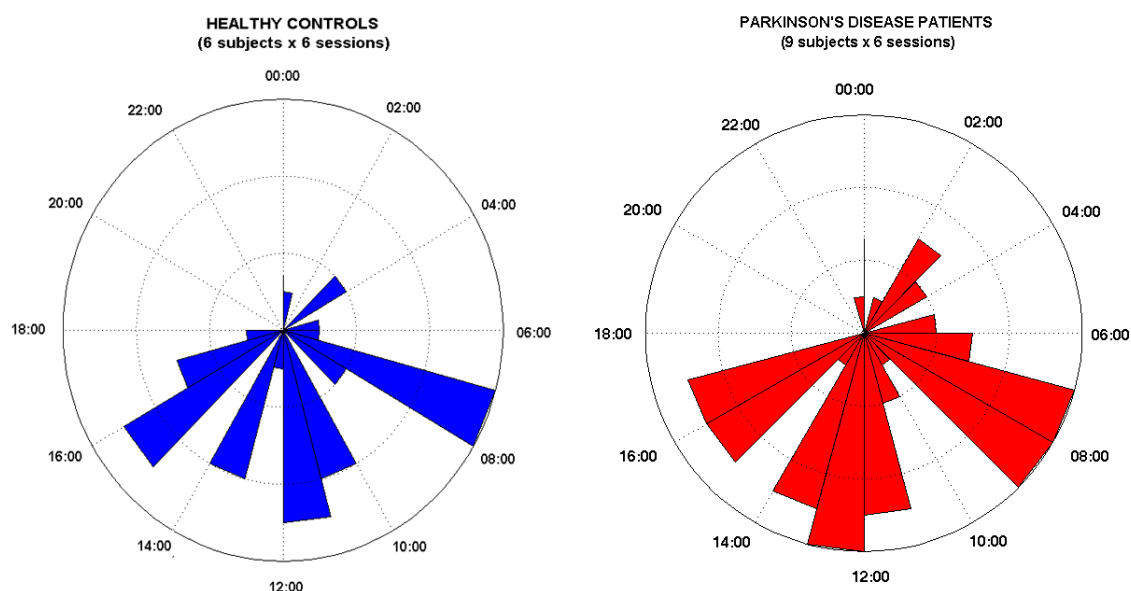
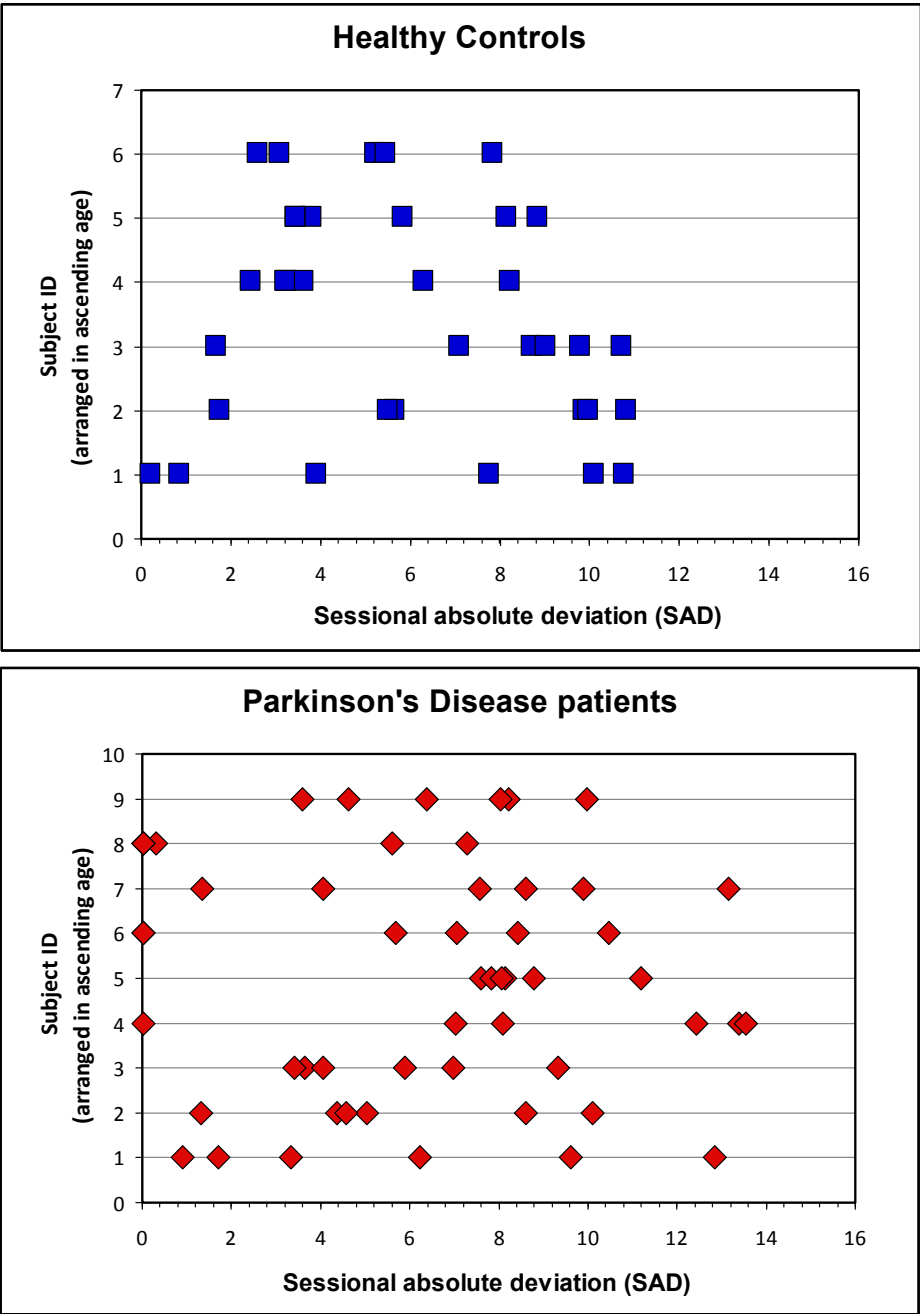


