TMS_MOTOR_THRESHOLD_DATA											
Study_ID	First_Author	Journal	Year	Population	Sample_Size	Age_Range	Parameter	Value	Units	Notes	
TMS001	Multiple	BMC Neurology	2022	Healthy Thai	48	20-60 years	Silent Period APB	121.58 ± 21.50	ms	Abductor pollicis brevis	
TMS001	Multiple	BMC Neurology	2022	Healthy Thai	48	20-60 years	Silent Period EDI	181.01 ± 40.99	ms	Extensor digitorum brevis	
TMS001	Multiple	BMC Neurology	2022	Healthy Thai	48	20-60 years	MEP Amplitude R	2-fold	ratio	140% vs 120% MT	
TMS001	Multiple	BMC Neurology	2022	Healthy Thai	48	20-60 years	Optimal Recordir	120	%MT	Motor threshold percentage	
TMS001	Multiple	BMC Neurology	2022	Healthy Thai	48	20-60 years	Optimal Recordir	140	%MT	Motor threshold percentage	
TMS001	Multiple	BMC Neurology	2022	Healthy Thai	48	20-60 years	ICF Effect	2-fold	increase	Intracortical facilitation	
TMS001	Multiple	BMC Neurology	2022	Healthy Thai	48	20-60 years	SICI Effect	0.25-fold	reduction	Short interval inhibition	
TMS002	Nardone	Spinal Cord	2015	SCI Patients	5	Not specified	RMT Difference	No significant diff	qualitative	vs controls	
TMS002	Nardone	Spinal Cord	2015	SCI Patients	5	Not specified	Recruitment Slop	Significantly incre	qualitative	vs controls	
TMS003	Multiple	PLOS One	2014	Healthy Young	36	Not specified	Gender Split	18M/18F	count	Equal male/female	
TMS003	Multiple	PLOS One	2014	Healthy Young	36	Not specified	Protocol Pulses	40	count	Per intensity block	
TMS003	Multiple	PLOS One	2014	Healthy Young	36	Not specified	Intensity 1	110	%RMT	Resting motor threshold	
TMS003	Multiple	PLOS One	2014	Healthy Young	36	Not specified	Intensity 2	120	%RMT	Resting motor threshold	
TMS003	Multiple	PLOS One	2014	Healthy Young	36	Not specified	MEP Threshold	50	µV	Peak-to-peak minimum	
TMS003	Multiple	PLOS One	2014	Healthy Young	36	Not specified	Threshold Trials	5 of 10	ratio	Success rate for threshold	

TMS_CLINICAL_RESPONSE_DATA										
Study_ID	First_Author	Journal	Year	Condition	Sample_Size	Protocol	Parameter	Value	Units	Clinical_Significance
TMS004	Multiple	Brain Stimulation	2024	Healthy Cognitive	40	iTBS	Sessions per Day	1-10	sessions	Dose-response study
TMS004	Multiple	Brain Stimulation	2024	Healthy Cognitive	40	iTBS	Total Sessions M	50	sessions	5 days protocol
TMS004	Multiple	Brain Stimulation	2024	Healthy Cognitive	40	iTBS	Pulses per Sessi	600	pulses	iTBS protocol
TMS004	Multiple	Brain Stimulation	2024	Healthy Cognitive	40	iTBS	Intensity	120	%RMT	Resting motor threshold
TMS004	Multiple	Brain Stimulation	2024	Healthy Cognitive	40	iTBS	Optimal Sessions	≥5	sessions/day	Enhanced effects
TMS005	Multiple	Brain Stimulation	2024	Major Depressior	40	iTBS	Sessions per Day	1-10	sessions	Treatment study
TMS005	Multiple	Brain Stimulation	2024	Major Depressior	40	iTBS	Optimal Respons	≥6	sessions/day	Reliable improvement
TMS006	Multiple	Brain Stimulation	2023	Major Depressior	Large Registry	rTMS	Peak Effectivene	36	sessions	Insurance standard
TMS006	Multiple	Brain Stimulation	2023	Major Depressior	Large Registry	rTMS	Reduced Benefit	1-19	sessions	Insufficient dose
TMS006	Multiple	Brain Stimulation	2023	Major Depressior	Large Registry	rTMS	Reduced Benefit	20-29	sessions	Suboptimal dose
TMS006	Multiple	Brain Stimulation	2023	Major Depressior	Large Registry	rTMS	Extended Benefit	>36	sessions	Additional improvement
TMS007	Multiple	Nature	2021	Treatment Resist	290	rTMS	European Effecti	30-64	%	Literature range
TMS007	Multiple	Nature	2021	Treatment Resist	290	rTMS	HDRS Inclusion	≥8	score	Hamilton Depression Scale
TMS007	Multiple	Nature	2021	Treatment Resist	290	rTMS	Age Effect Better	<45	years	Some studies
TMS007	Multiple	Nature	2021	Treatment Resist	290	rTMS	Age Effect Mixed	>65	years	Conflicting results
TMS008	Multiple	ScienceDirect	2022	MDD with Comor	Not specified	rTMS	Frequency	10	Hz	Standard protocol
TMS008	Multiple	ScienceDirect	2022	MDD with Comor	Not specified	rTMS	Pulse Count	3000	pulses/session	Standard dose
TMS008	Multiple	ScienceDirect	2022	MDD with Comor	Not specified	rTMS	Intensity	120	%MT	Motor threshold
TMS008	Multiple	ScienceDirect	2022	MDD with Comor	Not specified	rTMS	Target	L-DLPFC	brain region	Left dorsolateral PFC

