REVIEW ARTICLE

Community Exercise Programs Promote Psychosocial and Physical Well-Being in Patients With Parkinson's Disease: A Guide for Osteopathic Clinicians

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KEYWORDS

Aquatics

Boxing

Community exercise

Dance

Parkinson's disease

Tai Chi

Yoga

ABSTRACT

Exercise in patients with Parkinson's disease (PD) helps improve motor symptoms, builds better habits such as healthier eating and medication compliance, helps alleviate comorbid conditions such as diabetes mellitus, hypertension, and heart disease, and delays disease progression. Total body exercise offered through community group exercise programs improves not only patients' physical function, but also their overall quality of life through interactions with others in social settings, which is often overlooked in traditional treatment models. Herein we describe several popular community-based programs that engage patients with PD both physically and socially and are available in many locations throughout the United States and internationally, and we provide information for connecting with them.

Modern dance, tango, ballet, boxing, tai chi, yoga, and aquatic therapy have been tailored for patients with PD at all levels of illness severity. They are diverse and appeal to patients with different exercise preferences. These programs not only provide total body exercise requiring focus on motor coordination, but they also address patients' cognitive, emotional, and social needs. PD patients who exercise in groups report greater symptomatic improvement, wider social networks, and a greater chance of continuing exercise compared to patients who exercise alone.

In addition to standard therapies, osteopathic clinicians can help educate patients about the benefits of holistic physical exercise and the importance of maintaining social contacts. A community-centered approach to PD treatment strongly supports patients' psychological, as well as their physical, well-being.

INTRODUCTION

Parkinson's disease (PD) is a progressive neurodegenerative disease in which motor symptoms are prominent, including tremors, rigidity, bradykinesia, stooped posture, shuffling gait, and restricted facial expression. Because of the panoply and progressive severity of symptoms, PD can profoundly affect patients' psychological and social well-being, as well as their physical function−people with PD are at risk of depression, disability, cognitive impairment, and social isolation.[1-3]

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 Print ISSN: 11877-573X doi: 10.33181/18301

The authors have no relevant financial relationships or conflicts of interest to disclose.

In addition to OMT,[4,5] maintenance of physical mobility and social well-being is increasingly being offered through holistic programs that reflect real-world activities. Some are international in scope. Herein we describe several of these programs and provide information on how to engage with them. Increased awareness of these programs by the osteopathic medical community should promote their use by patients with PD and their caregivers, helping to maintain patients' physical health and reducing their isolation and loneliness. Brief introductions to several of the programs are followed by a Table providing "How to Get Involved" internet URLs.

METHODS

We selected several different community-based exercise programs that are active both within and outside the United States that have been sufficiently well-established

to be represented in the medical literature. We did not perform a scoping review; rather, we selected programs that are available in many communities and will be useful to practitioners treating persons with PD.

RESULTS

General Exercise

Aerobic exercises (cardiovascular exercise–"cardio") can help delay the progression of both cognitive and motor symptoms in PD.[2,6-7] Routine exercise helps patients build better habits, such as healthier eating and medication compliance, and has benefits for comorbid conditions including diabetes mellitus, hypertension, and heart disease.[8] A significantly greater percentage of patients who exercised in groups rather than individually reported symptomatic improvement, a greater chance of continuing exercise, and widening social networks.[2]

Dance Programs

For several decades, dance has been used as therapy for PD.[9] Dance is simple and safe and can be used at all stages of rehabilitation to improve mobility, balance, and strength; to decrease isolation; and to improve overall quality of life.[10-13]

DANCE FOR PARKINSON'S DISEASE

Background

In 2001, the Mark Morris Dance Group of Brooklyn, NY, in partnership with the Brooklyn Parkinson Group, began a dance class for patients with PD.[14] Led by professional dancers, the classes offer an opportunity for individuals to build confidence, strength, and flexibility and to express their creativity. As in typical modern dance, the instructors use imaginative phrases, such as "move your arms like a swan," fostering interpretation and creative expression.[15] Accommodation is made for degree of physical disability; some classes are conducted with participants seated in chairs.

Dance for PD is international, with programs in more than 300 communities across 28 countries. David Leventhal, a professional dancer, has led Dance for PD since its inception. Both in-person and interactive online classes are offered, and training and certification programs are available for patients and their caregivers.

