

Supplementary Table 1: Gait measure – source and definitions

Measure	Source	Definition
Integrated-pressure (pressure x s)	PKMAS	the sum of pressure applied by a footstep at each sampling time (120 Hz sampling rate) in the area of its contact with the ground.
Foot-length-percent	PKMAS	a percentage measure of foot length relative to the longest foot length measured for all selected footsteps, for each foot.
Stride-length (cm)	PKMAS	the distance between heel strikes of two consecutive footsteps of the same foot, i.e., two right or two left heel strikes.
Stride-time (s) also known as gait cycle time	PKMAS	the time difference (s) between the initial heel contacts with the mat of two consecutive footsteps of the same foot, i.e., two right or two left.
Stride-velocity (cm/s)	PKMAS	the stride length divided by stride time, calculated for each gait cycle.
Stance-time (s)	PKMAS	the time difference between the first and last contact of each footstep plus the sampling time and represents the time duration of foot contact with the ground.
Swing-time (s)	PKMAS	the difference between gait cycle time and stance time and represents the time duration when the foot is off the ground.
Stance-COP-distance (cm)	PKMAS	stance Center of Pressure distance; the Pythagorean distance between the first and last contact points of the center of pressure (COP) waveform trail for a footstep in stance phase, based on X and Y coordinates corresponding to first and last contact times of a foot during stance.
Turn-time (s)	author defined	the difference in time [#] between the first contact of the last normal-angled, pre-turn footstep, and the last contact of the first normal-angled, post-turn footstep.
Turn-length (cm)	author defined	the distance (difference) between the maximum and minimum value of the X coordinates [#] of foot placement on the mat.
Turn-width (cm)	author defined	the distance (difference) between the maximum and minimum value of the Y coordinates [#] of foot placement on the mat.
Turn-rectangular-area (cm ²)	author defined	$(\pi * [\text{turn length}/2] * [\text{turn width}/2])$
Turn-step-count (no.)	author defined	sum of right and left steps in each turn segment

Subjects wore their preferred footwear. All “PKMAS” calculations were auto-generated by the PKMAS software and defined here based on our understanding of the PKMAS Measurements and Definitions manual Protokinetics provided with the software. @ PKMAS definition altered to represent that this was auto-generated by PKMAS for turn segments. [#] Time stamps and mat location coordinates for each footstep were auto-generated by PKMAS. All “author defined” turn measure calculations were done using in-house Python scripts.”

