

TITLE

Multifactorial motor behavior assessment for real-time evaluation of emerging therapeutics to treat neurologic impairments

AUTHORS

Riazul Islam, M.S.E., Carlos Cuellar, Ph.D., Ben Felmlee, Tori Riccelli, Jodi Silvernail, Suelen Lucio Boschen, Ph.D., Peter Grahn, Ph.D., Igor Lavrov, M.D., Ph.D.

SUPPLEMENTARY TABLES

Supplementary table 1: Components and cost of the BWS system.

Part	Quantity	Price (\$)	Total (\$)
Corner cubes	4	6.8	27.3
8020 Aluminum extrusion	2	31.5	63.1
Adjustable feet	4	13.3	53.4
Button head bolt	12	11.6	11.6
Steel rod	2	15.7	31.5
Aluminum Rod	2	25.6	51.3
Linear bearing	4	13.9	55.8
Stop collars	9	3.8	35.0
Rubber cushion	8	1.6	13.5
rod mount bolts	8	0.1	1.0
Spring	1	8.7	8.7
Miscellaneous	-	-	40
Total price:	-	-	~ 400

Supplementary table 2: Theoretical and experimental frictional force analysis of a single linear bearing

Theoretical calculation (N)		Experimental Measurement (N)
With Seals	Seals Removed	
2.003	0.0294	0.034±0.012(n=4)

Supplementary Table 3: Summary of computed kinematics and EMG parameters for PCA.

#	Kinematic parameters
1	Step height
2	Step length
3	Toe fluctuation
4	Step duration
5	Stance phase
6	Swing phase
7	Drag phase
8	Hip angle displacement
9	Knee angle displacement
10	Ankle angle displacement
11	MTP angle displacement
	EMG burst parameters
12	TA burst amplitude
13	MG burst amplitude
14	TA burst duration
15	MG burst duration
16	Co-activation period
	Kinetic parameters
17	F_x variation
18	F_y variation
19	F_z variation
20	T_x variation
21	T_y variation
22	T_z variation
	Open field parameters
23	Displacement x direction
24	Displacement y direction
	fMEP parameters
25	# of middle response (MR)- TA
26	# of late response (LR)-TA
27	MR area-TA
28	LR area-TA
29	MR area/LR area-TA
30	# of MR- MG
31	# of LR-MG
32	MR area-MG
33	LR area-MG
34	MR area/LR area-MG