Recommendations for implementing tango classes for persons with Parkinson disease

Madeleine E. Hackney  
*Washington University School of Medicine in St. Louis*

Gammon M. Earhart  
*Washington University School of Medicine in St. Louis*

Follow this and additional works at: [https://digitalcommons.wustl.edu/pt_facpubs](https://digitalcommons.wustl.edu/pt_facpubs)

**Recommended Citation**  
[https://digitalcommons.wustl.edu/pt_facpubs/35](https://digitalcommons.wustl.edu/pt_facpubs/35)

This Article is brought to you for free and open access by the Program in Physical Therapy at Digital Commons@Becker. It has been accepted for inclusion in Physical Therapy Faculty Publications by an authorized administrator of Digital Commons@Becker. For more information, please contact vanam@wustl.edu.
Recommendations for Implementing Tango Classes for Persons with Parkinson Disease

Madeleine E. Hackney, PhD (1) & Gammon M. Earhart, PhD, PT (1, 2, 3)

1 Program in Physical Therapy, Washington University School of Medicine, St. Louis, MO 63108
2 Department of Anatomy and Neurobiology, Washington University School of Medicine, St. Louis, MO 63110
3 Department of Neurology, Washington University School of Medicine, St. Louis, MO 63104

Corresponding Author:
Gammon M. Earhart, PhD, PT
Program in Physical Therapy, Washington University School of Medicine
Campus Box 8502
4444 Forest Park Blvd.
St. Louis, MO 63108
(314) 286-1425
Email: earhartg@wusm.wustl.edu
Abstract

Several studies have recently been published regarding the physical and emotional benefits of Argentine tango dance for individuals for Parkinson disease (PD). These papers focused on the effects of the tango interventions rather than methods used to implement and deliver the interventions. The focus of the present paper is on methods for implementing PD-specific tango programs, with the aim of facilitating safe and appropriate implementation of community-based partnered dance programs for this population. We report successful methods for an Argentine Tango-based class, but these recommendations could be applicable to other partnered dances.

Keywords: Parkinson disease, rehabilitation, dance, tango
Introduction

Individuals with Parkinson disease (PD), a progressive neurodegenerative movement disorder affecting more than 1 million Americans, experience gait and balance changes that adversely affect functional mobility, independence in performing activities of daily living, and quality of life (Bloem et al. 2004). Not only does PD detrimentally impact motor ability, it also affects psychological and cognitive aspects of wellbeing (Schrag et al., 2000). In fact, psychological adjustment to the effects of PD can more greatly affect aspects of health related quality of life than disease severity (Suzukamo et al., 2006). Effective therapies addressing both motor and affective issues are greatly needed. Research has demonstrated that dance can be an appropriate activity for older and physically challenged individuals, because of its benefits for both physical and emotional states (Kudlacek et al. 2007).

Physical effects of dance

Specific impairments associated with PD include postural instability, stride-length and gait speed regulation, bradykinesia (“slowness of movement”), freezing of gait, (an utter stopping of gait, as though feet were glued to the floor), decreased axial rotation, turning, movement initiation and multi-tasking (Fahn, 2003, Morris et al., 2001; Schaafsma et al., 2003, Springer et al., 2006; Hausdorff et al., 2003). Habitual participation in physical activity, even begun late in life, has been shown to improve postural and motor impairment in elderly individuals (Buatois et al., 2007). Increased gait speed following dance/movement therapy was noted in a cohort of people with PD (Westbrook & McKibben, 1989). Older adults who danced were more motivated to
pursue healthy, exercise-related behaviors and demonstrated improved balance and functional mobility (Eyigor et al 2007, Song et al 2004). Dance may effectively address motor impairments brought on by aging and illness as dance requires dynamic balance and adaptability to changing environments.

**Affective aspects of dance**

Individuals with PD have psychosocial needs that might be well addressed by group dance programs that increase social network size and quality and encourage social interaction, particularly with loved ones. Most available rehabilitation programs for those with PD do not place enough emphasis on emotional goals related to personal relationships, which are of the utmost importance to those with PD (McNamara et al., 2006). As mood strongly impacts health, the expression of emotions potentially through movement can benefit health (Goodill, p. 44). When dance was used as therapy for older adults with dementia living in a care facility, spirits were lifted, agitation was reduced and increased bonding was noted in residents and staff (Duignan et al., 2009). Dance likely has a pertinent and lasting effect on psychological and emotional spheres that may greatly enhance its use as a rehabilitative physical activity.

