
Supplementary information

Neurotransmitter phenotype switching by spinal excitatory interneurons regulates locomotor recovery after spinal cord injury

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authors and unedited

TEMPORAL FEATURES OF GAIT		
A	1	Cycle duration (s)
	2	Cycle velocity (s)
	3	Stance duration (s)
	4	Swing duration (s)
	5	Relative stance duration (% of gait cycle duration)

INTERLIMB COORDINATION		
A	6	Correlation between whole hindlimb oscillations
	7	Double stance duration (% of gait cycle duration)
	8	Coordination between stance left-right (% of gait cycle duration)
	9	Coordination between swing left-right (% of gait cycle duration)

LIMB ENDPOINT TRAJECTORIES		
A	10	Stride length (cm)
	11	Step length (cm)
	12	3D limb endpoint path length (cm)
	13	Maximal backward position of foot (cm)
	14	Minimum forward position of foot (cm)
B	15	Step height (cm)
	16	Maximal speed during swing (cm/s)
	17	Time of maximal velocity during swing (% of gait cycle duration)
A	18	Acceleration at swing onset (cm/s ²)
	19	Endpoint velocity (cm/s)
	20	Orientation of the velocity vector at swing onset (deg)

STABILITY		
A	21	Lateral displacement during swing
	22	Stance width (cm)
	23	Pelvis maximum vertical movement
	24	Pelvis minimum vertical movement
	25	Pelvis vertical movement amplitude

A	26	Variability of vertical mid-point hip oscillation	Pelvis position and oscillations
	27	Variability of medio-lateral mid-point hip oscillation	
	28	Variability of medio-lateral hip rotations	

A	29	Forward motion of body center of mass (cm)	Displacement of virtual center of mass
	30	Lateral motion of body center of mass (cm)	
	31	Vertical motion of body center of mass (cm)	
	32	3D motion of body center of mass (cm)	

A	33	Weight support (%)
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DRAGGING		
A	33	Drag duration (s)
	34	Relative drag duration (% of swing phase duration)

JOINT ANGLES AND SEGMENTAL OSCILLATIONS			
A	35	Crest oscillations (deg)	Backward
	36	Thigh oscillations (deg)	
	37	Leg oscillations (deg)	
	38	Foot oscillations (deg)	
	39	Whole limb oscillations (deg)	

A	40	Crest oscillations (deg)	Forward
	41	Thigh oscillations (deg)	
	42	Leg oscillations (deg)	
	43	Foot oscillations (deg)	
	44	Whole limb oscillations (deg)	

A	45	Hip joint (deg)	Extension
	46	Knee joint (deg)	
	47	Ankle joint (deg)	

A	48	Whole limb abduction (deg)	Abduction
B	49	Foot abduction (deg)	

A	50	Hip joint (deg)	Flexion
	51	Knee joint (deg)	
	52	Ankle joint (deg)	

A	53	Whole limb adduction (deg)	Adduction
B	54	Foot adduction (deg)	

A	55	Crest oscillations (deg)	Oscillation amplitudes (Max-Min)
	56	Thigh oscillations (deg)	
	57	Shank oscillations (deg)	
	58	Foot oscillations (deg)	
	59	Whole limb oscillations (deg)	

A	60	Hip joint (deg)	
	61	Knee joint (deg)	
	62	Ankle joint (deg)	

A	63	Whole limb medio-lateral oscillation (deg)	
B	64	Foot abduction/adduction (deg)	

JOINT OSCILLATION VELOCITY			
A	65	Whole limb oscillation velocity (deg/s)	Minimum angle velocity
	66	Hip joint angle oscillation velocity (deg/s)	
	67	Knee joint angle oscillation velocity (deg/s)	
	68	Ankle joint angle oscillation velocity (deg/s)	

A	69	Whole limb oscillation velocity (deg/s)	Maximum angle velocity
	70	Hip joint angle oscillation velocity (deg/s)	
	71	Knee joint angle oscillation velocity (deg/s)	
	72	Ankle joint angle oscillation velocity (deg/s)	

A	73	Whole limb oscillation velocity (deg/s)	Amplitude of angle velocity (Max - Min)
	74	Hip joint angle oscillation velocity (deg/s)	
	75	Knee joint angle oscillation velocity (deg/s)	
	76	Ankle joint angle oscillation velocity (deg/s)	

PC ANALYSIS		
A	77	Degree of linear coupling between joint oscillations

FFT DECOMPOSITION			
A	78	Temporal coupling between crest and thigh oscillation	proximal
	79	Temporal coupling between thigh and leg oscillation	distal
	80	Temporal coupling between leg and foot oscillation	

CROSS CORRELATION BETWEEN SEGMENTS			
A	81	Correlation between crest and thigh oscillation	proximal
	82	Correlation between thigh and leg oscillation	
	83	Correlation between leg and foot oscillation	distal
	84	Correlation between hip and knee oscillation	proximal
	85	Correlation between knee and ankle oscillation	
	86	Correlation between ankle and foot oscillation	distal

RELATIVE COUPLING BETWEEN SEGMENT			
A	87	Duration between maximal backward positions of crest and thigh (% of gait cycle duration)	proximal
	88	Duration between maximal forward positions of crest and thigh (% of gait cycle duration)	
	89	Duration between backward positions of thigh and leg (% of gait cycle duration)	
	90	Duration between forward positions of the thigh and leg (% of gait cycle duration)	
	91	Duration between backward positions of leg and foot (% of gait cycle duration)	distal
	92	Duration between forward positions of leg and foot (% of gait cycle duration)	

REPRODUCIBILITY OF ENDPOINT TRAJECTORY		
A	93	Consistency of limb endpoint trajectory over 10 successive cycle in X plane
	94	Consistency of limb endpoint trajectory over 10 successive cycle in Y plane
	95	Consistency of limb endpoint trajectory over 10 successive cycle in Z plane
	96	Consistency of limb endpoint trajectory over 10 successive cycle in XY planes
	97	Consistency of limb endpoint trajectory over 10 successive cycle in XYZ planes

COMPARISON TO REFERENCE JOINT ANGLES		
A	98	Correlation between limb oscillation and reference limb oscillation
	99	Correlation between hip oscillation reference hip oscillation
	100	Correlation between knee oscillation reference knee oscillation
	101	Correlation between ankle oscillation reference ankle oscillation
	102	Correlation between foot oscillation reference foot oscillation

A = Figures 1, 7, 8, S1, S6

A+B = Figures 1, 8, S1, S6