SUPPLEMENTAL E-TABLES

Supplemental: e-Table 1: Secondary Neurocognitive Outcomes Sub Scores

Secondary Neurocognitive Outcomes	Group Difference at Age 6				Group Difference at Age 8				Group Difference at Age 10				Group Difference at Age 12			
	Est.	95% CI	ES*	p-val	Est.	95% CI	ES*	p-val	Est.	95% CI	ES*	p-val	Est.	95% CI	ES*	p-val
Vocabulary	-0.66	(-1.34,0.01)	-0.24	0.053	-0.71	(-1.26,-0.16)	-0.31	0.011	-0.76	(-1.27,-0.25)	-0.36	0.003	-0.81	(-1.37,-0.24)	-0.34	0.006
Matrix Reasoning	-0.84	(-1.59,-0.09)	-0.27	0.029	-0.65	(-1.24,-0.06)	-0.27	0.030	-0.47	(-0.94,0.01)	-0.24	0.054	-0.28	(-0.74,0.17)	-0.15	0.220
Similarity	-0.63	(-1.24,-0.02)	-0.25	0.043	-0.60	(-1.12,-0.08)	-0.28	0.023	-0.57	(-1.06,-0.07)	-0.28	0.024	-0.54	(-1.08,0.01)	-0.24	0.056
Block Design	-0.47	(-1.24,0.31)	-0.14	0.240	-0.34	(-1.04,0.35)	-0.12	0.332	-0.22	(-0.90,0.46)	-0.08	0.524	-0.10	(-0.83,0.64)	-0.03	0.794
CPT2 Commissions	1.85	(-0.62,4.32)	0.18	0.142	1.84	(-0.19,3.87)	0.22	0.075	1.84	(-0.28,3.95)	0.21	0.088	1.83	(-0.84,4.50)	0.17	0.179
CPT2 Detectability	1.10	(-1.37,3.56)	0.11	0.383	1.05	(-0.94,3.04)	0.13	0.301	1.00	(-1.00,3.00)	0.12	0.327	0.95	(-1.54,3.45)	0.09	0.455
Concept Formation	-3.88	(-7.19,-0.56)	-0.28	0.022	-3.45	(-6.26,-0.64)	-0.30	0.016	-3.03	(-5.61,-0.45)	-0.28	0.021	-2.60	(-5.30,0.10)	-0.23	0.059

* Effect sizes (Cohen's d) were approximately calculated as 2 times t-value divided by square root of sample size minus one, where t- values were calculated as point estimates of group difference from mixed effects modeling divided by their robust maximum likelihood standard errors.

Supplemental e-Table 2: Results of LME conditional on replacement status

Primary Outcomes	Group Difference at Age 6				Group Difference at Age 8				Group Difference at Age 10				Group Difference at Age 12			
	Estimate	95% CI	ES*	p-val	Estimate	95% CI	ES*	p-val	Estimate	95% CI	ES*	p-val	Estimate	95% CI	ES*	p-val
Neurocognitive																
FSIQ	**-4.18**	**(-7.41,-0.95)**	**-0.31**	**0.011**	**-3.86**	**(-6.73,-0.99)**	**-0.32**	**0.008**	**-3.53**	**(-6.28,-0.79)**	**-0.31**	**0.012**	**-3.21**	**(-6.10,-0.32)**	**-0.27**	**0.030**
PIQ	-3.43	(-7.30, 0.45)	-0.21	0.083	-2.73	(-6.05, 0.59)	-0.20	0.107	-2.04	(-5.05, 0.97)	-0.16	0.184	-1.35	(-4.36, 1.67)	-0.11	0.383
VIQ	**-3.82**	**(-7.09,-0.54)**	**-0.28**	**0.020**	**-3.89**	**(-6.75,-1.03)**	**-0.33**	**0.008**	**-3.96**	**(-6.72,-1.20)**	**-0.35**	**0.005**	**-4.04**	**(-7.04,-1.03)**	**-0.32**	**0.009**
Structural MRI																
Total brain volume	-15524	(-35588, 4541)	-0.18	0.129	**-21322**	**(-41790,-854)**	**-0.25**	**0.041**	**-25727**	**(-46808,-4646)**	**-0.29**	**0.017**	**-28738**	**(-50224,-7252)**	**-0.32**	**0.009**
Gray matter	-8637	(-20596, 3323)	-0.17	0.157	**-11987**	**(-23905, -70)**	**-0.24**	**0.049**	**-14542**	**(-26798,-2286)**	**-0.28**	**0.020**	**-16300**	**(-28744,-3856)**	**-0.31**	**0.010**
White matter	-6263	(-15766, 3241)	-0.16	0.196	-8381	(-18183, 1421)	-0.20	0.094	**-10368**	**(-20609,-128)**	**-0.24**	**0.047**	**-12225**	**(-22786,-1664)**	**-0.28**	**0.023**