**Argentine Tango and therapeutic dance for individuals with PD**

After participation in Argentine tango lessons led to greater balance and complex gait task improvements in frail older adults as compared to a walking group (McKinley et al. 2008), the effectiveness of the partnered dance, Argentine Tango, on improving balance and mobility in individuals with PD was investigated. Argentine tango was chosen because its steps, patterns, music and partnered aspect were features that were thought to be of potential benefit for the specific motor impairments associated with PD
(Hackney et al., 2007a, b). Furthermore, tango programs involve touch, encourage interpersonal connection with loved ones, foster community support and may provide an attractive break in the daily lives of individuals with physical and cognitive impairments (Hackney et al., 2007a, Hackney & Earhart 2009c). Individuals with idiopathic PD who participated in tango dance lessons improved on measures of functional mobility, balance, gait, and quality of life (Hackney et al. 2007a, b, Hackney & Earhart 2009a, b, and c). Maintenance of these gains one month following a period of participation in dance was demonstrated (Hackney & Earhart, 2009d). The mechanisms by which tango conveys benefit are not yet understood, but improvements in these problems through therapeutic means may enhance the daily lives of individuals with PD.

**Adherence to physical activity program**

Dance has been shown to promote enjoyment and foster interest in continuing participation (Palo-Bengtsson et al 1998, Belardinelli et al. 2008, Federici et al 2005). While it is helpful to know that a tango-based rehabilitative program is effective at improving balance, mobility and quality of life, true measured success of an exercise program must take a crucial factor into account: adherence. Generally, 60-85% adherence to physical activity in impaired elderly is considered very high (Fielding et al. 2007). In tango studies completed by Hackney & Earhart, participants were compliant with the regimen, reported favorable impressions and expressed interest in continuing (Hackney et al 2007 a,b, Hackney & Earhart 2009 a, b, c, d). In fact, these tango programs had an attrition rate of only 15%; eighty-three participants of 98 completed the studies. Even a high volume, intensive tango program that met 1.5 hours, 5 days per week for two weeks, proved feasible while having low attrition for individuals with mild-
moderate PD (Hackney & Earhart 2009a). The adherence to the tango dance program
demonstrated by its participants was likely due to the programs’ social, supportive nature
and a sense of community involvement, all of which enhance motivation to exercise
adherence.

Group exercise is a cost-effective, efficient method of administering treatment.
The methods used in the tango studies completed by Hackney & Earhart were based upon
the pedagogy of one instructor, a doctoral student in movement science and a
professional dancer/instructor with more than ten years of experience, who designed and
implemented this tango program for persons with PD, under the advisement of a PhD-
trained physical therapist. The recommendations outlined here were derived from
practical experience with implementing dance classes for research purposes over the
course of 3 years. These methods for implementing a PD-specific dance program could
fairly easily be disseminated to communities nationwide and this paper is a first step in
that process of dissemination.

Recommendations for Implementation

The foremost consideration for a PD-specific rehabilitative dance program within
communities must be participant safety. Falls must absolutely be prevented. Only very
experienced dance/movement instructors should instruct dance classes for those with PD.
Preferably he/she should have experience instructing the elderly and/or physically
challenged, national certification as a health/fitness/dance instructor, or be a physical,
occupational or Dance/Movement therapist.

Volunteers to assist
Before beginning a program, one should recruit volunteers to partner individuals with PD, and provide a training program in proper partnering and spotting of participants in case of balance loss. Only healthy individuals, with no mobility or neurological impairments, should partner individuals with PD. Individuals who have experience caring for individuals with PD, such as spouses and caregivers, frequently show interest in participating and often serve as partners. Pre-health students recruited from local universities may be very willing to volunteer their time, and can be trained in spotting techniques for persons with balance impairments. Several “floating” assistants e.g., healthy men and women, should circulate the room to serve as spotters and assist the instructor in monitoring students for instability.

