Supplementary Document for *A Calcium-Dependent Computational Model for Exploring the Dose-Dependency of Theta-Burst Transcranial Magnetic Stimulation*

Database paper list

Table S1: Summary of the collected studies for calibration of model parameters.

Study	Sample Size	Gender ratio	Mean age ± SD (age range)	TBS Protocol	Pulse Strength	Pulse Number	Target Muscle
Antal et al. (2010)	10	7 F:3 M	(21 – 32)	iTBS	80 % AMT	600	Right FDI
	5	3 F:2 M	(20 – 29)	iTBS	80 % AMT	600	Right FDI
Belvisi et al. (2013)	14	3 F:11 M	41.9 ± 11.36 (23 – 60)	iTBS	80 % AMT	600	Right FDI
Brownjohn et al. (2014)	10	1 F:9 M	26.9 ± 4.7 (22 – 37)	iTBS	80 % AMT	600	Right FDI
	10	1 F:9 M	26.9 ± 4.7 (22 – 37)	cTBS	80 % AMT	600	Right FDI
Cheeran et al. (2008)	9	3 F:6 M	29.3 ± 3	iTBS	80 % AMT	600	Right FDI
	9	3 F:6 M	28.7 ± 3	iTBS	80 % AMT	600	Right FDI
	9	5 F:4 M	26.45 ± 5	cTBS	80 % AMT	300	Right FDI
	9	5 F:4 M	26.45 ± 5	cTBS	80 % AMT	300	Right FDI
Chuang et al. (2014)	18	11 F:7 M	48.6 ± 12.8	cTBS	80 % AMT	600	Right FDI
Conte et al. (2012)	15	-	68.1 ± 10.2	iTBS	80 % AMT	600	Right FDI
	7	-	65.3 ± 12.1	cTBS	80 % AMT	600	Right FDI
Di Lazzaro et al. (2008)	12	-	63.2 ± 5.3	iTBS	80 % AMT	600	Right FDI
	12	-	63.2 ± 5.3	cTBS	80 % AMT	600	Right FDI
Di Lazzaro et al. (2011)	10	-	26.6 ± 4.1	iTBS	80 % AMT	600	Left FDI
	10	-	26.6 ± 4.1	cTBS	80 % AMT	600	Left FDI
Di Lorenzo et al. (2020)	12	-	71.1 ± 5.9	iTBS	80 % AMT	600	Right FDI
	12	-	71.1 ± 5.9	cTBS	80 % AMT	600	Right FDI
Doeltgen and Ridding (2011)	14	10 F:4 M	24.5 ± 3.1	iTBS	80 % AMT	600	Right FDI
	9	6 F:3 M	23.2 ± 3.7	iTBS	80 % AMT	600	Right FDI
	14	10 F:4 M	24.5 ± 3.1	cTBS	80 % AMT	600	Right FDI
	9	6 F:3 M	23.2 ± 3.7	cTBS	80 % AMT	600	Right FDI
Doeltgen et al. (2012)	17	10 F:7 M	23.1 ± 5.1	cTBS	80 % AMT	600	Right FDI
Edwards et al. (2006)	10	3 F:7 M	(26 – 69)	cTBS	80 % AMT	300	Right FDI
Fang et al. (2014)	9	4 F:5 M	24.2 ± 2.0	cTBS	80 % AMT	300	Right FDI
Gamboa et al. (2010)	14	7 F:7 M	(21 – 27)	iTBS	80 % AMT	600	Right FDI
	14	7 F:7 M	(21 – 27)	iTBS	80 % AMT	1200	Right FDI
	14	7 F:7 M	(21 – 27)	cTBS	80 % AMT	600	Right FDI
	14	7 F:7 M	(21 – 27)	cTBS	80 % AMT	1200	Right FDI
Gamboa et al. (2011)	16	6 F:10 M	(21 – 27)	iTBS	80 % AMT	600	Right FDI
	16	6 F:10 M	(21 – 27)	cTBS	80 % AMT	600	Right FDI
Goldsworthy et al. (2012a)	12	6 F:6 M	23.7 ± 8.1	cTBS	80 % AMT	600	Right FDI
Goldsworthy et al. (2012b)	12	7 F:5 M	26.3 ± 2.3	cTBS	80 % AMT	600	Right FDI
Guerra et al. (2019)	18	6 F:12 M	26.1 ± 1.9	cTBS	80 % AMT	600	Right FDI
Hamada et al. (2013)	56	24 F:32 M	30.3 ± 7.4 (18 – 52)	iTBS	80 % AMT	600	Right FDI
	56	24 F:32 M	30.3 ± 7.4 (18 – 52)	cTBS	80 % AMT	600	Right FDI
Hasan et al. (2012)	9	2 F:7 M	30.3 ± 1.5	iTBS	80 % AMT	600	Right FDI
	9	2 F:7 M	30.3 ± 1.5	cTBS	80 % AMT	600	Right FDI
He et al. (2021)	18	-	-	iTBS	80 % AMT	600	Left FDI
Hinder et al. (2014)	30	19 F:11 M	25.3 ± 8.7	iTBS	80 % AMT	600	Right FDI
Huang et al. (2005)	9	-	33.6 ± 7.8 (23 – 52)	iTBS	80 % AMT	600	Right FDI
	9	-	33.6 ± 7.8 (23 – 52)	cTBS	80 % AMT	300	Right FDI
	9	-	33.6 ± 7.8 (23 – 52)	cTBS	80 % AMT	600	Right FDI
Huang et al. (2007)	6	5 F:1 M	26 ± 9	iTBS	80 % AMT	600	Right FDI
	6	5 F:1 M	26 ± 9	cTBS	80 % AMT	300	Right FDI

