Table e-1: *Injurious falls - resulting in visit to medical practitioner, emergency department visit or hospital admission*

	Injuries	
	Exercise group	**Control group**
Visit to medical practitioner following a fall	N = 11: 4 x bruises[#] 4 x lacerations[##] 2 x sprains 1 x rib fracture	N=10: 5 x sprains 2 x lacerations 1 x dislocated thumb 1 x fracture foot (hairline) 1 x not specified
Emergency department visit following a fall	N= 4: 2 x sutures to head[#] 1 x bruised hip 1 x unknown	N= 5: 3 x sutures to head 1 x wrist fracture* 1 x ankle sprain
Hospital admission	N= 6: 1 x lost eye[##] 1 x fracture femur, L3 and L4 1 x sutures to head 1 x wrist fracture 1 x intercostal bruising 1 x unknown (pneumonia)	N= 4: 1 x fracture neck of femur 1 x dislocated shoulder + sutures to head 1 x wrist fracture 1 x sutures to head*

*One control group participant attended the emergency department following one fall, and was admitted to hospital following another fall. [#]One exercise group participant visited a medical practitioner following one fall, and attended the emergency department following another fall. [##]One exercise group participant visited a medical practitioner following one fall, and was admitted to hospital following another fall.

Table e-2: *Subgroup analyses (based on fall history, physical function, disease severity and cognition) of primary outcomes.*

	P-value for interaction term	
Subgroup	**Number of falls**	**Proportion of fallers**
Fall history		
Dichotomous ($\leq$ 9 falls in past year)	0.62	0.99
Physical function		
4m comfortable walk speed (continuous)	0.28	0.50
4m comfortable walk speed (dichotomous $\leq$ 0.97 ms^{-1})	0.96	0.57
Disease severity		
UPDRS motor score (continuous)	0.02*	0.03*
UPDRS motor score (dichotomous $\leq$ 26)	<0.001***	0.001**
Cognition		
Frontal Assessment Battery score (continuous)	0.048*	0.16
Frontal Assessment Battery score (dichotomous $\leq$ 13)	0.45	0.39

P-values for interaction between intervention and the subgroup variable are shown.
UPDRS: Unified Parkinson's Disease Rating Scale
*p < 0.05, **p < 0.01, ***p < 0.001

Table e-3. *Mean (SD) score, mean (SD) difference within groups, and mean (95%CI) difference between groups for secondary outcomes for the experimental group and the control group.*

Outcome	Score				Difference within groups		Difference between groups
	Week 0		**Week 26**		**Week 26 minus Week 0**		**Week 26 adjusted for Week 0†**
	Exp	**Con**	**Exp**	**Con**	**Exp**	**Con**	**Exp minus Con**
	N=115	**N=116**	**N=104**	**N=115**			*p-value*
PD Fall Risk score[a,b] (0-1)	0.40	0.40	0.38	0.42	0.00	0.03	-0.03 (-0.08 to 0.02)
	(0.28)	(0.30)	(0.28)	(0.30)	(0.19)	(0.20)	*0.26*
Mean knee extensor	28.9	30.0	30.1	29.9	1.1	-0.2	1.0 (-0.5 to 2.5)
strength of both legs	(9.7)	(10.7)	(9.4)	(10.2)	(6.4)	(5.7)	*0.20*
(kg)[c]							
Coordinated stability test	16.6	17.3	17.9	18.7	1.7	1.8	-0.3 (-3.2 to 2.7)
(error score)[a,b]	(13.0)	(14.8)	(15.8)	(14.6)	(11.3)	(11.3)	*0.85*
SPPB continuous	2.35	2.44	2.39	2.34	0.04	-0.10	0.10 (0.01 to 0.19)
measure (0-3)[c]	(0.41)	(0.30)	(0.35)	(0.42)	(0.36)	(0.34)	*0.03**