Supplementary Table 2: levodopa response in turn measures

Turn Measures	Results			
	OFF-levodopa	ON-levodopa	OFF-ON levodopa	OFF-ON levodopa / standard deviation
<u>Mean</u>				
Integrated-pressure (pressure × s)	181.2 (155.2 – 207.3)	179.0 (143.6 – 214.4)	2.3 (-13.5 – 18.1)	0.04 (-0.26 – 0.35)
Foot-length-percent (%)	79.5 (77.4 – 81.7)	79.4 (77.7 – 81.1)	0.1 (-1.4 – 1.7)	0.03 (-0.28 – 0.33)
Stride-length (cm)	34.0 (27.5 – 40.5)	36.7 (31.2 – 42.2)	-2.7 (-5.6 – 0.1)	-0.29 (-0.59 – 0.02)
Stride-time (s)	1.06 (0.92 – 1.20)	1.04 (0.85 – 1.24)	0.02 (-0.11 – 0.14)	0.04 (-0.26 – 0.34)
Stride-velocity (cm/s)	33.4 (28.7 – 38.0)	37.5 (33.1 – 41.9)	-4.1 (-6.3 – -2.0)	-0.6 (-0.9 – -0.29)
Stance-time (s)	0.89 (0.76 – 1.02)	0.88 (0.69 – 1.07)	0.01 (-0.10 – 0.12)	0.03 (-0.27 – 0.33)
Swing-time (s)	0.21 (0.17 – 0.24)	0.21 (0.18 – 0.24)	0.00 (-0.02 – 0.01)	-0.07 (-0.37 – 0.24)
Stance-COP-distance (cm)	14.3 (12.5 – 16.1)	15.2 (13.7 – 16.7)	-0.9 (-1.5 – -0.2)	-0.39 (-0.69 – -0.08)
Turn-step-count (no)	12.3 (9.6 – 14.9)	10.1 (8.1 – 12.1)	2.1 (1.0 – 3.3)	0.56 (0.26 – 0.87)
Turn-time (s)	7.6 (4.8 – 10.5)	6.7 (3.6 – 9.7)	1.0 (-0.1 – 2.1)	0.27 (-0.04 – 0.57)
Turn-length (cm)	88.7 (82.2 – 95.2)	93.2 (87.6 – 98.7)	-4.4 (-8.6 – -0.3)	-0.33 (-0.63 – -0.02)
Turn-width (cm)	34.0 (29.0 – 39.1)	34.8 (30.3 – 39.3)	-0.8 (-4.1 – 2.5)	-0.07 (-0.37 – 0.23)
Turn-rectangular-area (cm ²)	3083 (2514 – 3651)	3214 (2779 – 3650)	-132 (-505 – 242)	-0.11 (-0.41 – 0.2)
<u>CV</u>				
Integrated-pressure (%)	59.6 (49.8 – 69.5)	54.5 (47.5 – 61.5)	5.1 (-0.7 – 11.0)	0.27 (-0.04 – 0.57)
Foot-length-percent (%)	22.4 (20.1 – 24.8)	23.6 (21.7 – 25.5)	-1.2 (-3.5 – 1.1)	-0.16 (-0.46 – 0.15)
Stride-length (%)	86.6 (78 – 95.2)	89.4 (82.2 – 96.6)	-2.8 (-9.1 – 3.5)	-0.13 (-0.44 – 0.17)
Stride-time (%)	51 (42.2 – 59.7)	46.3 (40.3 – 52.2)	4.7 (-0.6 – 10.0)	0.27 (-0.04 – 0.57)
Stride-velocity (%)	82.3 (71.3 – 93.2)	87.4 (71.3 – 103.6)	-5.2 (-16.9 – 6.6)	-0.13 (-0.44 – 0.17)
Stance-time (%)	50.1 (40.8 – 59.3)	44.6 (38.1 – 51)	5.5 (0.2 – 10.8)	0.31 (0.01 – 0.62)
Swing-time (%)	89.3 (74.9 – 103.6)	87.6 (75.3 – 99.9)	1.7 (-6.8 – 10.1)	0.06 (-0.24 – 0.36)
Stance-COP-distance (%)	61.9 (55.4 – 68.4)	61.3 (55.8 – 66.9)	0.6 (-2.8 – 4.0)	0.05 (-0.25 – 0.35)
Turn-step-count (%)	16.4 (14.4 – 18.3)	17.3 (14.6 – 19.9)	-0.9 (-3.5 – 1.7)	-0.10 (-0.41 – 0.20)
Turn-time (%)	15 (11.7 – 18.3)	15.0 (11.8 – 18.2)	0.0 (-2.9 – 3.0)	0.01 (-0.30 – 0.31)
Turn-length (%)	19.3 (16.8 – 21.7)	20.3 (18.1 – 22.4)	-1.0 (-4.6 – 2.5)	-0.09 (-0.39 – 0.22)
Turn-width (%)	22.7 (18.4 – 27)	23.9 (20.8 – 27.1)	-1.3 (-5.6 – 3.1)	-0.09 (-0.39 – 0.21)
Turn-rectangular-area (%)	32.0 (27.0 – 37.1)	33.8 (30.4 – 37.1)	-1.7 (-7.1 – 3.6)	-0.10 (-0.40 – 0.21)

Results reported as mean (95% CI)

Supplementary Table 3 - Linear regression modeling (complete models)

Part 1: Mean stride-velocity OFF-ON

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	DiseaseDuration, LevodopaDuration ^b		Enter
2		DiseaseDuration	Backward (criterion: Probability of F-to-remove >= .100).