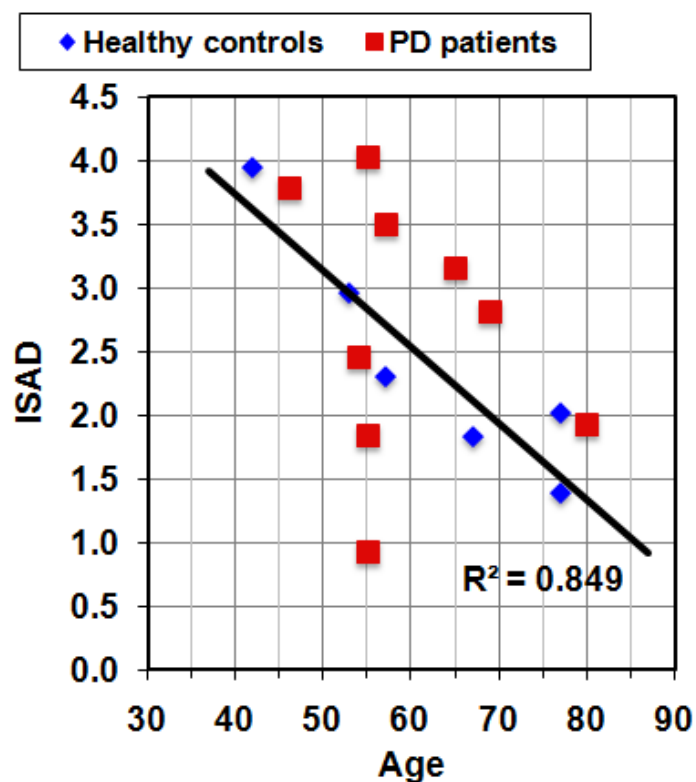
APPENDIX I: Supplementary Figures and Tables



