

Supplementary Table. Mean and standard error of sway measurements by BioStamp and forceplate, by group and conditions. For simplicity of data presentation, only significant group effect is marked, as the significant condition effect is well documented. Pairwise comparison was performed using the log-transformed data. * Significant difference between Healthy Control and MS_{Severe}, + significant difference between Healthy Control and MS_{Mild}, # significant difference between MS_{Mild} and MS_{Severe} (p<0.017).

		forceplate						BioStamp							
		Healthy Control		MS _{Mild}		MS _{Severe}			Healthy Control		MS _{Mild}		MS _{Severe}		
EO	JERK (m2/s5)							1.11	(0.08)	2.49	(0.54)	4.13	(0.57)	**	
	RMS_AP (mm, m/s ²)	3.55	(0.17)	4.97	(0.59)	6.37	(0.54)	**	0.04	(0.00)	0.06	(0.01)	0.07	(0.01)	*
	RMS_ML (mm, m/s ²)	1.49	(0.17)	2.51	(0.43)	4.35	(0.73)	**	0.02	(0.00)	0.03	(0.00)	0.04	(0.01)	**
	CEA (mm2, m2/s4)	100.43	(9.93)	297.21	(67.78)	631.32	(115.66)	**	0.01	(0.00)	0.04	(0.01)	0.07	(0.01)	**
	SP(mm, m/s2)	261.71	(11.48)	419.69	(47.34)	578.47	(38.02)	**	6.79	(0.24)	9.12	(0.71)	11.74	(0.77)	*
	MV(mm/s, mm/s)	8.70	(0.39)	13.88	(1.58)	19.28	(1.27)	**	20.44	(1.42)	29.58	(2.97)	43.41	(4.42)	*
	TP(m2, m2/s4)	8.63	(0.29)	13.03	(1.43)	17.23	(1.14)	**	6.19	(0.33)	8.94	(0.97)	12.20	(1.01)	*
EC	JERK (m2/s5)							1.67	(0.15)	10.00	(2.92)	10.66	(2.61)	*	
	RMS_AP (mm, m/s2)	4.13	(0.14)	7.17	(1.03)	7.97	(0.71)	*+	0.05	(0.00)	0.09	(0.02)	0.10	(0.02)	*
	RMS_ML (mm, m/s2)	1.52	(0.13)	4.81	(1.24)	5.65	(0.94)	*+	0.02	(0.00)	0.04	(0.01)	0.05	(0.01)	*
	CEA (mm2, m2/s4)	121.42	(10.64)	1059.10	(271.28)	1019.90	(196.15)	*+	0.02	(0.00)	0.12	(0.04)	0.13	(0.03)	*
	SP (mm, m/s2)	371.91	(16.06)	746.65	(97.93)	939.11	(67.20)	**	8.13	(0.33)	14.72	(2.07)	18.08	(1.78)	*
	MV(mm/s, mm/s)	12.40	(0.53)	24.89	(3.26)	31.30	(2.24)	**	25.50	(1.52)	46.08	(6.40)	55.84	(6.60)	*
	TP(m2, m2/s4)	11.53	(0.36)	21.20	(2.56)	24.38	(1.69)	*	8.31	(0.37)	15.23	(2.30)	16.91	(1.58)	*
FEO	JERK (m2/s5)							5.70	(1.44)	7.70	(1.26)	15.57	(2.27)	**	
	RMS_AP (mm, m/s2)	7.18	(0.52)	8.78	(0.79)	10.40	(0.76)	*	0.07	(0.01)	0.09	(0.02)	0.12	(0.02)	*
	RMS_ML (mm, m/s2)	4.87	(0.36)	6.86	(0.84)	9.01	(0.83)	*	0.05	(0.00)	0.07	(0.01)	0.09	(0.01)	**
	CEA (mm2, m2/s4)	689.97	(81.29)	1346.27	(210.69)	2047.34	(346.15)	**	0.06	(0.01)	0.16	(0.04)	0.24	(0.06)	**
	SP (mm, m/s2)	687.69	(46.09)	864.50	(61.17)	1155.33	(71.15)	**	13.60	(1.30)	15.77	(1.12)	22.81	(1.38)	**
	MV(mm/s, mm/s)	22.92	(1.54)	28.82	(2.04)	38.51	(2.37)	**	37.60	(3.04)	58.79	(7.28)	81.47	(10.84)	**
	TP(m2, m2/s4)	20.26	(1.37)	24.56	(1.70)	32.54	(2.84)	**	11.91	(1.11)	16.07	(1.62)	20.39	(1.44)	**

JERK – resultant sway JERK; RMS_AP – root mean squared sway acceleration/distance in anterior-posterior direction; RMS_ML – root mean squared sway acceleration/distance in medial-lateral direction; CEA – 95% confidence ellipse sway area; SP – sway path length; MV – mean sway velocity; TP – total sway power.

Supplementary table reports the mean and standard error of each BioStamp and COP sway metrics. In EO condition, all COP sway metrics revealed significant differences between Healthy control and MS_{Severe}, as well as significant differences between MS_{Mild} and MS_{Severe}. Whereas only three BioStamp sway metrics (JERK, RMS_ML and CEA) were able to discriminate MS_{Mild} and MS_{Severe}. Other BioStamp sway metrics were only able to differentiate between Healthy control and MS_{Severe}. In EC condition, both BioStamp and COP sway metrics were able to differentiate MS_{Severe} from Healthy control consistently. Additionally, three COP sway metrics (RMS_AP, RMS_ML, CEA) revealed significance differences between Healthy control and MS_{Mild} group, whereas COP sway path and mean velocity also revealed significance difference between MS_{Mild} and MS_{Severe} group. In FEO condition, all BioStamp and COP sway metrics revealed significant increase of sway in the MS_{Severe} group compared to the Healthy control group. Additional sway metrics (CEA, SP, MV and TP measured by both devices, and RMS_ML measured by BioStamp) revealed significance difference between MS_{Mild} and MS_{Severe} group.