a. Dependent Variable: mean stride-velocity OFF-ON

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.531 ^a	0.281	0.246	6.040635
2	.500 ^b	0.250	0.232	6.096162

a. Predictors: (Constant), DiseaseDuration, LevodopaDuration

b. Predictors: (Constant), LevodopaDuration

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	585.987	2	292.994	8.030	.001 ^b
	Residual	1496.060	41	36.489		
	Total	2082.047	43			
2	Regression	521.193	1	521.193	14.024	.001 ^c
	Residual	1560.854	42	37.163		
	Total	2082.047	43			

a. Dependent Variable: mean stride-velocity OFF-ON

b. Predictors: (Constant), DiseaseDuration, LevodopaDuration

c. Predictors: (Constant), LevodopaDuration

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients (Beta)	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error				Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	2.505	1.934		1.295	0.202	-1.400	6.411		
	LevodopaDuration	-0.496	0.338	-0.297	-1.468	0.150	-1.178	0.186	0.429	2.331
	DiseaseDuration	-0.341	0.256	-0.269	-1.333	0.190	-0.857	0.176	0.429	2.331
2	(Constant)	1.277	1.716		0.744	0.461	-2.186	4.740		
	LevodopaDuration	-0.836	0.223	-0.500	-3.745	0.001	-1.286	-0.385	1.000	1.000

a. Dependent Variable: mean stride-velocity OFF-ON

Collinearity Diagnostics^a

Model		Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	LevodopaDuration	Disease Duration
1	1	2.774	1.000	0.03	0.01	0.01
	2	0.166	4.090	0.87	0.21	0.04
	3	0.060	6.785	0.10	0.77	0.95
2	1	1.844	1.000	0.08	0.08	
	2	0.156	3.444	0.92	0.92	

a. Dependent Variable: mean stride-velocity OFF-ON

Excluded Variables^a

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
2	DiseaseDuration	-.269 ^b	-1.333	0.190	-0.204	0.429	2.331	0.429

a. Dependent Variable: mean stride-velocity OFF-ON

b. Predictors in the Model: (Constant), LevodopaDuration

Part 2: mean turn-step-count OFF-ON

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	DiseaseDuration, ChallengeDose, FOGQ, LevodopaDuration ^b		Enter
2		DiseaseDuration	Backward (criterion: Probability of F-to-remove >= .100).
3		ChallengeDose	Backward (criterion: Probability of F-to-remove >= .100).
4		LevodopaDuration	Backward (criterion: Probability of F-to-remove >= .100).

a. Dependent Variable: mean turn-step-count OFF-ON

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.530 ^a	0.281	0.207	3.364055
2	.524 ^b	0.275	0.221	3.335848
3	.495 ^c	0.245	0.208	3.362940
4	.460 ^d	0.212	0.193	3.394895

a. Predictors: (Constant), DiseaseDuration, ChallengeDose, FOGQ

b. Predictors: (Constant), ChallengeDose, FOGQ, LevodopaDuration

c. Predictors: (Constant), FOGQ, LevodopaDuration

d. Predictors: (Constant), FOGQ

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	172.619	4	43.155	3.813	.010 ^b
	Residual	441.358	39	11.317		
	Total	613.977	43			
2	Regression	168.862	3	56.287	5.058	.005 ^c
	Residual	445.115	40	11.128		
	Total	613.977	43			
3	Regression	150.293	2	75.147	6.645	.003 ^d
	Residual	463.684	41	11.309		
	Total	613.977	43			
4	Regression	129.914	1	129.914	11.272	.002 ^e
	Residual	484.063	42	11.525		
	Total	613.977	43			

a. Dependent Variable: mean turn-step-count OFF-ON

b. Predictors: (Constant), DiseaseDuration, ChallengeDose, FOGQ, LevodopaDuration