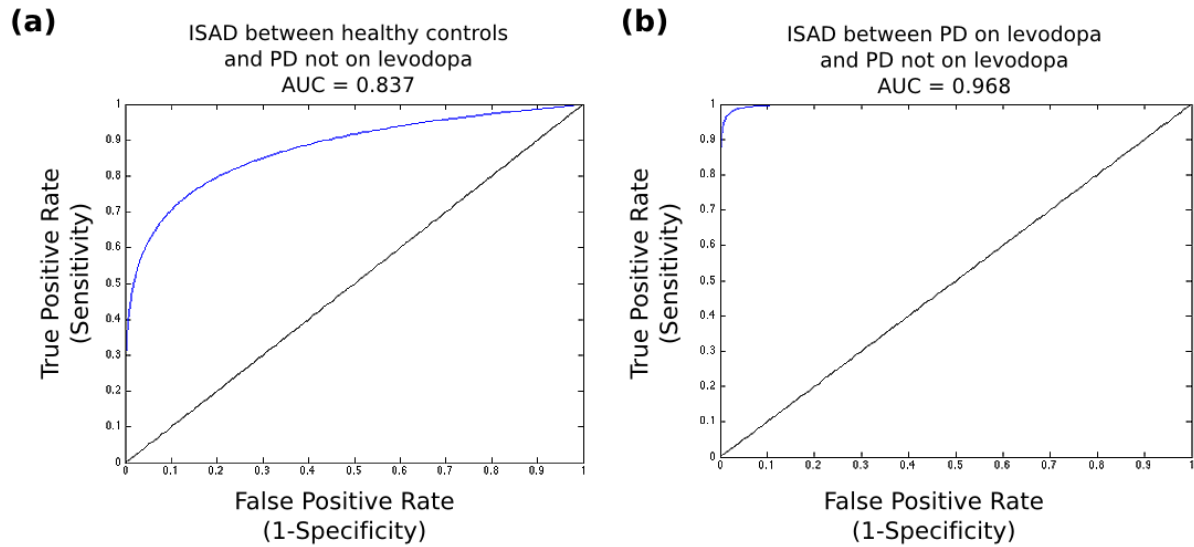
Appendix Figure 1: Rose plot of the daytime spread of recording sessions analysed with 6 recording sessions per subject in randomly selected non-consecutive sessions. Each radial axis unit represents 2 sessions



Appendix Figure 2: Sessional absolute deviation (SAD) at each timepoint in randomly selected non-consecutive sessions for each subject with (a) patients and (b) healthy controls arranged in ascending age.



Appendix Figure 3 Scatterplot of ISAD with age in discovery analysis showing a strong negative linear correlation for healthy controls ($r=-0.921$, $p<0.01$), but not for Parkinson's Disease patients ($r=-0.262$, $p=0.497$). Partial correlation of ISAD with age controlling for UPDRS in Parkinson's Disease patients was also not significant ($r=-0.557$, $p=0.15$, Appendix Table 1). This was not replicated in the validation analysis (Pearson's $r=-0.235$, $p=0.654$).



Appendix Figure 4: Receiver operating characteristic (ROC) curves for discriminating **(a)** healthy controls from undiagnosed PD patients (i.e. not on levodopa); **(b)** PD patients not on levodopa with PD patients on levodopa. These ROC curves (blue curves) were generated assuming a normal probability density function and using means and standard deviations from the pilot dataset (Patients not on levodopa (mean $1.004 \pm 0.541SD$), healthy controls (mean $3.341 \pm 0.499SD$) and PD patients on levodopa (mean $2.049 \pm 0.761SD$)). AUC indicates Area Under Curve.

Discovery data analysis					
Controlled variable	Variables		Levodopa	UPDRS-ADL	ISAD
None	Levodopa	Spearman rho p-value	N/A	0.642 0.095	0.822 0.024
	UPDRS-ADL	Spearman rho p-value	0.642 0.095	N/A	0.736 0.028
	ISAD	Spearman rho p-value	0.822 0.024	0.736 0.028	N/A
Controlling for Levodopa use	ISAD	Spearman rho p-value	N/A	0.555 0.153	N/A
	UPDRS-ADL	Spearman rho p-value	N/A	N/A	0.555 0.153
Controlling for UPDRS-ADL	ISAD	Spearman rho p-value	0.669 0.070	N/A	N/A
	Levodopa	Spearman rho p-value	N/A	N/A	0.669 0.070

Appendix Table 1: Partial correlations of UPDRS-ADL, Levodopa and ISAD using data from discovery analysis