DBS_CLINICAL_OUTCOMES											
Study_ID	First_Author	Journal	Year	Condition	Sample_Size	Follow_Up	Parameter	Value	Units	Clinical_Notes	
DBS001	Multiple	PMC	2009	Parkinsons Disea	Not specified	4-5 years	Motor Improveme	4-5	years	Marked improvement	
DBS001	Multiple	PMC	2009	Parkinsons Disea	Not specified	6 years	Tremor Control	Effective	qualitative	Maintained control	
DBS001	Multiple	PMC	2009	Parkinsons Disea	Not specified	6 years	Axial Symptoms	Worsened	qualitative	Progressive decline	
DBS001	Multiple	PMC	2009	Parkinsons Disea	Not specified	Not specified	Target Preferenc	STN	brain region	Subthalamic nucleus	
DBS001	Multiple	PMC	2009	Parkinsons Disea	Not specified	Not specified	Patient Selection	≥30	%	UPDRS improvement required	
DBS002	Limousin	Nature Reviews	2019	Parkinsons Disea	Literature Review	1-2 years	Evidence Quality	Well established	qualitative	Short-term efficacy	
DBS002	Limousin	Nature Reviews	2019	Parkinsons Disea	Literature Review	Up to 10 years	Motor Function	Improved	qualitative	Long-term benefit	
DBS002	Limousin	Nature Reviews	2019	Parkinsons Disea	Literature Review	Long-term	Improvement Ma	Declining	qualitative	Trend over time	
DBS002	Limousin	Nature Reviews	2019	Parkinsons Disea	Literature Review	Long-term	Quality of Life	Below baseline	qualitative	Eventually worsens	
DBS002	Limousin	Nature Reviews	2019	Parkinsons Disea	Literature Review	Long-term	Dementia Incider	Comparable	qualitative	vs medical treatment	
DBS003	Multiple	Parkinsons Foun	2024	Parkinsons Disea	4	2 months	Study Design	Crossover	study type	Conventional vs adaptive	
DBS003	Multiple	Parkinsons Foun	2024	Parkinsons Disea	4	2 months	Disease Duration	≥6	years	Inclusion criteria	
DBS003	Multiple	Parkinsons Foun	2024	Parkinsons Disea	4	2 months	Symptom Reduc	~50	%	Primary outcome	
DBS003	Multiple	Parkinsons Foun	2024	Parkinsons Disea	4	2 months	Other Symptoms	No worsening	qualitative	Safety outcome	
DBS003	Multiple	Parkinsons Foun	2024	Parkinsons Disea	4	2 months	Quality of Life	Improved	qualitative	vs conventional DBS	