c. Predictors: (Constant), ChallengeDose, FOGQ, LevodopaDuration

d. Predictors: (Constant), FOGQ, LevodopaDuration

e. Predictors: (Constant), FOGQ

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	-2.888	1.566		-1.844	0.073	-6.056	0.280		
	FOGQ	0.168	0.102	0.281	1.642	0.109	-0.039	0.374	0.628	1.593
	LevodopaDuration	0.124	0.198	0.137	0.626	0.535	-0.277	0.524	0.387	2.583
	ChallengeDose	0.008	0.006	0.200	1.252	0.218	-0.005	0.020	0.719	1.391
	DiseaseDuration	0.082	0.143	0.120	0.576	0.568	-0.206	0.371	0.427	2.341
2	(Constant)	-2.605	1.475		-1.767	0.085	-5.585	0.375		
	FOGQ	0.164	0.101	0.275	1.622	0.113	-0.040	0.368	0.630	1.587
	LevodopaDuration	0.208	0.133	0.229	1.564	0.126	-0.061	0.476	0.845	1.183
	ChallengeDose	0.008	0.006	0.205	1.292	0.204	-0.004	0.020	0.721	1.388
3	(Constant)	-1.314	1.093		-1.202	0.236	-3.523	0.894		
	FOGQ	0.233	0.087	0.391	2.690	0.010	0.058	0.407	0.873	1.145
	LevodopaDuration	0.177	0.132	0.195	1.342	0.187	-0.089	0.443	0.873	1.145
4	(Constant)	-0.573	0.952		-0.601	0.551	-2.495	1.349		
	FOGQ	0.274	0.082	0.460	3.357	0.002	0.109	0.439	1.000	1.000

a. Dependent Variable: mean turn-step-count OFF-ON

Collinearity Diagnostics^a

			Variance Proportions						
Model			Eigenvalue	Condition Index	(Constant)	FOGQ	LevodopaDuration	ChallengeDose	DiseaseDuration
1	1		4.408	1.000	0.00	0.01	0.00	0.01	0.00
	2		0.307	3.789	0.01	0.09	0.12	0.10	0.08
	3		0.167	5.143	0.19	0.61	0.03	0.05	0.01
	4		0.062	8.440	0.78	0.18	0.01	0.79	0.06
	5		0.057	8.811	0.02	0.12	0.83	0.05	0.85
2	1		3.543	1.000	0.01	0.01	0.02	0.01	
	2		0.234	3.895	0.01	0.03	0.73	0.12	
	3		0.162	4.679	0.24	0.70	0.00	0.03	
	4		0.061	7.591	0.74	0.25	0.26	0.84	
3	1		2.668	1.000	0.03	0.03	0.03		
	2		0.185	3.793	0.00	0.69	0.66		
	3		0.146	4.272	0.97	0.28	0.31		
4	1		1.843	1.000	0.08	0.08			
	2		0.157	3.430	0.92	0.92			

a. Dependent Variable: mean turn-step-count OFF-ON

Excluded Variables^a

						Collinearity Statistics		
					Partial Correlati on	Toleranc e	VIF	Minimu m Toleranc e
Model		Beta In	t	Sig.				
2	DiseaseDuration	.120 ^b	0.576	0.568	0.092	0.427	2.341	0.387
3	DiseaseDuration	.132 ^c	0.632	0.531	0.099	0.428	2.336	0.397
	ChallengeDose	.205 ^c	1.292	0.204	0.200	0.721	1.388	0.630
4	DiseaseDuration	.199 ^d	1.425	0.162	0.217	0.942	1.062	0.942
	ChallengeDose	.160 ^d	1.008	0.319	0.156	0.745	1.342	0.745
	LevodopaDuration	.195 ^d	1.342	0.187	0.205	0.873	1.145	0.873

a. Dependent Variable: mean turn-step-count OFF-ON

b. Predictors in the Model: (Constant), ChallengeDose, FOGQ, LevodopaDuration

c. Predictors in the Model: (Constant), FOGQ, LevodopaDuration

d. Predictors in the Model: (Constant), FOGQ

Part 3: mean stance-COP-distance OFF-ON

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	FOGQ, DiseaseDuration, LevodopaDuration ^b		Enter
2		DiseaseDuration	Backward (criterion: Probability of F-to-remove >= .100).
3		FOGQ	Backward (criterion: Probability of F-to-remove >= .100).

