

Is spontaneous swallowing reduced in Parkinson's compared to healthy controls?

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Background

Parkinson's Disease (PD) is a progressive disease that affects at least 1% of people over 65 years old. The Cabrini catchment area has a high prevalence of PD due to an aged population (60,000 people aged over 65 in the Inner South) and a large Ashkenazi Jewish population, which can have genetic predispositions to PD. **Up to 74% of people with PD experience drooling¹**, ranked as the third most troubling problem² because it has debilitating effects on self-confidence, speech, eating and social interactions. **Despite the prevalence of drooling in PD, treatment options are limited because the underlying mechanisms remain unclear.** One unproven hypothesis is that people with Parkinson's swallow saliva less often, resulting in a buildup of saliva.

Aim

We tested whether people with Parkinson's who experience drooling swallow saliva less often than healthy adults during a distracting task.

Method

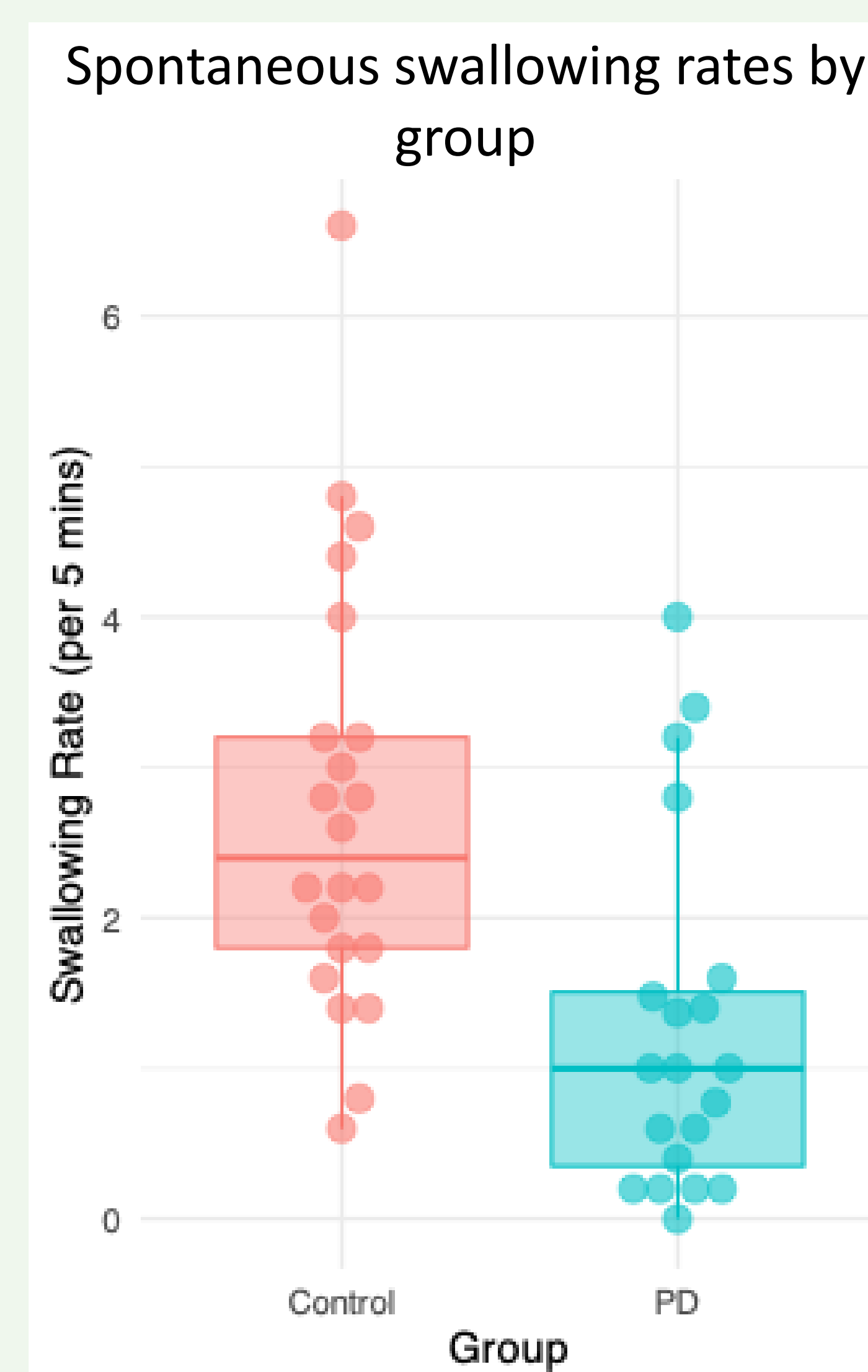
Design: Case-control comparison of spontaneous swallowing rates during a distraction task

Participants: 22 people with Parkinson's disease and 22 age- and sex-matched controls (Cabrini Health, Monash Health).

Procedure: Video recording for 30 min in a quiet, temperature-controlled room. Participants completed a distraction task while alone.

Analysis: A blinded assessor counted swallows. 10% of samples were re-rated for reliability. The primary analysis used an unpaired t-test.

Results



Median swallowing rate was **2.4 per five minutes in controls** and **1.0 per five minutes in people with Parkinson's**.

This difference was statistically significant:

$t(40) = 3.55$, $p = .001$, 95% CI [0.63, 2.28].

Inter- and intra-rater reliability of analyses were high (83.9% and 83.1%)

Conclusion

This is the first study to show that spontaneous swallowing is lower in people with Parkinson's who experience drooling, suggesting it is a key contributing mechanism.

Future research should now focus on identifying effective interventions to address this distressing symptom.

References

1. J. G. Kalf, B. J. de Swart, G. F. Borm, B. R. Bloem, M. Munneke, *Journal of neurology*. **256**, 1391–1396 (2009).
2. M. Politis *et al.*, *Movement disorders : official journal of the Movement Disorder Society*. **25**, 1646–51 (2010).