Table S1: Summary of the collected studies for calibration of model parameters.

Study	Sample Size	Gender ratio	Mean age ± SD (age range)	TBS Protocol	Pulse Strength	Pulse Number	Target Muscle
Huang et al. (2009)	8	5 F:3 M	35 ± 14	cTBS	80 % AMT	300	Right FDI
Huang et al. (2010a)	8	7 F:1 M	33.3 ± 10.3	iTBS	80 % AMT	600	Right FDI
	7	3 F:4 M	28.7 ± 3.6	cTBS	80 % AMT	600	Right FDI
Huang et al. (2010b)	9	5 F:4 M	42.7 ± 12.1	cTBS	80 % AMT	300	Right FDI
	9	5 F:4 M	42.7 ± 12.1	cTBS	80 % AMT	600	Right FDI
Iezzi et al. (2011)	10	4 F:6 M	32 ± 5.03	iTBS	80 % AMT	600	Right FDI
	10	4 F:6 M	32 ± 5.03	cTBS	80 % AMT	600	Right FDI
Ishikawa et al. (2007)	10	1 F:9 M	42.3 ± 6.9	cTBS	80 % AMT	600	Right FDI
Kimura et al. (2022)	18	5 F:13 M	21.7 ± 1.0	iTBS	80 % AMT	600	Right FDI
Kishore et al. (2012)	10	-	45.6 ± 7.8	iTBS	80 % AMT	600	Right FDI
	10	-	45.6 ± 7.8	cTBS	80 % AMT	600	Right FDI
Koch et al. (2012)	14	-	-	iTBS	80 % AMT	600	Right FDI
	14	-	-	cTBS	80 % AMT	600	Right FDI
Koch et al. (2014)	10	6 F:4 M	68.3 ± 5.6	iTBS	80 % AMT	600	Right FDI
	10	6 F:4 M	68.3 ± 5.6	cTBS	80 % AMT	600	Right FDI
Li Voti et al. (2011)	21	-	-	iTBS	80 % AMT	600	Right FDI
Mastroeni et al. (2013)	29	29 M	26.0 ± 3.2	iTBS	80 % AMT	600	Right FDI
	29	29 M	26.0 ± 3.2	cTBS	80 % AMT	600	Right FDI
McAllister et al. (2011)	23	13 F:10 M	27.9 ± 8.3	cTBS	80 % AMT	600	Right FDI
McAllister et al. (2013)	16	9 F:7 M	(19 − 44)	cTBS	80 % AMT	600	Right FDI
McCalley et al. (2021)	30	20 F:10 M	24.4 ± 3.7	iTBS	80 % AMT	600	Right APB
	30	20 F:10 M	24.4 ± 3.7	iTBS	80 % AMT	1200	Right APB
	30	20 F:10 M	24.4 ± 3.7	iTBS	80 % AMT	1800	Right APB
	30	18 F:12 M	25.0 ± 3.4	cTBS	80 % AMT	600	Right APB
	30	18 F:12 M	25.0 ± 3.4	cTBS	80 % AMT	1200	Right APB
	30	18 F:12 M	25.0 ± 3.4	cTBS	80 % AMT	1800	Right APB
Moliadze et al. (2014)	12	-	25.7 ± 4.1	iTBS	80 % AMT	600	Right FDI
Monte-Silva et al. (2011)	12	6 F:6 M	25.75 ± 5.11	iTBS	80 % AMT	600	Right FDI
	12	6 F:6 M	25.75 ± 5.11	cTBS	80 % AMT	600	Right FDI
Mori et al. (2012)	77	46 F:31 M	38.3 ± 10.2	iTBS	80 % AMT	600	Right FDI
	77	46 F:31 M	38.3 ± 10.2	cTBS	80 % AMT	600	Right FDI
Mori et al. (2013)	13	5 F:8 M	35.5 ± 9.2	iTBS	80 % AMT	600	Right FDI
	13	5 F:8 M	35.5 ± 9.2	cTBS	80 % AMT	600	Right FDI
Murakami et al. (2008)	6	-	-	iTBS	80 % AMT	600	Right FDI
	6	-	-	cTBS	80 % AMT	600	Right FDI
Oberman et al. (2012)	20	4 F:16 M	34.9 ± 16.2	iTBS	80 % AMT	600	Right FDI
	20	4 F:16 M	34.9 ± 16.2	cTBS	80 % AMT	600	Right FDI
Opie et al. (2013)	11	2 F:9 M	43.0 ± 10.3	cTBS	80 % AMT	600	Right FDI
Orth et al. (2010)	14	9 F:5 M	(28 − 62)	cTBS	80 % AMT	300	Right FDI
Pichiorri et al. (2012)	11	3 F:8 M	31 ± 8.5	iTBS	80 % AMT	600	Right FDI
Player et al. (2012)	16	7 F:9 M	-	iTBS	80 % AMT	600	Right FDI
Suppa et al. (2008)	15	-	(26 − 45)	iTBS	80 % AMT	600	Left FDI
	15	-	(26 − 45)	cTBS	80 % AMT	600	Left FDI
	5	-	(26 − 45)	cTBS	80 % AMT	600	Right FDI
	5	-	(26 − 45)	cTBS	80 % AMT	600	Left FDI
Suppa et al. (2011a)	14	3 F:11 M	60 ± 11.28 (49 − 81)	iTBS	80 % AMT	600	Right FDI
Suppa et al. (2011b)	12	5 F:7 M	30 ± 4.9 (25 − 40)	iTBS	80 % AMT	600	Right FDI
	12	5 F:7 M	30 ± 4.9 (25 − 40)	cTBS	80 % AMT	600	Right FDI
Suppa et al. (2014b)	20	10 F:10 M	56.6 ± 11.5 (36 − 81)	iTBS	80 % AMT	600	Right FDI

