

Hand open/close <sup>[16]</sup> 2/3 (M1c) ↑ area of activation  
2/3 (CBM) ↑ area of activation

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Training dose was variable  
in the 3 cases

Abbreviations: PH: paretic hand; N-PH: non paretic hand; fMRI: functional magnetic resonance imaging; VBM: voxel-based morphometry; TMS: transcranial magnetic stimulation, MEG: magnetoencephalography; M1: primary motor cortex; FP: fronto-parietal; M1S1: primary-sensorymotor cortex, **M2S2c secondary sensory-motor cortex** c/i: indicate contralateral/ipsilateral, CBM: cerebellum, IHF interhemispheric fissure (including cingulate motor area supplementary motor area), PMC: premotor cortex; LI: lateral Index; LI is calculated  $[(\text{contralateral-ipsilateral})/(\text{contralateral+ipsilateral})]$ ; SMA Supplementary motor area, MEPs: motor evoked potentials; SEF: somatosensory evoked potentials

**Table 1s: Supplementary material: Clinical Outcome measure and results**

Study	Clinical Outcome measure	n°	Results		
			Pre-treatment	Post-treatment	Follow-up
<b>[13]</b> (n. sample= 5)	<b>BODY FUNCTIONS AND STRUCTURES</b>				
	Grip strength mmHg:	1#	60	50.7	n/a
	<b>ACTIVITY</b>				
	QUEST	1#	23.1	24.7	n/a
	AHA		25	27	n/a
	<b>PARTICIPATION</b>				
	P-MAL AOU	1#	1.8	1.4	n/a
	<i>Disregard index</i> <sup>§</sup> -12.9	1#			
	<b>BODY FUNCTIONS AND STRUCTURES</b>				
	Grip strength mmHg	2#	30.7	39.3	n/a
	<b>ACTIVITY</b>				
	QUEST	2#	30.8	34.7	n/a
	AHA		44	46	n/a
	<b>PARTICIPATION</b>				
	P-MAL AOU	2#	1.6	2.3*	n/a
	<i>Disregard index</i> <sup>§</sup> -1.2	2#			
	<b>BODY FUNCTIONS AND STRUCTURES</b>				
	Grip strength mmHg	3#	102.7	129.7*	n/a
	<b>ACTIVITY</b>				
	QUEST	3#	69.2	68.7	n/a
	AHA		68	76*	n/a
	<b>PARTICIPATION</b>				
	P-MAL AOU	3#	0.6	4.7*	n/a
	<i>Disregard index</i> <sup>§</sup> 57.2	3#			
	<b>BODY FUNCTIONS AND STRUCTURES</b>				

	Grip strength mmHg:	4#	80		101.7*	n/a	
	ACTIVITY						
	QUEST	4#	72.6		79.0*	n/a	
	AHA		62		68*	n/a	
	PARTICIPATION						
	P-MAL AOU	4#	0.53		3.3*	n/a	
	Disregard index <sup>s</sup> 62.6	4#					
	BODY FUNCTIONS AND STRUCTURES						
	Grip strength mmHg:	5#	200		206.7	n/a	
	ACTIVITY						
	QUEST	5#	84.8		94.7*	n/a	
	AHA		76		80	n/a	
	PARTICIPATION						
	P-MAL AOU	5#	3.8		3.7	n/a	
Disregard index <sup>s</sup> 8.8	5#						
[14] (n. sample= 10)	PARTICIPATION		BASELINE <sup>^</sup>		PRE-TREATMENT <sup>^^</sup>	POST-TREATMENT <sup>^^^</sup>	
	P-MAL-AUS-R	10	1.6± 0.8 points 14.9%	1.8 ± 0.8 points No difference change respect to baseline	4.2 ± 0.7 points 50.8%* Treatment Change: 2.4±0.6 (p< .001)	n/a	
[15] (n. sample= 10)  (Follow up at 3- 6mths on 3 children)	ACTIVITY					3 mths	6 mths
	Melbourne assessment	10	73.7		77.1* (p<.05)	66.9	75.7
	Kinematic analysis:	10					
	-peak velocity cm s <sup>-1</sup>		41.1		48.2* (p <.05)	35	37.8
	-movement units		2.4		2.1	3.2	2.5
	-movements time reach in sec		1.3		1.2 ms	1.2	1.1
	-movements time grasp in sec		2.5		1.8 ms	2.3	2.3
	PARTICIPATION						
[16] (n. sample= 3)	Parent's questionnaire	10	n/a		9/10 reported positive changes	n/a	n/a
	BODY FUNCTIONS AND STRUCTURES						
	Hand grip	3 <sup>a</sup>	n/a		small improvement in all subjects	n/a	
	ROM in thumb	3			improved in all subjects	n/a	
	ROM forefinger	3			improved in 2 subjects	n/a	
	ACTIVITY						
	JHFT (7 items)	3	n/a		All 3 subjects reduce the execution time for 5 of 7 items	n/a	

	BOTMP	3		no significant changes	n/a
<b>[17]</b> <b>(n. sample= 10)</b>	<b>ACTIVITY</b>				
	WMFT time	10	1.86 ± 0.52 sec.	1.71 ± 0.70 sec. (p= 0.052)	n/a
	WMFT quality	10	3.45 ± 0.73	3.95 ± 0.71* (p= 0.005)	n/a
<b>[18]</b> <b>(n. sample= 7)</b> <b>Follow-up= 12 days</b>	<b>ACTIVITY</b>				<b>12 days</b>
	WMFT time	7	1.69 ± 0.33 sec	1.46 ± 0.41 (P= 0.018)	1.61 ± 0.38 (P= 0.446; P= 0.05)
	WMFT quality	7	3.73 ± 0.63	4.17 ± 0.70* (P= 0.016)	4.27 ± 0.79* (P= 0.018; P= 0.002)
	<b>PARTICIPATION</b>				<b>12 days</b>
	MAL	7	3.17 ± 0.53	3.32 ± 0.72 (P= 0.600)	4.01 ± 0.72* (P= 0.018; P= 0.013)
<b>[19]</b> <b>(n. sample= 16</b> <b>divided in:</b> <b>ipsilesional and</b> <b>contralesional</b> <b>groups)</b>	<b>ACTIVITY IN IPSILESIONAL GROUP (N SAMPLE=7)</b>				
	WMFT time	7		significant increase (p=0.018)*	n/a
	WMFT quality	7		significant increase (p= 0.016)*	n/a
	<b>ACTIVITY IN CONTRALESIONAL GROUP (N SAMPLE= 9)</b>				
	WMFT time	9		no significant change (p= 0.051)	n/a
	WMFT quality	9		significant increase (p= 0.007)*	n/a

Baseline: 3 wks before receiving CI therapy; <sup>^^</sup> Pretreatment: immediately before CI therapy; <sup>^^^</sup> Post-treatment: immediately post CI therapy; <sup>a</sup> a subjects practiced only an half of trial due to equipment technical problems, \* value reported as statistically significant. <sup>§</sup> disregard index = Quality of Upper Extremity Skills Test score – [Pediatric Motor Activity Log score/5 x 100 %].  
 abbreviations: n°: number of participants, JHFT: Jebsen Test, WMFT : Wolf Motor Function Test, time score and quality score , P-MAL-R: Pediatric Motor Activity Log-Revised; P-MAL-AUS: Pediatric Motor Activity Log Amount of Use Scale, P-MAL- QOM: Pediatric Motor Activity Log Quality of Movements; QUEST: quality upper extremity skills test; AHA: Assisting Hand Assessment, BOTMP: Bruininks–Oseretsky Test of Motor Proficiency; n/a: not available.