* Effect sizes (Cohen's d) were approximately calculated as 2 times t-value divided by square root of sample size minus one, where t-values were calculated as point estimates of group difference from mixed effects modeling divided by their robust maximum likelihood standard errors.

Supplemental e-Table 3 Correlations between Brain and Neurocognitive Scores in T1D and Control Groups (longitudinal mixed effect modeling)				
Age	6 years	8 years	10 years	12 years
Total Brain Volume				
Diabetes				
FSIQ	0.245 (0.086) **P=0.004**	0.272 (0.074) **P=0.000**	0.283 (0.070) **P=0.000**	0.277 (0.075) **P=0.000**
PIQ	0.339 (0.085) **P=0.000**	0.347 (0.075) **P=0.000**	0.347 (0.072) **P=0.000**	0.336 (0.078) **P=0.000**
VIQ	0.043 (0.087) **P=0.004**	0.090 (0.078) P=0.246	0.133 (0.076) 0.081	0.166 (0.085) P=0.052
Control				
FSIQ	0.407 (0.125) **P=-0.001**	0.397 (0.117) **P=0.001**	0.374 (0.118) **P=0.002**	0.345 (0.123) **P=0.005**
PIQ	0.282 (0.148) P=0.057	0.311 (0.137) P=0.024	0.325 (0.128) **P=0.011**	0.323 (0.120) **P=0.007**
VIQ	0.418 (0.114) **P=0.000**	0.377 (0.104) **P=0.000**	0.332 (0.116) **P=0.004**	0.290 (0.136) **P=0.033**
Gray Matter Volume				
Diabetes				
FSIQ	0.225 (0.081) **P=0.006**	0.266 (0.070) **P=0.000**	0.286 (0.068) **P=0.000**	0.285 (0.076) **P=0.000**
PIQ	0.314 (0.086) **P=0.000**	0.336 (0.073) **P=0.000**	0.348 (0.071) **P=0.000**	0.347 (0.078) **P=0.000**
VIQ	0.043 (0.083) P=0.605	0.094 (0.074) P=0.205	0.137 (0.075) P=0.069	0.166 (0.088) P=0.061
Control				
FSIQ	0.367 (0.125) **P=0.003**	0.375 (0.112) **P=0.001**	0.365 (0.112) **P=0.001**	0.032 (0.12) **P=0.004**
PIQ	0.247 (0.144) P=0.086	0.294 (0.132) **P=0.026**	0.321 (0.126) **P=0.011**	0.325 (0.121) **P=0.007**
VIQ	0.402 (0.129) **P=0.002**	0.368 (0.111) **P=0.001**	0.329 (0.114) **P=0.004**	0.290 (0.130) **P=0.026**
White Matter Volume				

Diabetes				
FSIQ	0.249 (0.094) **P=0.008**	0.258 (0.083) **P=0.002**	0.257 (0.077) **P=0.001**	0.243 (0.078) P=-0.002
PIQ	0.342 (0.086) **P=0.008**	0.333 (0.079) **P=0.000**	0.319 (0.077) **P=0.000**	0.294 (0.082) **P=0.000**
VIQ	0.040 (0.096) P=0.667	0.078 (0.086) P=0.365	0.117 (0.082) P=0.154	0.149 (0.086) P=0.084
Control				
FSIQ	0.398 (0.136) **P=0.003**	0.372 (0.126) **P=0.003**	0.342 (0.124) **P=0.006**	0.309 (0.127) **P=0.015**
PIQ	0.282 (0.155) P=0.069	0.291 (0.140) **P=0.037**	0.293 (0.127) **P=0.021**	0.286 (0.118) **P=0.015**
VIQ	0.380 (0.114) **P=0.001**	0.338 (0.106) **P=0.001**	0.297 (0.122) **P=0.015**	0.256 (0.145) P=0.077