

Supplemental Results

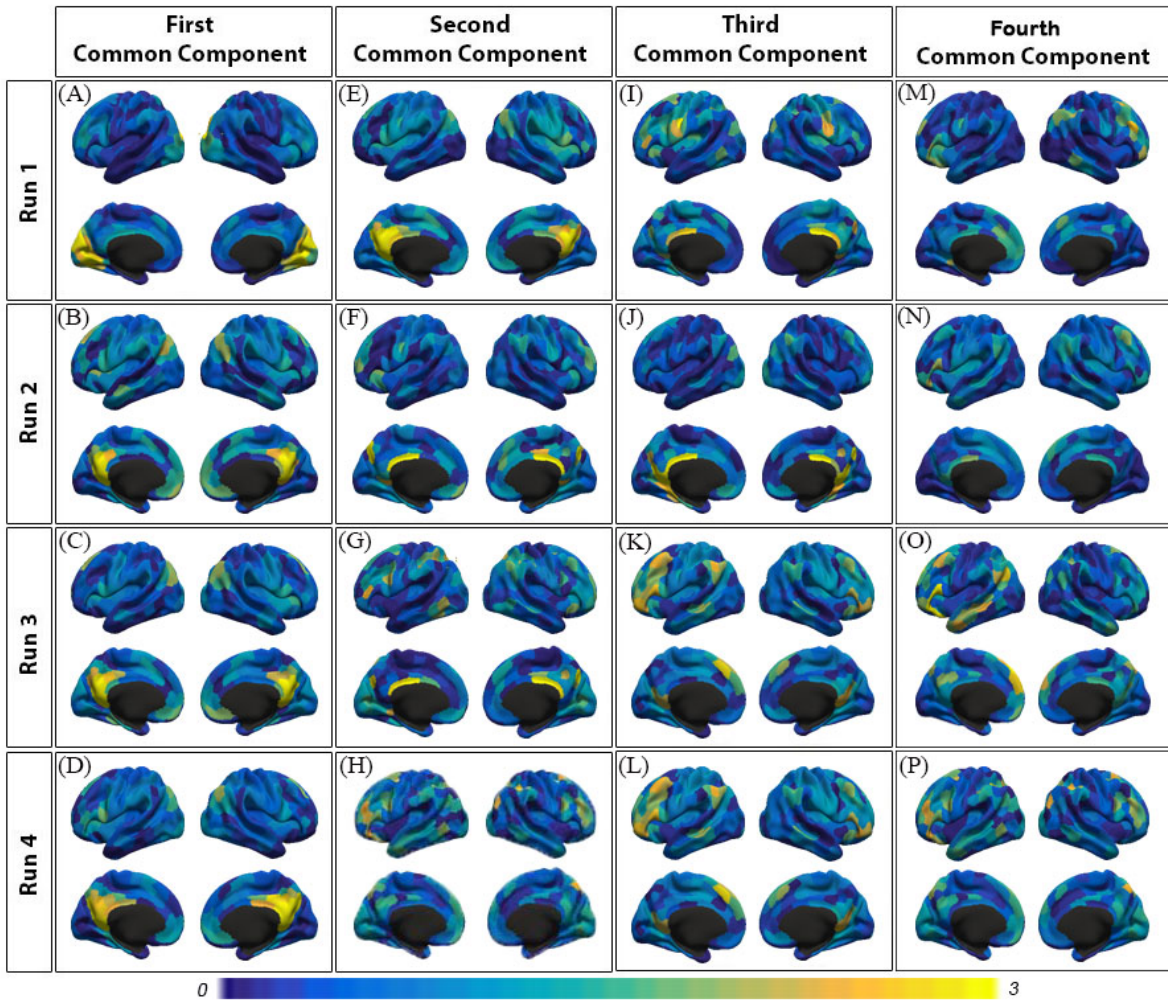


Figure S1. Spatial map of four common components shared across subjects ($N = 803$) in each of the four rs-fMRI runs. Observe that the first component of the first run (Figure S1A) was unique to only that run. Instead, the second component of the first run and the first component of the remaining runs were highly similar ($r = 0.83$). The third component of the first run and the second component of the remaining runs were also similar ($r = 0.42$). The fourth component of the first run and the third component of the remaining runs were not very similar ($r = 0.06$).

Table S1. Average cross-validated accuracies (Pearson's correlation) across 20 folds using NO-COBE, COBE-1000, COBE-2111 and COBE-3222 for 58 HCP behavioral measures. The highest accuracy for each behavioral measure is bolded.

