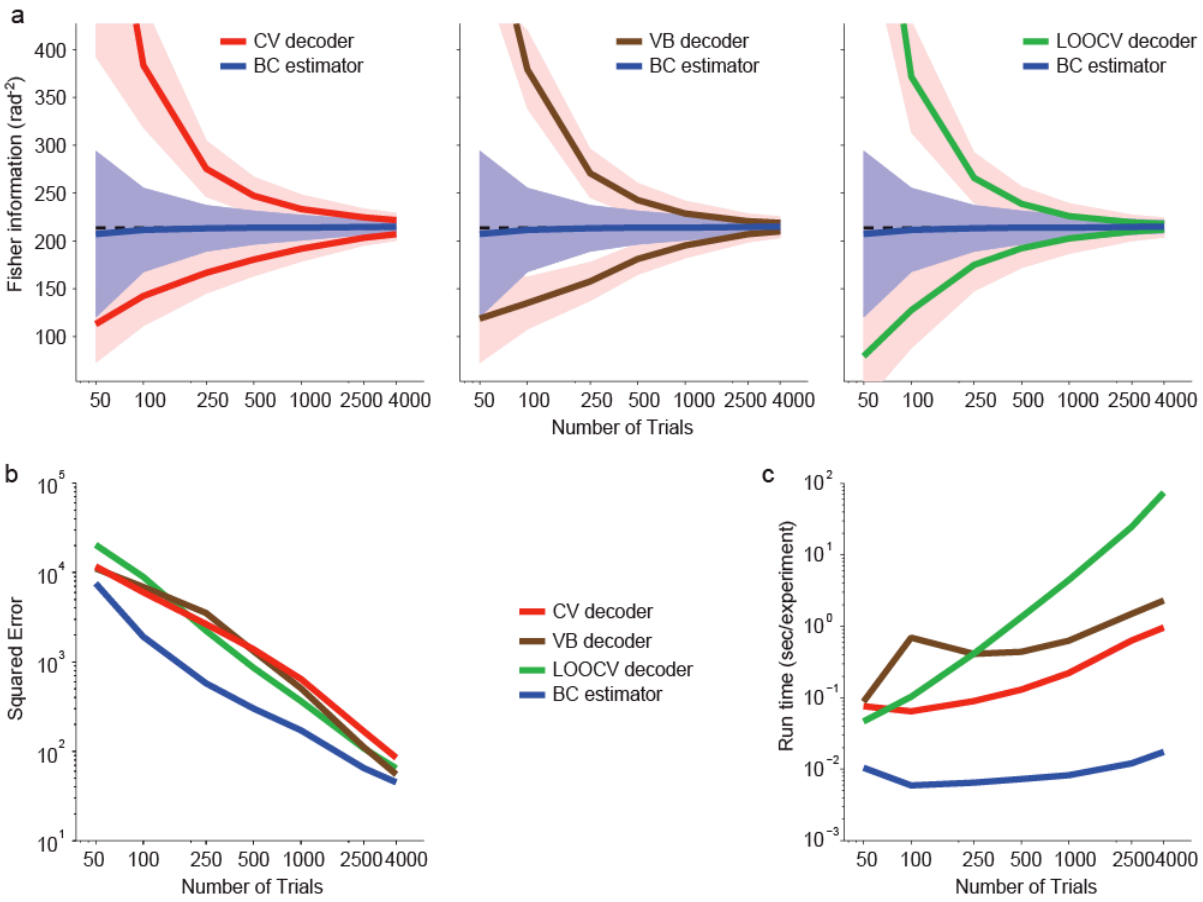

Figure S7. (**a**) Comparison between estimates obtained by the bias-corrected estimator (blue, BC) and different decoding methods. Left: early-stopping (CV), same as Figure 1b in main text; center: variational Bayes decoder (VB); leave-one-out cross validation with L2 regularization (LOOCV), with regularization parameter set to 0.1 (small values of this parameter are a common trade-off between ensuring that the covariance matrix is not ill-conditioned while adding little bias). Upper and lower bounds for the decoders correspond to information estimated from training set and validation set, respectively. Dashed black line denotes ground truth information. (**b**) Mean squared errors for all estimation methods. (**c**) Run time (in seconds) per experiment, for all estimation methods. Data were generated using the model of the main text, with N=50 neurons. The code was run in Mathworks Matlab 7 (R2012a) on a workstation with Windows 7, processor Intel Core i7 2.70 GHz, 32 GB RAM.