a. Dependent Variable: mean stance-COP-distance

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.475 ^a	0.225	0.167	2.039114
2	.474 ^b	0.225	0.187	2.014316
3	.441 ^c	0.195	0.175	2.028908

a. Predictors: (Constant), FOGQ, DiseaseDuration, LevodopaDuration

b. Predictors: (Constant), FOGQ, LevodopaDuration

c. Predictors: (Constant), LevodopaDuration

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	48.348	3	16.116	3.876	.016 ^b
	Residual	166.319	40	4.158		
	Total	214.667	43			
2	Regression	48.311	2	24.155	5.953	.005 ^c
	Residual	166.356	41	4.057		
	Total	214.667	43			
3	Regression	41.775	1	41.775	10.148	.003 ^d
	Residual	172.892	42	4.116		
	Total	214.667	43			

a. Dependent Variable: mean stance-COP-distance OFF-ON

b. Predictors: (Constant), FOGQ, DiseaseDuration, LevodopaDuration

c. Predictors: (Constant), FOGQ, LevodopaDuration

d. Predictors: (Constant), LevodopaDuration

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	1.061	0.739		1.436	0.159	-0.433	2.555		
	LevodopaDuration	-0.209	0.119	-0.390	-1.766	0.085	-0.449	0.030	0.397	2.519
	DiseaseDuration	0.008	0.086	0.020	0.094	0.926	-0.166	0.183	0.428	2.336
	FOGQ	-0.066	0.053	-0.186	-1.248	0.219	-0.172	0.041	0.872	1.147
2	(Constant)	1.092	0.655		1.667	0.103	-0.231	2.414		
	LevodopaDuration	-0.201	0.079	-0.375	-2.548	0.015	-0.360	-0.042	0.873	1.145
	FOGQ	-0.066	0.052	-0.187	-1.269	0.212	-0.170	0.039	0.873	1.145
3	(Constant)	0.676	0.571		1.183	0.243	-0.477	1.828		
	LevodopaDuration	-0.237	0.074	-0.441	-3.186	0.003	-0.387	-0.087	1.000	1.000

a. Dependent Variable: mean stance-COP-distance OFF-ON

Collinearity Diagnostics^a

Model		Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	LevodopaDuration	DiseaseDuration	FOGQ
1	1	3.562	1.000	0.01	0.01	0.01	0.02
	2	0.235	3.895	0.02	0.09	0.08	0.63
	3	0.146	4.936	0.79	0.13	0.00	0.28
	4	0.057	7.901	0.18	0.77	0.91	0.08
2	1	2.668	1.000	0.03	0.03		0.03
	2	0.185	3.793	0.00	0.66		0.69
	3	0.146	4.272	0.97	0.31		0.28
3	1	1.844	1.000	0.08	0.08		
	2	0.156	3.444	0.92	0.92		

a. Dependent Variable: mean stance-COP-distance OFF-ON

Excluded Variables^a

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
2	DiseaseDuration	.020 ^b	0.094	0.926	0.015	0.428	2.336	0.397
3	DiseaseDuration	.032 ^c	0.150	0.881	0.023	0.429	2.331	0.429
	FOGQq1_6	-.187 ^c	-1.269	0.212	-0.194	0.873	1.145	0.873

a. Dependent Variable: mean stance-COP-distance OFF-ON

b. Predictors in the Model: (Constant), FOGQ, LevodopaDuration

c. Predictors in the Model: (Constant), LevodopaDuration

Part 4: mean turn-length OFF-ON

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	LevodopaDuration, FOGQ, stridelengthOFF-ON, DiseaseDuration ^b		Enter
2		DiseaseDuration	Backward (criterion: Probability of F-to-remove >= .100).
3		FOGQ	Backward (criterion: Probability of F-to-remove >= .100).
4		stridelengthOFF-ON	Backward (criterion: Probability of F-to-remove >= .100).

