

# Effects of Group Singing on Vocal Production in Individuals with Parkinson's Disease

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## Introduction

Parkinson's Disease (PD) is a progressive neurodegenerative disorder that affects the muscles of the body (i.e., the motor system).

Approximately 90% of individuals with PD experience voice and speech problems associated with PD motor symptom disturbances.

Research supports vocal training as a method for strengthening vocal muscles that may result in improved voice quality.

Based on these observations, the present study investigated the impact of a community choir intervention on specific aspects of vocal production in older adults with PD.

**Hypothesis:** We predicted that group singing would lead to improvements in acoustic measures of voice quality.

## Methods & Results

<b>Participants:</b> Older Adults 50-75 y/o Mild-moderate PD	<b>Choir 1:</b> Singing with Parkinson's Toronto, ON N = 12	<b>Choir 2:</b> UTunes Winnipeg, MB N = 11
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### Measures & Results:

Vocal Tasks	Acoustic Measures
<b>Pitch Range Task</b> "Ah" lowest to highest note possible	✓ <b>Lowest Achievable Pitch*</b>
<b>Loudness Task</b> "Ah" as loud as possible	✗ Highest Achievable Pitch
<b>Phonation Duration Task</b> "Ah" as long as possible	✗ Sound Intensity
<b>Baseline Reading Sample</b> Severity grade of voice quality	✓ <b>Phonation Duration*</b>
	✓ <b>Jitter*</b> ("pitch wobble")
	✓ <b>Shimmer*</b> ("amplitude wobble")

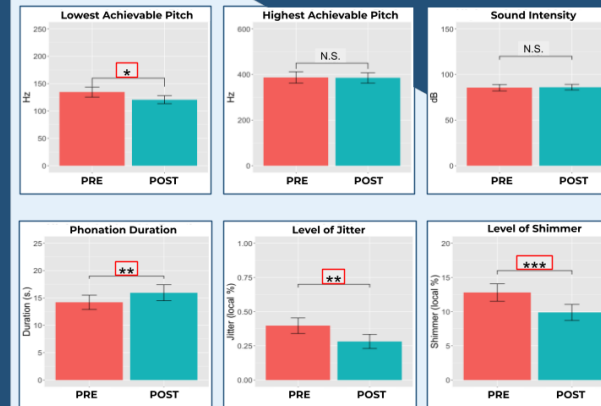
**Analysis:** PRE—POST-intervention vocal acoustic measures were analyzed using Praat acoustic analysis software.

## Study Aims

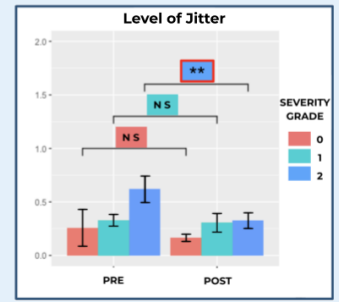
How does a **13-week** naturalistic community **choir program** impact aspects of **vocal production** in **older adults** living with **Parkinson's Disease?**



**Group singing improves some, though not all, measures of vocal quality in older adults with Parkinson's disease.**



**Who benefits the most?**



## Discussion

These findings support group singing as a potential viable intervention for vocal production deficits associated with PD.

While these communication outcomes are possible with conventional speech and language therapies, singing is a fun and engaging way to improve vocal production impairments that creates a supportive strength-focused community.