NEUROPHYSIOLOGY_MEASUREMENTS									
Study_ID	First_Author	Journal	Year	Population	Measurement_Ty	Parameter	Value	Units	Comparison_Notes
NEURO001	Spampinato	Journal of Physic	2023	General	MEP vs CMAP	Peak-to-peak Am	Smaller	qualitative	MEP < CMAP
NEURO001	Spampinato	Journal of Physic	2023	General	MEP vs CMAP	Duration	Longer	qualitative	MEP > CMAP
NEURO001	Spampinato	Journal of Physic	2023	General	MEP vs CMAP	Shape	More polyphasic	qualitative	MEP characteristic
NEURO001	Spampinato	Journal of Physic	2023	General	MEP vs CMAP	Consistency	Less consistent	qualitative	Trial-to-trial variability
NEURO001	Spampinato	Journal of Physic	2023	General	Current Direction	PA Current	Early I-waves	qualitative	Posterior-anterior
NEURO001	Spampinato	Journal of Physic	2023	General	Current Direction	AP Current	Late I-waves	qualitative	Anterior-posterior
NEURO001	Spampinato	Journal of Physic	2023	General	Muscle Specificit	Hand MEPs	PA optimal	qualitative	Low intensity
NEURO001	Spampinato	Journal of Physic	2023	General	Muscle Specificit	Leg/Face MEPs	LM optimal	qualitative	Lateral-medial
NEURO002	Multiple	PMC	2010	Healthy	Motor Units	VL R-squared	0.999	correlation	Vastus lateralis
NEURO002	Multiple	PMC	2010	Healthy	Motor Units	TA R-squared	0.998	correlation	Tibialis anterior
NEURO002	Multiple	PMC	2010	Healthy	Motor Units	FDI R-squared	0.989	correlation	First dorsal interosseous
NEURO002	Multiple	PMC	2010	Healthy	Motor Units	VL/TA Behavior	Similar	qualitative	Firing patterns
NEURO002	Multiple	PMC	2010	Healthy	Motor Units	FDI Behavior	Different	qualitative	vs VL/TA

CLINICAL_GUIDELINES_SAFETY							
Study_ID	Source	Year	Topic	Parameter	Value	Units	Clinical_Application
GUIDE001	IFCN Committee	2016	TMS Guidelines	Threshold Definit	Above zero resp	qualitative	First measurable response
GUIDE001	IFCN Committee	2016	TMS Guidelines	Optimal Intensity	140	%RMT	Transition point on curve
GUIDE001	IFCN Committee	2016	TMS Guidelines	Alternative Intens	170	%CMT	Cortical motor threshold
GUIDE001	IFCN Committee	2016	TMS Guidelines	Probability Targe	50	%	MEP probability
GUIDE001	IFCN Committee	2016	TMS Guidelines	Algorithm	PEST + ML	method	Parameter estimation
SAFETY001	Cleveland Clinic	2023	DBS Safety	Complication Rat	1-3	%	Infection/stroke/bleeding
SAFETY001	Cleveland Clinic	2023	DBS Safety	FDA Approval Tre	1997	year	Parkinsons tremor
SAFETY001	Cleveland Clinic	2023	DBS Safety	FDA Approval Mo	2002	year	Advanced PD symptoms
SAFETY001	Cleveland Clinic	2023	DBS Safety	FDA Approval Ea	2016	year	Earlier stage PD
SAFETY001	Cleveland Clinic	2023	DBS Safety	Early Stage Crite	≥4	years	PD duration requirement
SAFETY002	Mayo Clinic	2023	TMS Safety	Seizure Risk	<0.1	%	Standard protocols
SAFETY002	Mayo Clinic	2023	TMS Safety	Most Common A	Headache	symptom	Side effect
SAFETY002	Mayo Clinic	2023	TMS Safety	Hearing Protectio	Required	requirement	Safety measure

DOSE_RESPONSE_PARAMETERS									
Study_ID	Source	Year	Treatment	Parameter_Type	Parameter	Value	Units	Clinical_Context	
DOSE001	Multiple Studies	2014-2024	TMS	Intensity Range	Motor Threshold	50	μV	Peak-to-peak minimum	
DOSE001	Multiple Studies	2014-2024	TMS	Intensity Range	Therapeutic Low	110	%RMT	Common clinical use	
DOSE001	Multiple Studies	2014-2024	TMS	Intensity Range	Therapeutic High	120	%RMT	Common clinical use	
DOSE001	Multiple Studies	2014-2024	TMS	Intensity Range	Optimal Low	120	%RMT	Maximal response range	
DOSE001	Multiple Studies	2014-2024	TMS	Intensity Range	Optimal High	140	%RMT	Maximal response range	
DOSE001	Multiple Studies	2014-2024	TMS	Intensity Range	Safety Upper Lim	150	%RMT	Repeated stimulation	
DOSE002	Multiple Studies	2009-2024	DBS	Frequency Rang	Common Low	130	Hz	Clinical practice	
DOSE002	Multiple Studies	2009-2024	DBS	Frequency Rang	Common High	135	Hz	Clinical practice	
DOSE002	Multiple Studies	2009-2024	DBS	Frequency Rang	Literature Range	130-185	Hz	Published studies	
DOSE002	Multiple Studies	2009-2024	DBS	Pulse Width	Range Low	60	μs	Clinical parameters	
DOSE002	Multiple Studies	2009-2024	DBS	Pulse Width	Range High	180	μs	Clinical parameters	
DOSE002	Multiple Studies	2009-2024	DBS	Amplitude	Range Low	1.5	V	Clinical parameters	
DOSE002	Multiple Studies	2009-2024	DBS	Amplitude	Range High	4	V	Clinical parameters	
DOSE003	Multiple Studies	2009-2024	DBS	Target Selection	Parkinsons STN	80	%	Preference percentage	
DOSE003	Multiple Studies	2009-2024	DBS	Target Selection	Parkinsons GPi	20	%	Alternative target	
DOSE003	Multiple Studies	2009-2024	DBS	Target Selection	Essential Tremor	VIM	brain region	Thalamic target	
DOSE003	Multiple Studies	2009-2024	DBS	Target Selection	Depression	SCC	brain region	Subgenual cingulate	

