

Supplementary Materials

To quantify the rhythmicity in perceptual reports, we performed a Discrete Fourier Transform (DFT) analysis⁵² on the bias inducer (Figure 2b). The analysis focused on time series data in the range of -200 ms to 200 ms, with frequencies of interest spanning 7.5 Hz to 25 Hz in 0.25 Hz steps. The raw time series data from 24 participants were first smoothed using a Gaussian window ($\sigma = 0.01$) to reduce noise, followed by detrending via a first-order polynomial to remove linear trends and isolate oscillatory components. After preprocessing, we applied a Hann taper to the detrended data to minimize spectral leakage, and computed the DFT on zero-padded time series (padTo = 4000), achieving a frequency resolution of 0.25 Hz. The Fourier transform produced complex coefficients for each frequency, capturing both amplitude and phase information. Power was calculated as the squared magnitude of these coefficients, and the power values were averaged across participants to obtain the group-level spectrum (Figure S1a: Mean power = 1.84 at 9.5 Hz, 95% CI = [0.92, 2.98]).

To assess the statistical significance of oscillatory components, we performed a two-tail t-test for each frequency on the signed distances of each participant's Fourier-transformed sine and cosine components projected orthogonally onto the average vector across participants (Figure S1b shows individual participant data at 9.5 Hz). False Discovery Rate (FDR) correction was applied to account for multiple comparisons (FDR corrected $p = 0.05$).

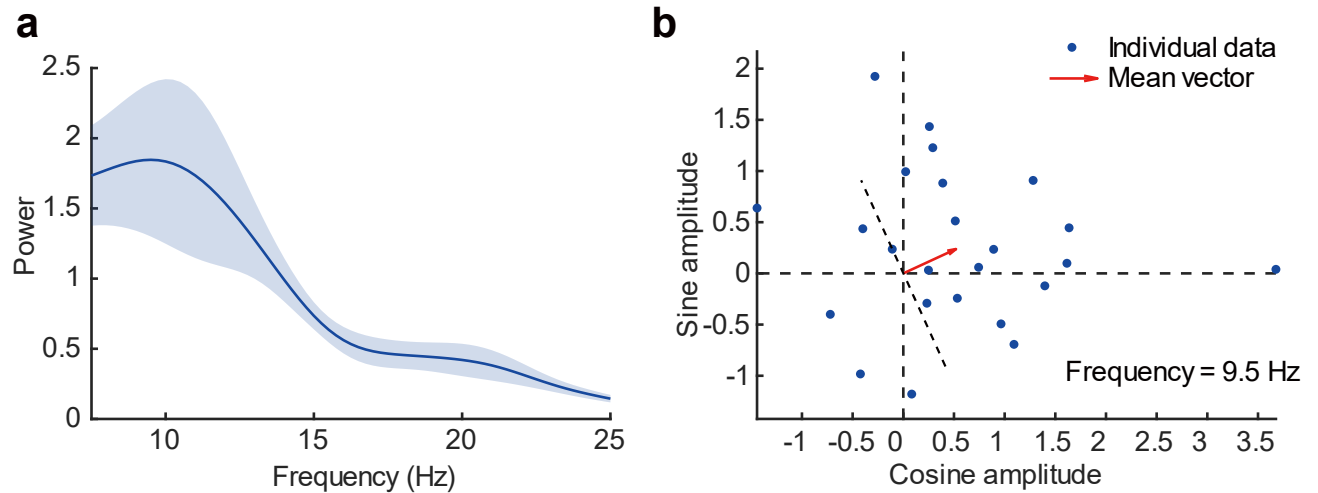


Figure S1. Discrete Fourier Transform analysis on the bias towards inducer, using the software available in Tosato et al⁵² (a) Power spectrum vectorially averaged across participants, with the shaded area indicating standard error of the mean. The smoothed curve is a consequence of the windowing and padding in the pipeline. However, given the sample rate of 8.3 ms, and the limited temporal window of 400 ms, the effective frequency resolution is 2.5 Hz. Despite the large local peak at saccadic onset (se Fig. 4), the significant peak near 9.5 Hz still emerges (Mean power = 1.84 at 9.5 Hz, 95% CI = [0.92, 2.98]). (b) Scatter plot showing the sine and cosine components of each participant's Fourier-transformed data at 9.5 Hz. The signed projection of each participant's data on the mean vector were used to assess the statistical significance of the oscillation (t-test, FDR corrected $p = 0.05$).