

Supplementary Materials

Supplementary Table 1: Differences in resting-state functional connectivity between the SMA and control groups, by seed.

Seeds	Significant group differences in rsFC*
Motor areas	
Left caudate	No
Right caudate	No
Left cerebellar lobule 6	Yes
Right cerebellar lobule 6	Yes
Left cerebellar lobule 8	No
Right cerebellar lobule 8	No
Left cerebellar lobule 9	No
Right cerebellar lobule 9	No
Left cerebellar lobule 10	No
Right cerebellar lobule 10	Yes
Left precentral gyrus	Yes
Right precentral gyrus	Yes
Left putamen	No
Right putamen	No
Left supplementary motor area	No
Right supplementary motor area	No
Default mode network areas	
Left lateral parietal cortex	No
Right lateral parietal cortex	No
Medial prefrontal cortex	No
Posterior cingulate cortex	No
Salience network areas	
Anterior cingulate cortex	Yes
Left anterior insula	Yes
Right anterior insula	Yes
Left rostral prefrontal cortex	Yes
Right rostral prefrontal cortex	Yes

*Seed-to-cluster analyses, controlling for site. Considered significant when corrected $p\text{-FDR} < 0.05$ (corrected for multiple comparisons through the Benjamini-Hochberg method).

SMA: spinal muscular atrophy; rsFC: resting-state functional connectivity

Supplementary Table 2: All significant differences in seed-based resting-state functional connectivity between the SMA and control groups, based on the 25 selected seeds of interest.

Seed region Cluster location	SMA/control	MNI coordinates (x, y, z)	Size (voxels)	SE (x, y, z) mm FWHM
Left cerebellar lobule 6				6.3, 6.3, 5.7
Right cerebellar lobule 8	Lower	+32, -54, -56	557	
Precuneus cortex	Higher	+4, -42, +46	106	
Right cerebellar lobule 7	Lower	+42, -62, -54	59	
Posterior cingulate cortex	Higher	+4, -38, +44	55	
Right cerebellar lobule 6				6.3, 6.3, 5.7
Right cerebellar lobule 8	Lower	+34, -56, -56	263	
Left precentral gyrus	Lower	-48, -8, +40	83	
Right cerebellar lobule 7	Lower	+46, -54, -56	4	
Right cerebellar lobule 10				6.2, 6.2, 5.5
Right superior lateral occipital cortex	Lower	+30, -70, +36	155	
Left precentral gyrus				6.3, 6.3, 5.7
Posterior cingulate cortex	Higher	-2, -34, +44	121	
Precuneus cortex	Higher	+0, -40, +46	86	
Left precentral gyrus	Higher	-12, -30, +44	39	
Right precentral gyrus	Higher	+14, -30, +46	29	
Right precentral gyrus				6.4, 6.3, 5.8
Posterior cingulate cortex	Higher	+0, -36, +42	122	
Right superior frontal gyrus	Higher	+24, +4, +56	89	
Right middle frontal gyrus	Higher	+30, +4, +54	59	
Precuneus cortex	Higher	+2, -40, +46	58	
Anterior cingulate cortex				6.4, 6.3, 5.8
Right frontal operculum	Lower	+42, +20, +4	114	
Right insular cortex	Lower	+38, +18, -2	92	
Right frontal orbital cortex	Lower	+34, +28, -6	49	
Left anterior insula				6.3, 6.2, 5.7
Anterior cingulate cortex	Lower	+0, +12, +38	277	
Right paracingulate gyrus	Lower	+6, +16, +40	138	
Left paracingulate gyrus	Lower	-6, +14, +40	120	
Left supplementary motor area	Lower	-6, +2, +48	69	
Right supplementary motor area	Lower	+6, +4, +46	34	
Right anterior insula				6.3, 6.3, 5.7
Right supplementary motor area	Lower	+6, -2, +56	124	
Right paracingulate gyrus	Lower	+8, +14, +42	107	
Anterior cingulate cortex	Lower	+4, +10, +40	76	
Left paracingulate gyrus	Lower	-4, +16, +42	67	
Left supplementary motor area	Lower	-4, +4, +48	22	
Left rostral prefrontal cortex				6.4, 6.4, 5.8
Right insular cortex	Lower	+38, -4, -6	122	
Right putamen	Lower	+28, -2, -2	72	
Right pallidum	Lower	+24, -4, +0	12	
Right rostral prefrontal cortex				6.3, 6.3, 5.8
Left putamen	Lower	-22, +4, -6	87	
Right amygdala	Lower	+22, -6, -14	82	
Left pallidum	Lower	-20, -2, -4	44	
Left amygdala	Lower	-20, -6, -12	42	

Right insular cortex	Lower	+38, -4, -8	27
Left insular cortex	Lower	-30, +16, -12	24
Right pallidum	Lower	+18, -6, -6	11
Left frontal orbital cortex	Lower	-30, +18, -14	10

The SMA/control column indicates whether functional connectivity between the seed and cluster regions was higher or lower in individuals with SMA compared to peer controls, when controlling for site.

Blue: included in the 12 seed-cluster pairs selected for further analysis.

All corrected p -FDR<0.05 (corrected for multiple comparisons through the Benjamini-Hochberg method).

Voxel threshold p <0.001; cluster threshold p <0.05. FDR: false discovery rate; FWHM: full width half maximum; SE: smoothness estimate; SMA: spinal muscular atrophy; MNI: Montreal Neurological Institute.