BENEFITS

Dance can be used as a therapy for varying presentations of PD. Music-based dance interventions have multimodal benefits in mood, alertness, and quality of life.[16] Psychological benefits include an improved sense of achievement, control, and self-efficacy, and social benefits include a sense of camaraderie and connection. Group classes benefit participants' social well-being and help them motivate each other to improve their dance techniques.[17]

TANGO FOR PARKINSON'S DISEASE

Background

Tango differs from Dance for PD in that it is stylized, rather than free-form, and requires physical closeness and embrace. Tango also improves activities of daily living, sleep, and confidence in patients with PD.[18] Tango can be practiced in groups and at home; group classes are offered in many countries.

Benefits

While tango requires precise steps, movements, and stance, it is considered safe because it can be performed at a pace comfortable for the individual.[19] Tango engages multiple muscle groups, comparable to running or squatting. Compared to waltz and foxtrot, Argentine tango was found to be most effective for patients with PD, with improvement possibly owing to learned techniques to combat freezing of gait, a common PD symptom.[20] Tango also improves nonmotor symptoms by reducing fatigue, enhancing quality of life, and encouraging participation.[21]

BALLET FOR PARKINSON'S DISEASE

Background

There are group classes internationally offering ballet for patients with PD. The early program, commissioned by the English National Ballet, focused on educating participants about ballet, teaching fundamental exercises, and encouraging participants to build social connections, share personal experiences, and build self-confidence during "tea and biscuit" social time.[22] Ballet can be performed either in the seated position or standing at the ballet barre, thus accommodating persons of all mobility levels. Using the ballet barre in front of a mirror helps students focus on body alignment and breathing techniques.

Benefits

Ballet, requiring both strength and flexibility, can assist with gait, balance, and mobility, and reduce fall risk, a major concern in patients with gait instability.22 Lower-limb strength is improved through the movements of knee flexion and plantar flexion, improving mobility and reducing the risk of falls.[23] As with other forms of dance, group ballet classes foster social cohesion and emotional connections with fellow participants.

Rock Steady Boxing

BACKGROUND

Rock Steady Boxing was founded in 2006 by Scott Newman after he was diagnosed with PD, in partnership with boxer Vince Perez. The organization has expanded across 14 countries and has inspired many local programs.[24]

BENEFITS

Using noncontact boxing, Rock Steady Boxing highlights the advantages of routine stretching, resistance training, and aerobic and footwork exercises in a group setting for patients with PD. It improves both balance and motor function and requires participants to practice cognitive themes of coordination and memory by practicing punch combinations and defensive maneuvers.[25] Qualitative evaluation of 10 participants found that instructor enthusiasm, program modifiability, and social support were themes that challenged participants and encouraged program adherence.[26] Participants who were currently boxing were found to have better Parkinson's Disease Questionnaire-39 and Self-Efficacy for Exercise Scale scores compared to nonparticipants.[27]

Tai Chi and Yoga

BACKGROUND

The Chinese martial art of tai chi is a gentle form of exercise that uses deep breathing and relaxation techniques through slow flowing movements.

BENEFITS

In patients with PD, implementing tai chi improves flexibility, lower-limb strength, agility, and cardiovascular endurance. Modeled on the Tai Chi for Arthritis Program for symptomatic pain relief through gentle and rhythmic movements, tai chi can reduce anxiety and improve overall well-being in patients with PD.[28] Exercises include resistance training and stretching through wearing weighted vests and ankle weights while practicing diaphragmatic breathing.[29]

Similar to tai chi, yoga improves flexibility, strengthens leg muscles, and provides balance training to reduce risk of falls.[30] For persons with advanced PD, chair yoga is an excellent method for improving physical health and body awareness.

Aquatics

BACKGROUND

Aquatic therapy offers patients with PD the opportunity to exercise in hydrotherapy pools at all stages of the disease. Ai Chi is a water exercise that combines tai chi and qigong, during which participants implement breathing techniques and slow movements in shoulder-level water.

BENEFITS

Aquatic therapy is a full-body exercise in a heated pool. Owing to increased temperature and water buoyancy, aquatic therapy can help relieve muscle fatigue and discomfort.[31] Patients with early-stage PD had notable improvements in limb bradykinesia and joint rigidity.[32] Most patients who participated in a 6-week aquatic therapy study reported improvement in their gait and planned to continue classes after the study concluded.[33] Aerobic water exercises, including walking and dancing, also may improve cardiovascular health.[34] International consensus-based guidelines for aquatic therapy in PD have recently been developed.[35]

Following is a Table listing internet URLs for the programs reviewed above, as well as additional community programs for PD.

