



Figure S1. Participant with facial synkinesis demonstrates oro-ocular synkinesis with evidence of unintentional eye closure during smile.



PRISMA 2009 Flow Diagram

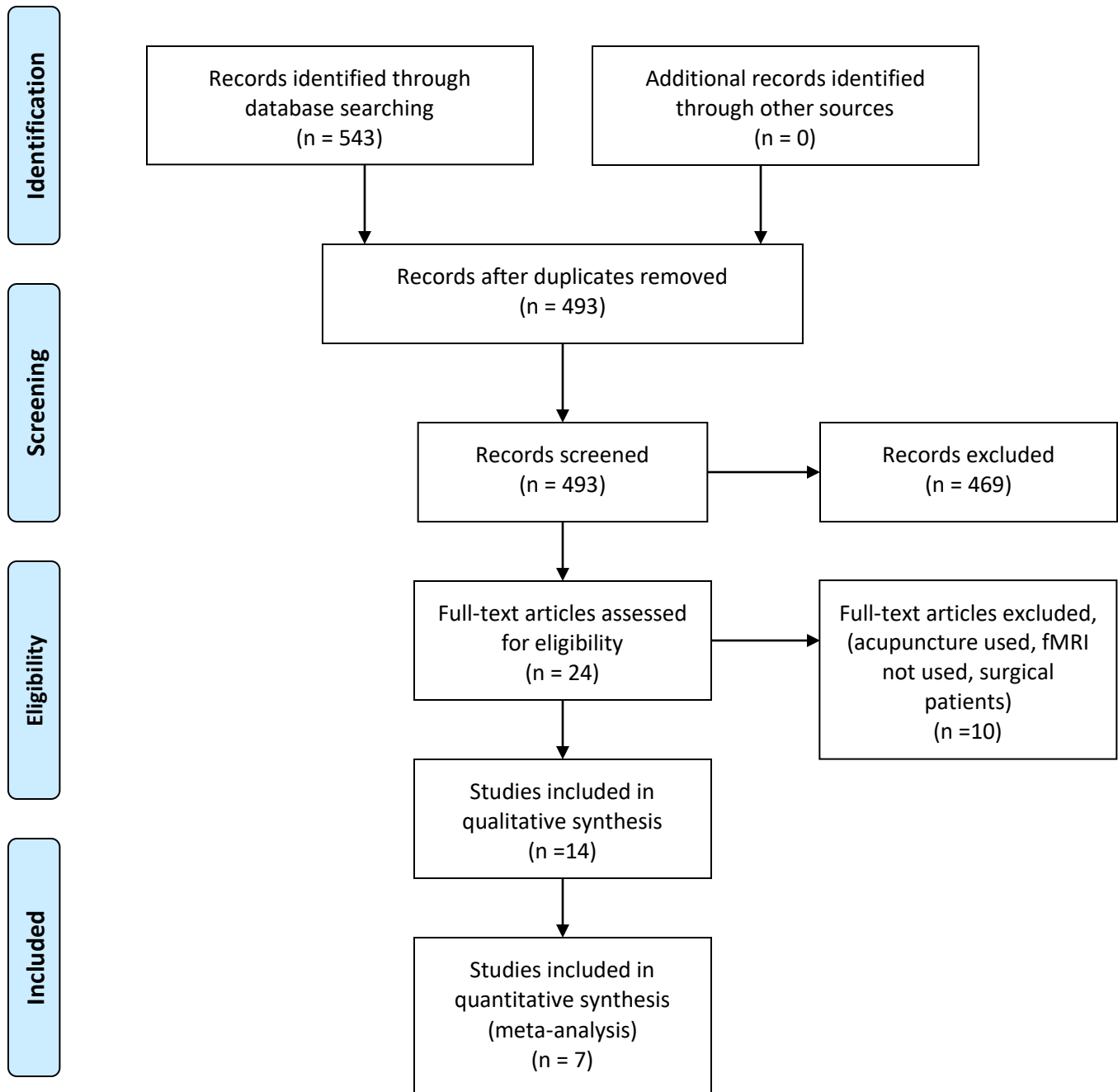


Figure S2. PRISMA flow diagram of the systematic review of whole-brain analyses using tasks requiring lip movement and resting state conditions in participants with a history of Bell's palsy or healthy controls.