*The lass: When and (what to) wear*

Classes can meet for up to 1.5 hours provided that there is a short break of 5-10 minutes. A study that investigated the effects of a high volume tango program met 1.5 hours per day 5 days per week for two weeks (Hackney & Earhart 2009a). Participants were able to complete the program and experienced benefits in mobility and balance; however, for a continuous community program, one hour classes may be most ideal as fatigue poses a difficulty for many individuals with PD. Also, benefits from tango were noted with programs that met in one hour classes two times per week for ten weeks (Hackney et al., 2007 a, b, Hackney & Earhart, 2009 a, b, d).

Participants should wear comfortable, loose fitting clothing that permits movement, and supportive, sturdy shoes. Although rubber soles are not typically ideal for ballroom dance, in consideration of the balance impairments of participants with PD, it might be wise to lessen any chance of slipping. In general, participants should wear shoes
that they would feel comfortable using to walk some distance, or shoes recommended by
their physician. This could include dress shoes with leather soles or athletic sneakers. It is
important that ladies do not wear mules, sandals or clogs with no backs.

Class structure

Table I provides information about the time allotment, musical selection, specific
activities and class objectives of each section of a one-hour lesson. During class, as
instructors must monitor for evidence of instability or fatigue among students, classes
should ideally consist of no more than 12-15 people with PD. After greetings, arrange
students in a circle and begin classes with a 7-10 minute warm-up that emphasizes range
of motion of all joints from neck to toes, and rotational activity of the trunk. Upbeat Latin
music, i.e., samba or salsa works extremely well for the warm-up because of its clear and
uplifting beats. Warm-up exercises might include head and shoulder rolls, ribcage and hip
isolations, wrist, elbow and hip circles, boxing punches and gentle deep knee bends.
Many people with PD have difficulty with contra-body movement (the opposition of the
ribcage to the hips) and with fully shifting their weight onto single support. Repeated
practice of shifting body weight entirely onto one foot may be especially important for
gait improvements, because the swing to the next step can not happen without it. For
individuals with more severe PD, one can practice many steps in a seated position. In a
case study, authors reported that KV, a person with advanced PD, was able to participate
and enjoy tango dance classes. Although he was not capable of performing all steps
walking or standing, when in his wheel chair, smiling he would tap his feet and clap to
the beat to help others keep time. He also could ‘lead’ steps by maintaining his frame
with his upper body and arms, and was very enthusiastic about participating, as was his family (Hackney & Earhart, 2009e).

The Ballroom Frame, Connection and Partnership

A traditional ballroom frame, involving an embrace between the leader and follower, is the position maintained by the arms throughout all steps in tango and other ballroom-based dances. If the participants are comfortable, the traditional frame can be used for classes. However, many participants with PD often prefer more symmetrical and supportive “practice” frames because they feel more stable. The “closed practice” position is an adaptation of the traditional frame: participants maintain contact by holding hands facing one another, with bent elbows, and maintaining forearms parallel to the floor. Palms up, leaders offer their hands to the followers who place their hands on top. Partners should try to maintain contact of the palmar surface of the hands, though this ability may vary among those with PD depending on the rigidity of their wrists. An alternative to this closed practice frame is holding elbows instead of hands. In this case, tone of the arms should remain throughout the dance. Body weight of partners should be lightly directed toward one another, so both individuals receive tactile information about their partner’s axial placement which is especially important when individuals with PD walk backward.

Regardless of gender, it is recommended that participants learn both leading and following roles, to ensure that all participants with PD fully explore their motor repertoire. By dancing both roles, each participant practices moving in both the forward and the backward direction. In addition, while in the role of leader, participants practice production of self-directed, internally generated movements. While in the role of
follower participants practice responding to external cues from the partner. Furthermore, changing roles continually challenges those with PD to attend to their movement, which may be crucial to the motor rehabilitation of those with PD. With careful concentration on critical aspects of movement, those with PD can achieve movement amplitudes of nearly normal size (Baker et al., 2007, Morris et al., 2001, 1996).