S. No	Behavior Category	Behavior Name	HCP Field Name	Average of 20-fold cross-validated accuracies			
				NO-COBE	COBE-1000	COBE-2111	COBE-3222
1	Cognition			.19	.16	.20	.19
		Visual memory	PicSeq_Unadj	.19	.16	.20	.19

2		Cognitive flexibility	CardSort_Unadj	.17	.24	.29	.24
3		Flanker test	Flanker_Unadj	.15	.15	.15	.15
4		Fluid intelligence	PMAT24_A_CR	.17	.21	.24	.18
5		Reading	ReadEng_Unadj	.37	.38	.38	.36
6		Vocabulary	PicVocab_Unadj	.4	.34	.35	.34
7		Processing speed	ProcSpeed_Unadj	.2	.14	.14	.14
8		Delay discounting	DDisc_AUC_40K	.22	.21	.23	.17
9		Spatial orientation	VSPLIT_TC	.25	.27	.28	.26
10		Attention – Sensitivity	SCPT_SEN	.07	.10	.10	.13
11		Attention – Specificity	SCPT_SPEC	.16	.15	.14	.16
12		Episodic Memory	IWRD_TOT	.15	.21	.21	.18
13		Working Memory	ListSort_Unadj	.13	.14	.19	.19
14	Personality	Cognitive Status	MMSE_Score	.1	.08	.14	.09
15		Sleep quality (PSQI)	PSQI_Score	.19	.15	.11	.16
16		Walking endurance	Endurance_Unadj	.20	.18	.19	.22
17		Walking Speed	GaitSpeed_Unadj	.11	.12	.14	.12
18		Manual Dexterity	Dexterity_Unadj	.09	.11	.12	.11
19		Grip Strength	Strength_Unadj	.13	.11	.17	.11
20		Odor identification	Odor_Unadj	0.1	.1	.15	.11
21		Pain Interference Survey	PainInterf_Tscore	.14	.16	.16	.13
22		Taste intensity	Taste_Unadj	.12	.15	.12	.11
23		Contrast Sensitivity	Mars_Final	0.17	.13	.17	.13
24		Emotional face matching	Emotion_Task_Face_Acc	.10	.12	.15	.11

25		Arithmetic	Language_Task_Math_Avg_Difficulty_Level	.17	.17	.14	.16
26		Story comprehension	Language_Task_Story_Avg_Difficulty_Level	.21	.28	.30	.26
27		Relational processing	Relational_Task_Acc	.23	.25	.29	.27
28		Social Cognition – random	Social_Task_Percent_Random	.11	.12	.13	.11
29		Social Cognition – interaction	Social_Task_Percent_TOM	.11	.10	.11	.14
30		Working Memory (n-back)	WM_Task_Acc	.30	.26	.27	.23
31		Agreeableness	NEOFAC_A	.11	.15	0.17	0.15
32		Openness	NEOFAC_O	.25	.24	.24	.23
33		Conscientiousness	NEOFAC_C	.13	.12	.16	.12
34		Neuroticism	NEOFAC_N	.14	.08	.11	.09
35		Extraversion	NEOFAC_E	.17	.16	.21	.18
36	Emotion	Emotion Recognition – Total	ER40_CR	.14	.15	.14	.12
37		Emotion Recognition – Angry	ER40_ANG	.13	.09	.09	.10
38		Emotion Recognition – Fear	ER40_FEAR	.12	.11	.17	.11
39		Emotion Recognition – Happy	ER40_HAP	.11	.11	.14	.10
40		Emotion Recognition – Neutral	ER40_NOE	.11	.10	.11	.12
41		Emotion	ER40_SAD	.12	.12	.14	.14

		Recognition – Sad					
42		Anger – Affect	AngAffect_Unadj	.14	.13	.15	.15
43		Anger – Hostility	AngHostil_Unadj	.12	.13	.16	.11
44		Anger – Aggression	AngAggr_Unadj	.10	.14	.14	.12
45		Fear – Affect	FearAffect_Unadj	.13	.13	.14	.12
46		Fear – Somatic Arousal	FearSomat_Unadj	.12	.15	.13	.13
47		Sadness	Sadness_Unadj	.09	.14	.17	.15
48		Life Satisfaction	LifeSatisf_Unadj	.13	.13	.14	.16
49		Meaning & Purpose	MeanPurp_Unadj	.15	.16	.19	.16
50		Positive Affect	PosAffect_Unadj	.18	.16	.18	.18
51		Friendship	Friendship_Unadj	.18	.19	.21	.19
52		Loneliness	Loneliness_Unadj	.17	.15	.15	.12
52		Perceived Hostility	PercHostil_Unadj	.11	.13	.14	.15
54		Perceived Rejection	PercReject_Unadj	.10	.12	.21	.14
55		Emotional Support	EmotSupp_Unadj	.12	.08	.08	.10
56		Instrument Support	InstruSupp_Unadj	.18	.15	.18	.17
57		Perceived Stress	PercStress_Unadj	.10	.11	.16	.15
58		Self - Efficacy	SelfEff_Unadj	.15	.13	.14	.18

