Conclusion: Long turning time may be correlated with increased fall risk, but turning time is only weakly correlated with indices of gait and balance. Further research is needed in order to clarify whether turning has an independent contribution to fall risk.

15.15 Six weeks intensive treadmill training improves gait and quality of life in patients with Parkinson’s disease

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Introduction: Gait disturbances are common among patients with Parkinson’s disease (PD), leading to falls and functional dependence and impinging on quality of life (QOL). Treadmill walking may act as an external cue to improve gait pacing, thereby producing a more rhythmic and less variable gait and enhanced mobility and QOL.

Methods: 9 patients with PD (mean age: 70 yrs) were studied before and 1–3 days after they participated in a treadmill training program. Patients walked on the treadmill for 30 minutes each session, 4 sessions per week, for 6 weeks. QOL was assessed using the PDQ-39 (Parkinson’s Disease Questionnaire). Motor performance and mobility were evaluated by measuring gait speed, stride time variability, swing time variability, the motor part of the UPDRS and the Short Physical Performance Battery (SPPB). These measures have been associated with fall risk and QOL.

Results: We found general improvement after the treadmill intervention. Motor UPDRS scores decreased (improved) from 29 to 22 (p < 0.043). Gait speed increased from 1.11 to 1.26 m/s (p < 0.014). Swing time variability was lower (better) in all but one patient, changing from 3.0% to 2.3% (p < 0.06). Scores on the SPPB improved from 9.9 to 11.1 (p < 0.008). Total PDQ-39 scores were reduced (improved) from 32 to 22 (p < 0.014).

Discussion and Conclusions: These results suggest that a treadmill can be used as a powerful tool to improve gait, reduce fall risk, and increase QOL in patients with PD. Treadmill training has the added advantage of specifically reinforcing walking rhythmicity and the stride-to-stride consistency of gait.

15.16 Compensatory step deficits in Parkinson’s disease: an inability to select motor programs

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Introduction: As Parkinson’s disease (PD) progresses, subjects with PD often fail to step in response to a perturbation or their steps are undersized. We sought to understand the mechanisms underlying abnormal compensatory stepping responses in PD subjects.

Methods: We analyzed the anticipatory postural adjustments (APAs) and compensatory step characteristics of 10 PD subjects and 5 young, healthy subjects in response to backward platform translations. Healthy subjects responded to translations in 3 conditions;