Outcome	Score				Difference within groups		Difference between groups
	Week 0		Week 26		Week 26 minus Week 0		Week 26 adjusted for Week 0†
	Exp	Con	Exp	Con	Exp	Con	Exp minus Con
	N=115	N=116	N=104	N=115			p-value
4 m fast walk speed	1.35	1.36	1.36	1.30	-0.02	-0.05	0.04 (-0.03 to 0.10)
(m.s^{-1})[b]	(0.38)	(0.37)	(0.43)	(0.44)	(0.23)	(0.24)[b]	0.24
5 repetition sit-to-stand	0.35	0.37	0.38	0.37	0.03	-0.01	0.03 (0.002 to 0.07)
(stand/s)[c]	(0.15)	(0.17)	(0.16)	(0.18)	(0.13)	(0.12)	0.04*
FOG questionnaire	7.4	8.1	7.7	9.1	0.5	1.1	-0.6 (-1.6 to 0.3)
(0-24)[a]	(5.1)	(5.4)	(5.3)	(6.1)	(3.6)	(3.3)	0.17
FES-I (16-64) [a]	31.8	32.2	31.6	34.9	-0.3	2.9	-3.2 (-5.1 to -1.4)
	(9.2)	(10.4)	(9.1)	(11.1)	(7.1)	(7.6)	0.001**
SF-12 physical (0-100)	42.3	42.9	41.3	40.2	-0.9	-2.7	1.6 (-0.2 to 3.4)
	(7.6)	(7.9)	(8.8)	(7.8)	(8.4)	(6.5)	0.09
SF-12 mental (0-100)	51.6	50.5	51.2	50.3	-0.6	-0.3	0.2 (-1.2 to 1.6)
	(6.5)	(6.8)	(6.4)	(6.7)	(6.0)	(5.7)	0.78

Outcome	Score				Difference within groups		Difference between groups
	Week 0		Week 26		Week 26 minus Week 0		Week 26 adjusted for Week 0†
	Exp	Con	Exp	Con	Exp	Con	Exp minus Con
	N=115	N=116	N=104	N=115			*p-value*
SF-6D utility score (0-1)	0.64	0.65	0.63	0.61	-0.01	-0.04	0.03 (0.01 to 0.05)
	(0.09)	(0.10)	(0.10)	(0.10)	(0.08)	(0.08)	*0.006**
Exercise (hr/wk)	3.6	4.0	3.6	3.2	0.0	-0.9	0.7 (-0.2 to 1.6)
	(3.5)	(4.1)	(4.8)	(3.0)	(4.4)	(3.1)	*0.15*
ADL (hr/day)	2.4	2.4	2.4	2.4	0.0	0.0	0.0 (-0.3 to 0.3)
	(1.3)	(1.3)	(1.3)	(1.3)	(1.2)	(1.1)	*1.00*
PDQ-39 (0-100)[a]	28.0	30.7	29.7	32.5	1.9	2.1	-0.6 (-3.2 to 1.9)
	(13.9)	(15.4)	(14.8)	(15.9)	(9.4)	(10.2)	*0.63*
Positive affect scale	31.7	32.2	32.6	31.1	1.0	-1.0	1.8 (0.4 to 3.2)
(0-50)	(6.7)	(7.6)	(6.6)	(7.5)	(6.3)	(5.2)	*0.01**

†Values adjusted for baseline (Week 0) score based on ANCOVA; *p < 0.05, ** p < 0.01, *** p < 0.001; Exp = experimental; Con = control; SPPB = Short Physical Performance Battery; FOG = freezing of gait; FES-I = Falls Efficacy Scale – International; PDQ-39 = Parkinson's Disease Questionnaire – 39; [a]lower score reflects better performance; [b]Week 26 Exp N=101, Con N=112; [c]Exp N=100, Con N=112;

Table e-4: *Post hoc disease severity subgroup analysis of secondary outcomes. P-values for the interaction between intervention and disease severity are reported.*

Secondary Outcomes	P value
PD Fall Risk score	0.39
Mean knee extensor strength of both legs (kg)	0.27
Coordinated stability test (error score)	0.13
SPPB continuous measure (0-3)	0.88
4 m fast walk velocity (m.sec^{-1})	0.11
Stand up and sit down 5 times (stand/s)[c]	0.20
FOG questionnaire (0-24)	0.86
FES-I (16-64)	0.98
SF-12 physical (0-100)	0.91
SF-12 mental (0-100)	0.70
SF-6D utility score (0-1)	0.33
Exercise (hr/wk)	0.04*
ADL (hr/day)	0.92
PDQ-39 (0-100)	0.26
Positive affect scale (0-50)	0.95