Table S1: Summary of the collected studies for calibration of model parameters.

Study	Sample Size	Gender ratio	Mean age ± SD (age range)	TBS Protocol	Pulse Strength	Pulse Number	Target Muscle
	20	10 F:10 M	56.6 ± 11.5 $(36 - 81)$	cTBS	80 % AMT	600	Right FDI
Suppa et al. (2014a)	20	6 F:14 M	32.8 ± 11.2	iTBS	80 % AMT	600	Right FDI
	20	6 F:14 M	32.8 ± 11.2	cTBS	80 % AMT	600	Right FDI
Swayne et al. (2009)	10	3 F:7 M	29.6 ± 4.7	iTBS	80 % AMT	600	Right FDI
Talelli et al. (2007)	18	9 F:9 M	29.6 ± 3.9	iTBS	80 % AMT	600	Right FDI
	18	9 F:9 M	29.6 ± 3.9	cTBS	80 % AMT	300	Right FDI
Teo et al. (2007)	6	2 F:4 M	-	iTBS	80 % AMT	300	Right FDI
Todd et al. (2009)	20	12 F:8 M	25 ± 8	iTBS	80 % AMT	600	Right FDI
	8	4 F:4 M	27 ± 10	cTBS	80 % AMT	600	Right FDI
Vallence et al. (2013)	18	9 F:9 M	23.3 ± 2.7	iTBS	80 % AMT	600	Right APB
	18	9 F:9 M	23.3 ± 2.7	cTBS	80 % AMT	600	Right APB
Wu and Gilbert (2012)	11	-	-	iTBS	80 % AMT	600	Right FDI
Young-Bernier et al. (2014)	20	13 F:7 M	22.3 ± 3.2	iTBS	80 % AMT	600	Right FDI
	18	9 F:9 M	70.1 ± 5.6	iTBS	80 % AMT	600	Right FDI
Zafar et al. (2008)	9	5 F:4 M	21.3 $(21 - 26)$	iTBS	80 % AMT	600	Right FDI
	9	5 F:4 M	21.3 $(21 - 26)$	cTBS	80 % AMT	600	Right FDI
Zamir et al. (2012)	10	6 F:4 M	63.1 ± 8.8 (50-75)	iTBS	80 % AMT	600	Right FDI

Note: (a) SD represents standard deviation; (b) iTBS represents intermittent theta-burst stimulation; (c) cTBS is continuous theta-burst stimulation; (d) AMT is active motor threshold; (e) FDI is the first dorsal interosseous muscle; (f) APB is the abductor pollicis brevis muscle.

This supplementary document contains a list of studies focusing on theta-burst stimulation protocols (see Table S1). All of these studies used biphasic pulses and set the stimulus strength to 80% active motor threshold. For iTBS, the number of administered pulses were 600, 1200, and 1800, while cTBS used pulse numbers of 300, 600, 1200, and 1800. Note that these protocols were applied alone without breaks.

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