After both partners have performed leading and following roles (approximately 5 minutes or after one tango song) rotation of partners should occur. The person who “followed” first should rotate to the next person in the line of dance, the traditional counter-clockwise direction of dance traffic around a room. The instructor should note variation in impairment among participants with PD and consider this when assigning partners. An instructor may feel it safer to assign certain volunteer partners to certain persons with PD, depending on skill level of the former and disease severity of the latter.

**Balance Training and Modification of Tango Steps**

During therapeutic dance, a prime goal for individuals with PD is to move with a hallmark of dance training: dynamic balance. This involves moving the center of mass beyond the range of the base of support and re-achieving balance with the next step. Steps that accentuate and challenge dynamic balance are necessary. For an impaired population, many traditional tango steps may need to be modified, i.e., the *molinete* (“windmill, wheel”: grapevine pattern of the feet, performed in a rotating circle around the leader, which involves extensive and continuous contra-body movement) and the *cruzada* (“crossed”: stepping backward, then crossing one foot over the other tightly with the succeeding backward step). Traditional foot placement for these steps may be too challenging to the stability limits of the average person with PD. The *molinete* can be
modified by simply performing grapevines in parallel, emphasizing the turn of the hips before taking a step. The *cruzada* can be modified by crossing the feet but not tightly together. Pivoting is difficult for individuals with PD, but turns can be accomplished with *more steps of lesser* rotational amplitude.

When beginning classes, one must teach weight shifts while maintaining the frame, then progress to moving synchronously with a partner in forward, backward and side steps whilst maintaining a connection. Next, travel around the line of dance, interspersing side and back steps. The next concept to introduce is Outside partner, -walking quite closely to the outside of the partner’s feet, to the left or the right, but with one’s center directed toward one’s partner. Rocking steps and crossing steps (*cruzada*) may be introduced to students next. After these key basics are explained, other typical tango steps, i.e., *corte, amargue, parada, mordita* and *barrida*, can be introduced. *Ochos*, or ‘figure 8s’, are traditionally danced forward and backward as a half pivot on single support performed by the follower. These important and typical tango steps need to be modified for most with PD, and ochos can be danced with three steps to the traditional one pivot. Embellishments, including knee lifts, toe taps, and circling the feet on the floor (*dibujo*) can also be added into the dance to mark time, or to reinforce the practice of standing on single support. More explanation of choreographic pedagogy is explained in Hackney et al., (2007a).

Repeatedly, instructors should review main concepts, i.e., how to change weight and walk backward, posture, alignment and honing partnership skills by maintaining connection through the frame. Participants should be given ample time to practice steps and develop a measure of confidence in their capability to perform these steps; however
some individuals with PD will express preference for learning fewer steps but repeatedly practicing them. Nevertheless, motor skills required to complete activities of daily living often require adaptability to ever-changing and unpredictable environments in which we all find ourselves. While the practice and rehearsal of known steps may reinforce “healthy” movement patterns, it may not encourage adaptability. By continually exercising mental and motor capacities through the study of an ever-expanding motor repertoire, those with PD may be better prepared to shift quickly into an appropriate motor skill in order to adapt to a sudden change in environment. Learning new movement can be difficult and frustrating for many people with PD, but encouragement to try should allay most issues. The act of learning, practicing and exploring new movement should be emphasized over the perfection of any one step. When instructors keep the class mood light and fun, frustration is minimized. Students should be encouraged to inform the instructor of absences, and they should be called by telephone should they miss a lesson unexpectedly.

Selection of Music

Dance instructors must teach music comprehension and listening skills. After the introduction of the “paso del dia” (step of the day), a substantial portion of the class should be devoted to rhythmical training (Table 1). As individuals with PD face difficulty with initiating, enacting and completing movement, they need musical cues to be simple and clear. Although beautiful, some Argentine tango recordings are very sophisticated to the novice ear, which makes it difficult to clearly distinguish beats. Ballroom tango recordings with clear, simple beat and slower tempi appear easiest for individuals with PD to hear and interpret with movement. As dance students grow in
musical knowledge and appreciation, teachers can experiment with more sophisticated musical selections.