a. Dependent Variable: mean turn-length OFF-ON

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.556 ^a	0.310	0.239	11.895142
2	.545 ^b	0.297	0.244	11.850289
3	.527 ^c	0.278	0.243	11.864962
4	.484 ^d	0.234	0.216	12.074925

a. Predictors: (Constant), LevodopaDuration, FOGQ, stridelengthOFF-ON

b. Predictors: (Constant), LevodopaDuration, FOGQ, stridelengthOFF-ON

c. Predictors: (Constant), LevodopaDuration, stridelengthOFF-ON

d. Predictors: (Constant), LevodopaDuration

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2473.952	4	618.488	4.371	.005 ^b
	Residual	5518.282	39	141.494		
	Total	7992.234	43			
2	Regression	2375.059	3	791.686	5.638	.003 ^c
	Residual	5617.174	40	140.429		
	Total	7992.234	43			
3	Regression	2220.364	2	1110.182	7.886	.001 ^d
	Residual	5771.870	41	140.777		
	Total	7992.234	43			
4	Regression	1868.474	1	1868.474	12.815	.001 ^e
	Residual	6123.760	42	145.804		
	Total	7992.234	43			

a. Dependent Variable: mean turn-length OFF-ON

b. Predictors: (Constant), LevodopaDuration, FOGQ, stridlengthOFF-ON, DiseaseI

c. Predictors: (Constant), LevodopaDuration, FOGQ, stridlengthOFF-ON

d. Predictors: (Constant), LevodopaDuration, stridlengthOFF-ON

e. Predictors: (Constant), LevodopaDuration

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	8.061	4.531		1.779	0.083	-1.105	17.227		
	FOGQ	-0.336	0.308	-0.156	-1.089	0.283	-0.960	0.288	0.860	1.163
	stridlengthOFF-ON	0.310	0.225	0.214	1.379	0.176	-0.145	0.765	0.739	1.354
	DiseaseDuration	-0.422	0.505	-0.171	-0.836	0.408	-1.444	0.600	0.426	2.350
	LevodopaDuration	-0.631	0.718	-0.193	-0.879	0.385	-2.084	0.821	0.368	2.718
2	(Constant)	6.385	4.048		1.577	0.123	-1.797	14.567		
	FOGQ	-0.322	0.307	-0.150	-1.050	0.300	-0.942	0.298	0.862	1.160
	stridlengthOFF-ON	0.325	0.223	0.223	1.452	0.154	-0.127	0.776	0.743	1.346
	LevodopaDuration	-1.045	0.519	-0.319	-2.014	0.051	-2.093	0.003	0.700	1.429
3	(Constant)	4.225	3.491		1.210	0.233	-2.825	11.275		
	stridlengthOFF-ON	0.351	0.222	0.242	1.581	0.122	-0.097	0.800	0.753	1.328
	LevodopaDuration	-1.189	0.501	-0.363	-2.375	0.022	-2.201	-0.178	0.753	1.328
4	(Constant)	5.830	3.399		1.715	0.094	-1.029	12.689		
	LevodopaDuration	-1.583	0.442	-0.484	-3.580	0.001	-2.475	-0.691	1.000	1.000