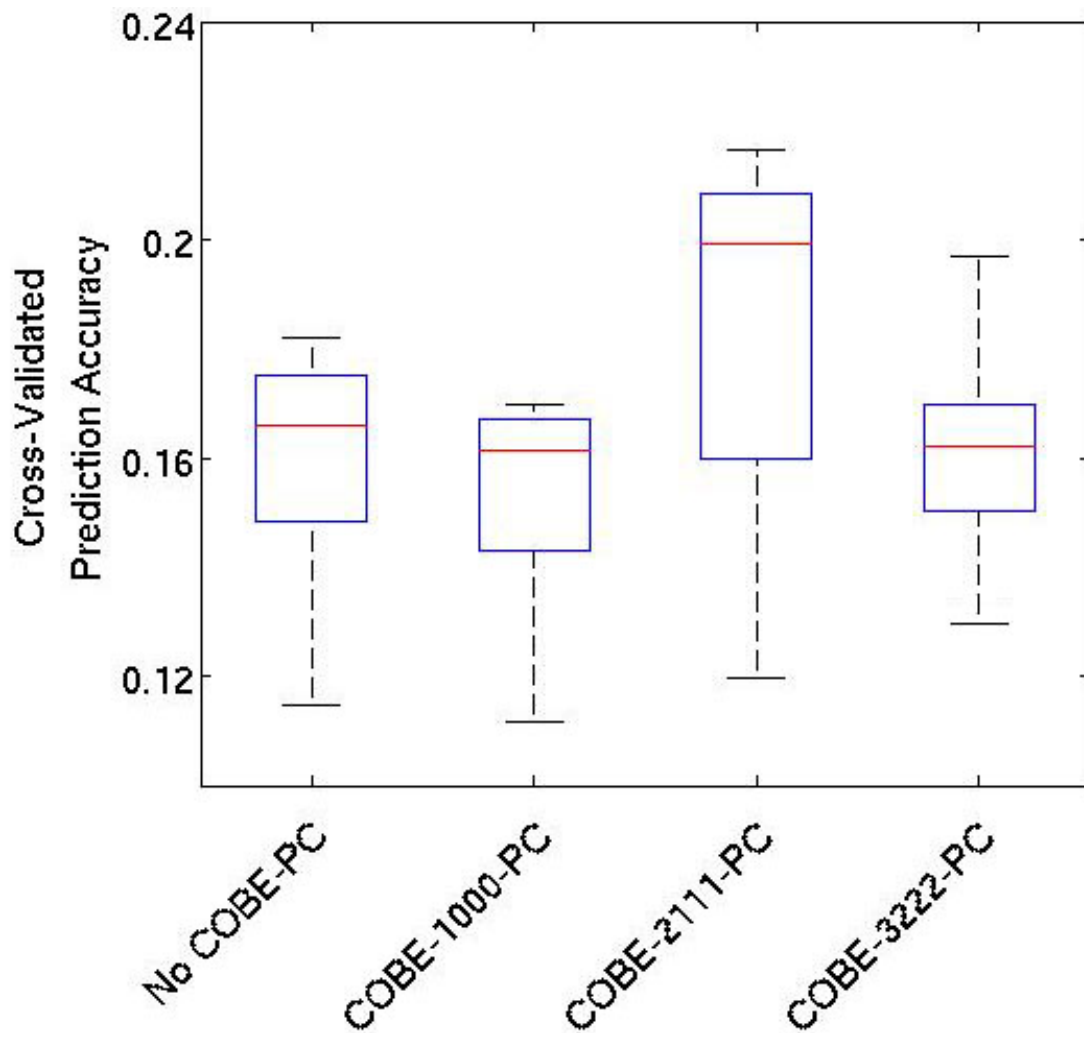


Figure S2. Cross-validated prediction accuracy (averaged across 58 behavioral measures) for NO-COBE-PC, COBE-1000-PC, COBE-2111-PC and COBE-3222-PC. Functional connectivity was computed using partial correlations. COBE-2111-PC has the highest prediction accuracy.