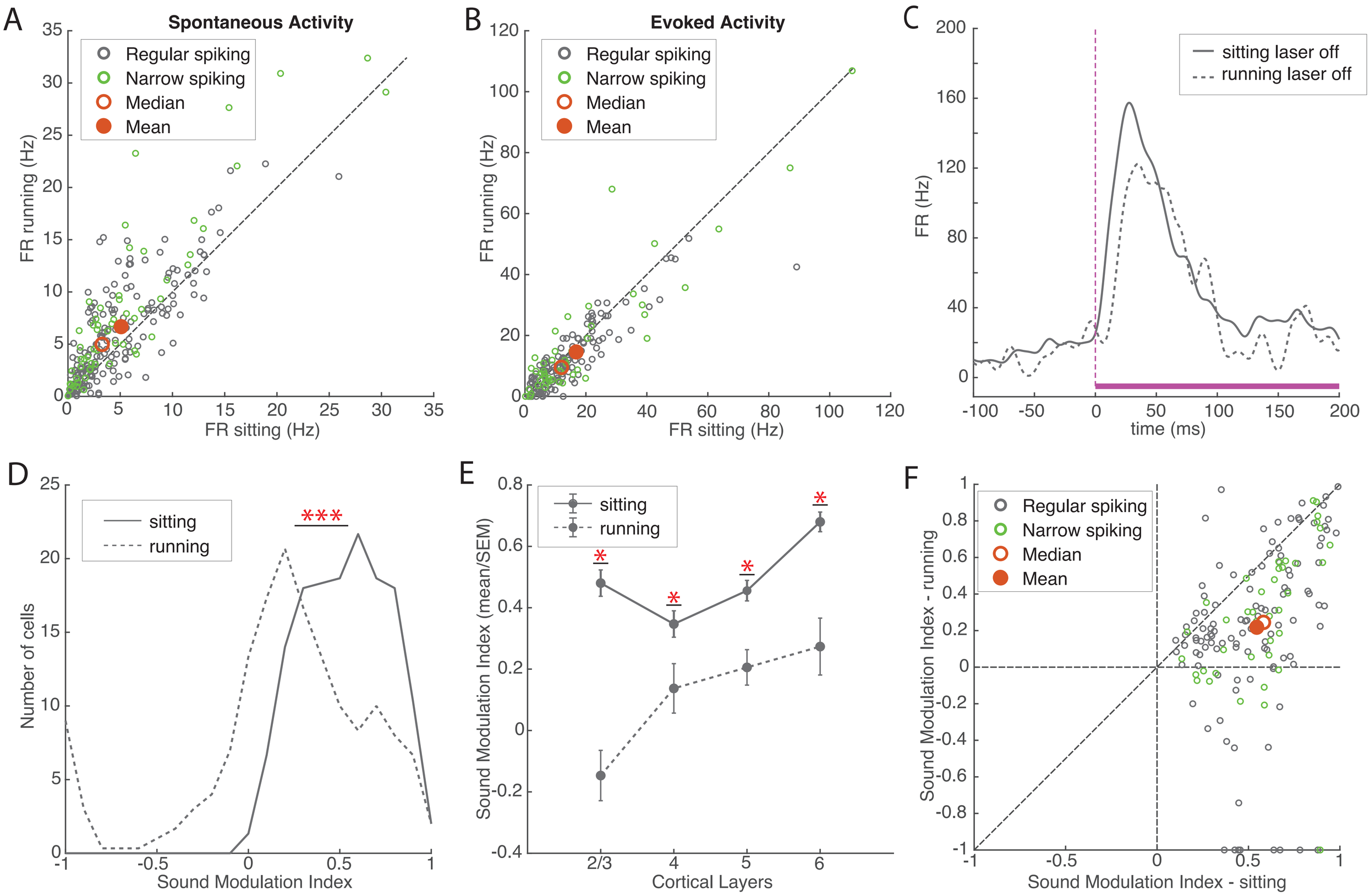

Figure 2. Running has variable effects on neural activity, overall increasing spontaneous firing rate and reducing signal to noise ratio.

A. Spontaneous firing rate during sitting and running trials. Narrow spiking cells are plotted in green, regular spiking cells are plotted in grey (N = 235). Population mean plotted in red filled circle, population median is plotted in red unfilled circle (Running FR (Mean/SEM) = 6.50/0.38, sitting FR (Mean/SEM) = 4.87/0.32, signrank p = 7.38e-14).

B. Onset response firing rate evoked by white noise stimulus (0-100 ms) during sitting and running trials (without baseline subtraction). Narrow spiking cells are plotted in green (n = 40), regular spiking cells are plotted in grey (n = 114, N = 154). Population mean plotted in red filled circle, population median is plotted in red unfilled circle (Running FR (Mean/SEM) = 13.97/1.09, sitting FR (Mean/SEM) = 15.81/1.18, signrank p = 4.66e-5).

C. Example response to a white noise stimulus in two behavioral conditions. Mean response during sitting trials plotted with solid grey line, mean response during running trials plotted with dashed grey line. White noise stimulus is shown in purple with a dashed line indicating the onset of the stimulus.

D. Two distributions of sound modulation indices during sitting (solid line) and running (dashed line), sitting (Mean/SEM) = 0.54/0.02, running (Mean/SEM) = 0.23/0.04, N = 154, signrank p = 1.29e-19.

E. Mean and SEM of sound modulation indices across cortical layers in sitting and running conditions (means/SEM by layer = 12, 17, 43, 29).

F. Sound modulation index during sitting trials plotted against sound modulation index during running trials. Narrow spiking cells plotted in green while regular spiking cells plotted in grey. Mean and median are plotted with red filled and unfilled circles respectively.