a. Dependent Variable: mean turn-length OFF-ON

Collinearity Diagnostics^a

		Eigenvalue	Condition Index	Variance Proportions				
Model				(Constant)	FOGQ	stride length OFF-ON	Disease Duration	Levodopa Duration
1	1	3.788	1.000	0.01	0.01	0.01	0.01	0.01
	2	0.809	2.164	0.02	0.01	0.74	0.00	0.00
	3	0.227	4.087	0.00	0.71	0.03	0.09	0.06
	4	0.120	5.619	0.82	0.20	0.22	0.01	0.20
	5	0.057	8.151	0.15	0.07	0.00	0.90	0.73
2	1	2.900	1.000	0.02	0.03	0.03		0.02
	2	0.802	1.902	0.03	0.01	0.72		0.00
	3	0.180	4.016	0.06	0.85	0.02		0.37
	4	0.118	4.948	0.89	0.12	0.23		0.61
3	1	2.115	1.000	0.05		0.06		0.04
	2	0.762	1.666	0.07		0.69		0.01
	3	0.124	4.137	0.88		0.24		0.95
4	1	1.844	1.000	0.08				0.08
	2	0.156	3.444	0.92				0.92

a. Dependent Variable: mean turn-length OFF-ON

Excluded Variables^a

						Collinearity Statistics		
Model		Beta In	t	Sig.	Partial Correlati on	Toleranc e	VIF	Minimum Toleranc e
2	DiseaseDuration	-.171 ^b	-0.836	0.408	-0.133	0.426	2.350	0.368
3	DiseaseDuration	-.158 ^c	-0.776	0.442	-0.122	0.427	2.343	0.388
	FOGQ	-.150 ^c	-1.050	0.300	-0.164	0.862	1.160	0.700
4	DiseaseDuration	-.180 ^d	-0.871	0.389	-0.135	0.429	2.331	0.429
	FOGQ	-.174 ^d	-1.208	0.234	-0.185	0.873	1.145	0.873
	stridelen ^g thOFF-ON	.242 ^d	1.581	0.122	0.240	0.753	1.328	0.753

a. Dependent Variable: mean turn-length OFF-ON

b. Predictors in the Model: (Constant), LevodopaDuration, FOGQ, stridelen
gthOFF-ON

c. Predictors in the Model: (Constant), LevodopaDuration, stridelen
gthOFF-ON

d. Predictors in the Model: (Constant), LevodopaDuration

Part 5: CV stance-time OFF-ON

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	FOGQ, UPDRSIIIOFF ^b		Enter
2		UPDRSIIIOFF	Backward (criterion: Probability of F-to-remove >= .100).

a. Dependent Variable: CV stance-time OFF-ON

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.410 ^a	0.168	0.127	16.291598
2	.409 ^b	0.168	0.148	16.098360

a. Predictors: (Constant), FOGQ, UPDRSIIIOFF

b. Predictors: (Constant), FOGQ

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2195.051	2	1097.525	4.135	.023 ^b
	Residual	10882.062	41	265.416		
	Total	13077.113	43			
2	Regression	2192.510	1	2192.510	8.460	.006 ^c
	Residual	10884.603	42	259.157		
	Total	13077.113	43			

a. Dependent Variable: CV stance-time OFF-ON

b. Predictors: (Constant), FOGQ, UPDRSIIIOFF

c. Predictors: (Constant), FOGQ

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	-6.115	6.889		-0.888	0.380	-20.028	7.798		
	UPDRSIIIOFF	0.029	0.298	0.019	0.098	0.923	-0.573	0.631	0.512	1.953
	FOGQ	1.088	0.547	0.396	1.988	0.054	-0.017	2.194	0.512	1.953
2	(Constant)	-5.611	4.516		-1.242	0.221	-14.726	3.503		
	FOGQ	1.126	0.387	0.409	2.909	0.006	0.345	1.907	1.000	1.000

a. Dependent Variable: CV stance-time OFF-ON

Collinearity Diagnostics^a

Model		Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	UPDRSII IOFF	FOGQ
1	1	2.800	1.000	0.01	0.01	0.02
	2	0.157	4.223	0.38	0.00	0.50
	3	0.043	8.032	0.61	0.99	0.48
2	1	1.843	1.000	0.08		0.08
	2	0.157	3.430	0.92		0.92

a. Dependent Variable: CV stance-time OFF-ON

Excluded Variables^a

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
2	UPDRSIIIOFF	.019 ^b	0.098	0.923	0.015	0.512	1.953	0.512

a. Dependent Variable: CV stance-time OFF-ON

b. Predictors in the Model: (Constant), FOGQ

Supplementary Table 4 – FOG subgroup analysis of levodopa responsive turn measures