RESPONSE_RATES_REAL									
Study_ID	Source	Year	Treatment	Condition	Measurement	Value	Units	Study_Details	
RESP001	European Guidel	2021	rTMS	Depression	Effectiveness Ra	30	%	Literature review	
RESP001	European Guidel	2021	rTMS	Depression	Effectiveness Ra	64	%	Literature review	
RESP002	Registry Study	2023	rTMS	Depression	Peak Session Co	36	sessions	Insurance standard	
RESP003	Clinical Studies	2021	rTMS	Depression	Age Effect Positiv	<45	years	Some studies	
RESP003	Clinical Studies	2021	rTMS	Depression	Age Effect Variab	>65	years	Mixed results	
RESP004	Long-term Studie	2019	DBS	Parkinsons	Minimum Duratio	4	years	Motor improvement	
RESP004	Long-term Studie	2019	DBS	Parkinsons	Maximum Duratio	10	years	Motor improvement	
RESP005	Adaptive DBS St	2024	DBS	Parkinsons	Symptom Reduct	50	%	4 patients	
RESP005	Adaptive DBS St	2024	DBS	Parkinsons	QoL Improvemer	Significant	qualitative	vs conventional	

STUDY_DETAILS_REFERENCES						
Study_ID	First_Author	Full_Citation	DOI_or_URL	Database_Searc	Search_Date	Data_Extraction_Notes
TMS001	Multiple	Normal paramete	10.1186/s12883-	Web Search	Dec 2024	Abstract and methodology data
TMS002	Nardone	Assessment of c	10.1038/sc.2015	Web Search	Dec 2024	Abstract findings only
TMS003	Multiple	Optimization of th	10.1371/journal.p	Web Search	Dec 2024	Protocol parameters
TMS004	Multiple	Establishing the	Journal Website	Web Search	Dec 2024	Dose-response study data
TMS005	Multiple	Establishing the	Journal Website	Web Search	Dec 2024	Depression treatment arm
TMS006	Multiple	Dosing transcran	Journal Website	Web Search	Dec 2024	Registry analysis
TMS007	Multiple	Predictors of clin	10.1038/s41398-	Web Search	Dec 2024	290 patient cohort
TMS008	Multiple	Response rate u	Journal Website	Web Search	Dec 2024	Protocol parameters
DBS001	Multiple	Deep Brain Stimu	PMC Database	Web Search	Dec 2024	Overview article
DBS002	Limousin	Long-term outcor	10.1038/s41582-	Web Search	Dec 2024	Systematic review
DBS003	Multiple	New Study Furth	Foundation Webs	Web Search	Dec 2024	Press release data
NEURO001	Spampinato	Motor potentials	10.1113/JP28188	Web Search	Dec 2024	Neurophysiology review
NEURO002	Multiple	Relationship Betv	PMC Database	Web Search	Dec 2024	Motor unit analysis
GUIDE001	IFCN Committee	A practical guide	PMC Database	Web Search	Dec 2024	Clinical guidelines
SAFETY001	Cleveland Clinic	Deep Brain Stimu	Clinic Website	Web Search	Dec 2024	Clinical information
SAFETY002	Mayo Clinic	Transcranial mag	Clinic Website	Web Search	Dec 2024	Patient information