While Parkinson’s disease (PD) has traditionally been described as a movement disorder, there is evidence of social cognitive dysfunction in PD. We studied facial and prosodic emotion recognition in PD.

We administered the Comprehensive Affect Testing System (CATS) to 15 medicated PD subjects (8M, 7F; mean age 68.2) and 15 age-matched controls (7M, 8F; mean age 66). CATS is a computer based button press task with eight subtests:

1) Non-emotional Prosody;
2) Emotional Prosody;
3) Name Emotional Prosody;
4) Identity Discrimination;
5) Affect Discrimination;
6) Name Affect;
7) Match Emotional Prosody and Face;
8) Conflicting Prosody and Meaning.

In a separate magnetoencephalography (MEG) session, resting state data was collected. Functional connectivity analysis was conducted to assess alpha band (8-12Hz) coherence in regions of interest.

There were no significant differences between PD subjects and controls in facial or prosodic emotion recognition subtests. However, PD subjects showed specific impairment in prosodic emotion recognition. When divided into left-side (of body) (N=7) vs. right-side (N=8) disease severity dominant, subjects with left-side dominant PD showed deficits in the Name Emotional Prosody (p=.01) and the Conflicting Prosody and Meaning (p=.05) subtests. Furthermore, subjects with left-side dominant PD showed significantly decreased functional connectivity in superior temporal gyrus (p=.04), anterior insula (p=.02), and anterior cingulate gyrus (p=.03).

Our findings are consistent with previous studies of basal ganglia function and suggest that changes in perception of emotional prosody might be explained by disrupting BG thalamocortical loops that incorporate cortical areas associated with prosodic emotion processing and language comprehension.