		<u>Results</u>			<u>Mann-Whitney U-test</u>	
	No-FOG (n=12)	OFF-FOG (n=10)	ONOFF-FOG (n=22)	no-FOG vs OFF-FOG	no-FOG vs ONOFF-FOG	OFF-FOG vs ONOFF-FOG
FOG-Q	1.0 (0.3-1.7)	8.9 (6.8-11.0)	15.1 (14.2-16.0)	-3.96, <0.001	-4.79, <0.001	-4.20, <0.001
Turn-Step-Count						
OFF-state	6.4 (5.8-7.0)	7.2 (6.4-8.0)	17.8 (13.5-22.1)	-1.55, 0.361	-3.89, <0.001	-3.54, 0.001
ON-state	6.2 (5.8-6.6)	6.1 (5.5-6.7)	14.1 (10.8-17.4)	-0.46, 1.000	-3.82, <0.001	-3.70, <0.001
OFF-ON	0.2 (-0.5-0.9)	1.0 (0.3-1.8)	3.7 (1.6-5.8)	-1.95, 0.153	-2.34, 0.057	-1.63, 0.311
CV Stance-Time						
OFF-state	31.9 (25.1-38.7)	33.3 (21.2-45.5)	67.6 (53.1-82.1)	-0.40, 1.000	-3.42, 0.002	-2.93, 0.010
ON-state	33.7 (29.0-38.3)	30.9 (22.3-39.5)	56.8 (46.8-66.8)	-0.46, 1.000	-3.75, <0.001	-3.37, 0.002
OFF-ON	-1.8 (-7.8-4.3)	2.5 (-5.7-10.7)	10.8 (1.3-20.2)	-1.25, 0.631	-1.98, 0.142	-0.89, 1.000
Stride-Velocity						
OFF-state	47.6 (41.7-53.4)	41.6 (34.9-48.3)	21.9 (17.2-26.5)	-1.19, 0.706	-4.29, <0.001	-3.74, <0.001
ON-state	50.8 (45.9-55.7)	45.3 (39.8-50.8)	26.7 (21.8-31.7)	-1.58, 0.341	-4.22, <0.001	-3.50, 0.001
OFF-ON	-3.2 (-7.7-1.2)	-3.7 (-9.3-1.9)	-4.9 (-7.9-(-1.8))	-0.07, 1.000	-0.58, 1.000	-0.73, 1.000
Stance-COP-Distance						
OFF-state	19.4 (17.5-21.3)	16.8 (14.6-19.1)	10.4 (8.1-12.7)	-1.98, 0.144	-3.82, <0.001	-3.17, 0.005
ON-state	19.4 (17.6-21.3)	17.5 (15.9-19.1)	11.8 (9.9-13.7)	-1.65, 0.298	-3.96, <0.001	-3.33, 0.003
OFF-ON	0.0 (-1.2-1.2)	-0.7 (-1.7-0.4)	-1.4 (-2.6-(-0.2))	-1.38, 0.498	-2.16, 0.092	-1.02, 0.928
Turn-Length						
OFF-state	109.2 (101.1-117.3)	88.9 (82.6-95.2)	77.5 (68.2-86.7)	-3.36, 0.002	-3.96, <0.001	-1.79, 0.221
ON-state	105.7 (95.1-116.3)	93.5 (86.9-100.2)	86.2 (77.8-94.5)	-1.98, 0.144	-2.77, 0.017	-1.38, 0.501
OFF-ON	3.5 (-5.7-12.7)	-4.6 (-15.1-5.9)	-8.7 (-13.6-(-3.8))	-1.25, 0.631	-2.38, 0.052	-0.98, 0.988

Results reported as mean (95% CI)

Mann-Whitney U-test results are Bonferroni adjusted for 3 groups and reported as Z, *p*-value