**Conclusion**

Everyone: participants, volunteers, and loved ones, should feel success at completion of class. Applause at the end of the class is traditional and can bring closure to sessions while acknowledging accomplishments of the participants. With a positive attitude, instructors must demonstrate and tell students they are needed and wanted at their dance classes, by fostering an environment of playful movement discovery (Hackney et al., 2007a).

This work has provided recommendations for implementing a tango-based partner dance program to individuals with PD in the community. Activities that encourage social interaction are necessary to encourage wellbeing of those with PD (Simpson et al., 2006). Tango may engage participants and be particularly helpful for those with PD because it is effective at addressing motor impairments, it is progressive, i.e., the participant is always learning, it fosters teamwork and community involvement, and it may aid relationship-related goals. Dance may be particularly effective over the long term as it is enjoyable exercise that interests and engages older individuals. Such exercise programs are greatly needed because a movement intervention is only useful if it is actually implemented. Activity levels in individuals with PD are likely lower than those of age-matched controls (Toth et al., 1997) and a majority of mature American adults do not achieve the recommended daily amount of physical activity (Macera et al., 2005). This work is one of the first steps towards the use of improved rehabilitative movement approaches employing partnered dance to improve quality of life while addressing functional
mobility deficits in individuals with PD. With skilled and knowledgeable instructors, careful planning and the foremost consideration of safety, a partnered dance program could provide many positive effects in physical, emotional and mental spheres for many individuals with Parkinson Disease.
ACKNOWLEDGEMENTS

This work was supported by the Marian Chace Foundation and the American Parkinson Disease Association.
REFERENCES


<table>
<thead>
<tr>
<th>Lesson Plan</th>
<th>Time</th>
<th>Music</th>
<th>Activities</th>
<th>Objectives</th>
</tr>
</thead>
</table>
| Greeting & Practice (of current movement vocabulary) | 5 min | Tango | • Greet one another  
• Practice steps from previous class to music with partner, in an informal way. The instructor circulates to assist students. | • Jig the memory  
• Establish community support  
• Allow participants to socialize  
• Work on movement vocabulary in friendly atmosphere |
| Warm Up    | 10 min | Samba | • Stretch, limbering joints, warming muscles, breathing, alignment awareness  
• Instructors can add activities that are PD-specific to decrease rigidity and enhance contra-body movement | • Prepare the body physically and mentally for learning new choreography and concepts |
| New Step   | 10 min | Classic Argentine Tango | • Introduce new step and embellishment of the day  
• Break down footwork and describe shape of the movement  
• Use exercises to augment concepts of new concepts  
• Music accompanies the shape of movement, but rhythms will be stressed in next section  
* New steps should be introduced in 3 consecutive lessons and the 4th is completely reviewed | • Enhance skill of partnering  
• Address new motor challenges in footwork, placement, line, and embellishment  
• Reinforce previous concepts of good body movement through the introduction of new motor skills |
| Music/Rhythm Training | 15 min | Ballroom tango with very strong beat | • Introduce simple rhythms and simple elements of beats—slow and quick.  
• Have class work on two new rhythms each class, one simple and one that is more challenging.  
• Students clap rhythm, then practice shifting weight in place, next they use the rhythm to travel around the line of dance | • Training of the ear for the beat  
• Learning rhythms, and practicing them with footwork and decorative embellished steps  
• Understanding when to shift weight, controlling body movement through rhythm  
• “Playing” with rhythms |
| Assimilation & Encapsulation | 17 min | Ballroom, Classic Argentine, Nuevo tango | • Add new step to previously learned steps, and combine these elements into interchangeable sequences.  
• Invite students to mix and match elements of a given pattern, rather than follow a strict order of choreography  
• Continue to assess students of body posture, movement and aesthetic of line while dancing | • Developing a “tool belt” of step elements that dancers can use interchangeably and creatively  
• Learning to connect one step to another in an entwined manner, improving and blending movement to music. Enhancing partnership skills |
| Close      | 3 min | Classic Argentine Tango | • “Quiet Tango”: Finish class by dancing quietly with one’s partner; encourage communication with one’s body and eyes.  
• Class traditionally finishes with applause, and instructor acknowledgment of all students’ accomplishments | • Creating a sense of accomplishment and a moment of reflection for the experiential nature of the class |