TABLE 1: How to Get Involved.

Dance for Parkinson's Disease

- Dance for PD: https://danceforparkinsons.org/support-us/join-as-a-member/
- Dance for PD at Home: https://danceforparkinsons.org/take-a-class/dance-at-home/
- Become a Trainer for Dance for PD: https://danceforparkinsons.org/train-with-us/start-training/
- Parkinson's Australia- Dance for Parkinson's: https://www.parkinsons.org.au/information-hub/exercise/dance-for-parkinsons/
- Dancing With Parkinson's Canada: https://www.dancingwithparkinsons.com/

Tango for Parkinson's Disease

- Stanford Medicine Tango for Parkinson's Disease: https://stanfordhealthcare.org/events/tango-for-pd-in-person.html
- Tango Therapy Project With Dr. Madeleine Hackney: https://www.tangotherapyproject.org/adapted-tango-for-people-with-parkinsons
- Parkinson's UK- Let's Tango for Parkinson's: https://localsupport.parkinsons.org.uk/activity/lets-tango-parkinsons?/
- Easy Tango (Martínez, Argentina)-Tango and Parkinson course: https://www.educations.com/institutions/easy-tango/tango-and-parkinson-course?

Ballet for Parkinson's Disease

- San Francisco Ballet: https://www.sfballet.org/school-community/adult-programs/parkinsons/
- Berkeley Ballet Theater: https://www.berkeleyballet.org/danceforpd
- American Repertory Ballet-Princeton Ballet School: https://arballet.org/access-enrichment/programs-2/dance-parkinsons-program/
- Canada's National Ballet School-Sharing Dance Parkinson's: https://www.nbs-enb.ca/dance-for-life/sharing-dance-parkinson-s/
- Scottish Ballet-Dance for Parkinson's Scotland: https://scottishballet.co.uk/move-with-us/dance-classes/dance-for-parkinsons/

Boxing

- Rock Steady Boxing: https://rocksteadyboxing.org/find-a-location/
- Counterpunch Parkinson's (New Zealand): http://www.counterpunchparkinsons.com/

TABLE 1: How to Get Involved. cont.

Tai Chi and Yoga

- Yoga for Parkinson's: https://www.yogaforparkinsons.com/
- Leen Bodies: https://www.leenbodies.com/about-kathleen
- Tai Chi for Parkinson's With Jane Arsham: https://www.apdaparkinson.org/events/virtual-tai-chi-for-parkinsons-with-jane-arsham/
- Tai Chi for Parkinson's Class: https://www.hoag.org/specialties-services/neurosciences/programs/movement-disorders-parkinsons/
- Parkinson's Disease and Taoist Tai Chi™ Arts: https://www.taoisttaichi.org/parkinsons-disease/

Aquatics

- American Parkinson's disease Association: https://www.apdaparkinson.org/uploads/files/Aquatic-Book_8-08---edited-2015-oUM.pdf
- Aquatic Therapy for Parkinson's and MS-Hurstville Aquatic (Australia): https://hurstvilleaquatic.com.au/aquatic-therapy-for-parkinsons-and-ms-supporting-neurological-wellness-with-gentle-exercises/
- Swim England: https://video.swimming.org/health-and-wellbeing/videos/international-aquatic-therapy-guidelines-for-parkinson-s-disease

Additional Exercise Therapies

- Bedford Group Boccia: https://localsupport.parkinsons.org.uk/activity/bedford-group-boccia-0
- Cycling for Parkinson's: https://cyclingforparkinsons.com/
- DopaBeats Drumming Classes: https://www.dopabeats.org/classes.html#/
- PingPongParkinson: https://www.pingpongparkinson.org/
- Singing With Parkinson's: https://www.parkinson.org/living-with-parkinsons/stories/singing-with-parkinsons

CONCLUSION

Herein we present several community group exercise programs shown to be both physically and psychologically therapeutic for patients with PD. Advantages of group exercise programs are that they are tailored for most PD severity levels, they are based on real-world activities (dance, boxing, etc), and they sustain and improve both physical mobility and social well-being. They are sufficiently diverse to appeal to patients with different exercise preferences. The programs have classes in many locations throughout the United States, and some are international as well. We urge osteopathic clinicians who treat patients with PD to explore these programs and recommend them to their patients as appropriate.

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