*$p < 0.05$

Table e-5. *Characteristics of participants according to disease severity at baseline.*

Characteristic	Low (n=122)	High (n=109)
Gender, % males***	58 (48%)	77 (71%)
Age, years	69.8 (9.4)	71.6 (7.9)
Falls in past 12 months, median number (IQR)†*	2 (2)	3 (3)
People who fell in the past year, number (%)	91 (75%)	89 (82%)
People who fell 2+ times in past year, number (%)	70 (57%)	76 (70%)
People who fell 10+ times in past year, number (%)**	7 (6%)	21 (19%)
Time since PD diagnosis, years	7.4 (5.2)	8.5 (6.5)
Hoehn and Yahr stage, 0-5***	2.6 (0.5)	2.9 (0.5)
Stage 2, number %**	53 (43)	23 (21)
Stage 3, number %*	69 (57)	77 (71)
Stage 4, number %**	0 (0)	9 (8)
Daily levodopa equivalent dose (mg)	741 (435)	860 (565)
Deep Brain Stimulation received, number %	16 (13%)	10 (9%)
UPDRS motor examination, 0-108***	18.9 (4.7)	34.5 (6.0)
Freezing of gait in the past month, number (%)**	49 (40%)	65 (60%)
Mini-Mental State Examination, 0-30***	29.0 (1.2)	28.3 (1.6)
Frontal Assessment Battery, 0-18***	14.7 (2.2)	13.5 (2.6)
Daily levodopa equivalent dose (mg)	741 (435)	860 (565)
≥ 2 co-existing conditions, number of people (%)‡	58 (47%)	58 (53%)
Prior knee replacement surgery, number of people (%)	15 (12%)	17 (16%)
Prior hip replacement surgery, number of people (%)	9 (7%)	13 (12%)
Prior spinal surgery, number of people (%)	10 (8%)	9 (8%)

Characteristic	Low (n=122)	High (n=109)
Secondary outcome measures at baseline		
PD Fall Risk score, 0-1**	0.34 (0.28)	0.47 (0.29)
Mean knee extensor strength of both legs (kg)	30.2 (11.0)	28.6 (9.3)
Coordinated stability test (error score)**	14.3 (12.8)	19.8 (14.6)
SPPB continuous measure, 0-3**	2.46 (0.29)	2.30 (0.40)
4 m fast walk speed (m.s^{-1})**	1.42 (0.37)	1.28 (0.36)
Stand up and sit down 5 times (stand/s)***	0.41 (0.13)	0.30 (0.16)
FOG questionnaire, 0-24**	6.6. (4.9)	9.0 (5.5)
FES-I, 16-64**	30.0 (9.1)	34.3 (10.1)
SF-12 physical, 0-100**	44.2 (7.6)	40.7 (7.5)
SF-12 mental, 0-100	50.9 (6.4)	51.2 (7.0)
SF-6D utility score (0-1)*	0.66 (0.10)	0.63 (0.08)
Exercise, hr/week*	4.4 (4.3)	3.2 (3.0)
ADL, hr/day**	2.6 (1.2)	2.1 (1.4)
PDQ-39, 0-100**	26.3 (14.3)	32.8 (14.4)
Positive affect scale, 0-50	32.5 (5.8)	31.3 (6.5)
At risk of falls screening measures at baseline		
Functional reach***	30.3 (6.8)	24 (7.0)
Near tandem stand (eyes closed), s**	7.7 (3.3)	6.3 (3.7)
Alternate step test (steps/s)**	0.97 (0.30)	0.82 (0.35)
Stand up and sit down 5 times (stand/s)***	0.41 (0.13)	0.30 (0.16)

Data are mean (SD) unless stated otherwise.
UPDRS: Unified Parkinson's Disease Rating Scale
†Median (IQR) scores are presented, as scores ranged from 0 to 104 in the low disease severity sub-

group and 0 to 1825 in the high disease severity sub-group.

‡Conditions included arthritis, heart disease, high blood pressure, lung disease, diabetes, osteoporosis, depression, chronic back pain and cancer; the number of coexisting conditions ranged from 0 to 9.

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$ (two-tailed t-test for interval data, Chi-square test for categorical data, †Mann Whitney U test)