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

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	Klingner et. al, 2014	Hesselmann et. al, 2004	Song et. al, 2017	Wang et. al, 2019	Buendia et. al, 2016	Calistri et. al, 2020	Klingner et. al, 2019
Year Published	2014	2004	2017	2019	2016	2020	2019
Country of Origin	Germany	Germany/Netherlands	China/USA	China	Spain	Italy/USA	Germany
Number (N) of Total Participants Including Controls	61	6	50	32	24	48	48
Participants included with FP (n)	30	N/A	25	14	N/A	24	24
Gender (FP)	17 M/14 F	N/A	15 M/10 F	1 M/13 F	N/A	14 M/10 F	12 M/12 F
Age (FP) (years)	40.9 +/- 16.9	N/A	36 ± 7	34.3	N/A	53	42.1 ± 18.5
Control (ctrl) (n)	31	6	25	18	24	24	24
Gender (ctrl)	Matched	5 M/1 F	Matched	1 M/17 F	13 M/11 F	Matched	Matched
Age (ctrl) (years)	Matched	29.7	Matched	26.1	28.6	Matched	Matched
Side of paralysis	15 R/15 L	N/A	14 R/11 L	9 R/5 L	N/A	10 R/14 L	L
Exclusion Criteria	Left-handed, other causes of paralysis besides idiopathic.	History of psychiatric (e.g. claustrophobia), neurological illnesses (e.g. epilepsy), substance abuse or serious head injury	Physical or psychological disorders	(1) Confirmed or suspected history of cardiopulmonary failure; (2) Psychiatric disorders; (3) Concurrent peripheral neuropathy; (4) Over the age of 50; and (5) Contraindications to the investigations done by MRI	Clinical depression and specific MRI safety considerations	Any sign of infective, metabolic, central, or peripheral nervous system disease or temporal bone pathologies and pregnancy	Neurological disorder
Hand dominance	Right	Right	Right	Unknown	Right	Right	Right
Facial Function	Flaccid	Normal	Acute facial paralysis	Synkinesis	Normal	Acute facial paralysis	Acute facial paralysis

Time of Paralysis Studied (acute vs. chronic)	Acute	N/A	Acute	Unknown	N/A	Acute	Acute
Measurement or Scale of Facial Function	Stennert Grading System	N/A	House-Brackmann Scale	Sunnybrook Facial Grading System	N/A	House-Brackmann Scale	Stennert Grading System
Patients with Synkinesis included?	Unknown	No	No	Yes	No	No	No
Cause of Paralysis	Idiopathic	Used control only	Used control only	Unknown	N/A	Idiopathic	Idiopathic
Tasks employed in study	Move corner of mouth independently	Symmetric lip pursing/rest/ side-to-side tongue movement	Lip pursing/rest	Left-right smile/rest/ left-right blink	Symmetric smile/rest/jaw clench	Left-right smile/rest	Symmetric smile
FP = facial paralysis; ctrl = control							

Table S1. Studies from systematic review included in the meta-analysis.

Table S2. Estimated cluster locations obtained from meta-analysis of healthy control (HC) studies. Coordinates are in MNI atlas space.

Cluster	x	y	z	ALE	P	Z-score	Region
1	50	-10	44	0.013	2.35E-06	4.58	Right Precentral Gyrus
1	56	-2	30	0.013	3.11E-06	4.52	Right Precentral Gyrus
1	52	-18	34	0.009	6.31E-05	3.83	Right Postcentral Gyrus
2	8	-4	62	0.014	1.57E-06	4.66	Right Medial Frontal Gyrus
2	-2	0	52	0.011	1.47E-05	4.18	Left Medial Frontal Gyrus
3	-52	-12	42	0.013	2.69E-06	4.55	Left Postcentral Gyrus
3	-50	-14	34	0.009	5.23E-05	3.88	Left Postcentral Gyrus
4	16	-62	-20	0.012	1.00E-05	4.26	Right Cerebellum Post. Lobe
4	26	-60	-26	0.009	5.33E-05	3.88	Right Cerebellum Ant. Lobe

Table S3. Estimated cluster locations obtained from meta-analysis of Bell's palsy (BP) studies. Coordinates are in MNI atlas space.

Cluster	x	y	z	ALE	P	Z-score	Region
1	-56	-10	32	0.018	2.29E-08	5.47	Left Precentral Gyrus
1	-56	2	26	0.012	1.47E-05	4.18	Left Precentral Gyrus
1	-54	10	36	0.009	2.06E-04	3.53	Left Middle Frontal Gyrus
1	-52	-8	44	0.009	2.12E-04	3.52	Left Precentral Gyrus
2	6	2	56	0.020	6.08E-09	5.70	Right Supplementary Motor Area
2	-4	2	56	0.018	3.72E-08	5.38	Left Medial Frontal Gyrus
3	-2	4	40	0.017	1.47E-07	5.13	Left Anterior Cingulate Gyrus
3	6	4	38	0.017	1.47E-07	5.13	Right Anterior Cingulate Gyrus

Table S4. Linear Mixed Effects model areas of significant Group effects, Task effects and Group x Task interaction (MNI coordinates).

Effect	x	y	z	Voxels	Contrast	Region
Group:	11	-11	59	117	CON > SYK	Right Medial Frontal Gyrus
Task:	21	49	1	1256	BLINK>SMILE	Right Lingual Gyrus
	-51	13	37	463	SMILE>BLINK	Left Precentral Gyrus
	55	7	35	310	SMILE>BLINK	Right Precentral Gyrus
Group x Task	55	7	35	123	See Fig 2	Right Precentral Gyrus