

Singing As a Complement to Traditional Parkinsonian Therapies

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Parkinson's disease is the second most common neurodegenerative disorder in the world affecting 1% of the population above 60 years old, with cases expected to rise due to the aging population.¹⁻² As such, it is imperative to develop effective treatments and therapy strategies to address the various symptoms that fall under this syndrome. Parkinson's disease features prominent motor and nonmotor symptoms such as bradykinesia, rigidity, postural instability, tremor, depression, psychosis, apathy, speech problems, cognitive impairment, and sleep disorders.¹⁻³ Through careful research, some treatment options have been developed through medications, such as oral administration of dopamine agonists and levodopa-based medication.¹⁻³ These operate by addressing the loss of function of dopaminergic neurons in the substantia nigra region of the brain, which is believed to be a cause behind some of the disease's symptoms.¹⁻³

These treatments primarily address the main motor symptoms behind Parkinson's disease since they target the causes behind those symptoms, however they do not address the nonmotor symptoms that also significantly affect quality of life such as depression, anxiety, and other issues.^{1,3} Furthermore, there are some drawbacks to using levodopa-based medications, as a detrimental side effect includes dyskinesia.^{1,3} Additionally, the medication experiences "on-off" episodes, where the medication will effectively address symptoms only during certain periods of time, while functioning at a suboptimal level or not functioning at all during other periods.³ Therefore, it is important to develop complementary treatments and therapies to work with traditional levodopa medications to address all symptoms.² Such therapies include exercise,

yoga, Tai Chi, massage, dance, and singing.^{2,6} These could help lessen the symptom burden that medications may not, including difficulties related to voice, speech, and breathing.²

Vocal and speech problems are common symptoms exhibited by patients with PD, with about 80% of patients developing speech-related issues during disease progression.³ Singing in particular is a versatile complementary therapy since it directly addresses vocal and speech problems using nontraditional technique.^{1,4-5,7} Prior literature has suggested that singing can increase respiratory strength for breathing, improve memory, language, phonation, swallowing, and volume, reduce stress levels, and even alleviate depression and gait symptoms.^{1,4-7} Additionally, singing in a group setting rather than individually will also improve social skills among patients and better combat depression and stress in addition to the various benefits from individual singing.⁶ Furthermore, because singing is a non-medication therapy, there are no direct side effects and has shown to complement a patient's antidepressant treatment.⁵⁻⁶ Based on these findings, singing should be viewed as a viable complementary therapy and integrated into treatment plans for patients with PD due to the various benefits that it may offer.

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