

MAY 2016

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## Parkinson's Disease and Music

By Joseph Jankovic, MD

*"Listening to music is not just auditory and emotional, it is motoric as well. We keep time to music, involuntarily, even if we are not consciously attending it, and our faces and postures mirror the "narrative" of the melody, and the thoughts and feelings it provokes."* Oliver Sacks, "Musicophilia: Tales of Music and the Brain," Alfred E. Knopf, Inc. 2007



Music, the universal language of mankind, not only enhances communication but it also has an extraordinary impact on psychological well-being, empathetic relationships, and emotional expression. Research has shown that the sound of music or learning musical instrument has numerous positive effects on the brain, including inducing neuroplastic changes that may translate into improved motor and cognitive function. This was emphasized by the late Oliver Sacks (1933-2015) in his book, "Musicophilia," entirely devoted to this topic. Through a process called rhythmic entrainment, humans naturally move in synchrony to external rhythmic cues such as music. The evidence of rhythmic entrainment can be observed when humans spontaneously move or dance to the beats of music, even without being consciously aware of their action. This powerful connection between rhythm and locomotion has led rhythmic entrainment to be clinically employed for gait rehabilitation in patients with neurological disorders including Parkinson's disease.

Although the brain motor program (the software) is relatively intact in patients with PD, because of loss of connections between the basal ganglia and the other parts of the brain (the hardware), PD patients cannot readily access this program, unless they use some external cues. For example, patients with PD who freeze can use visual cues to step over an obstacle or they rely on auditory cues, such as listening to a marching music, to help them regain the natural rhythm. Neurologic Music Therapy (NMT), especially rhythmic auditory stimulation (RAS), such as playing marching music or dance therapy, has been shown to be a safe, inexpensive, and effective method to improve gait and balance in patients with PD. However, RAS that adapts to patients' movements may be more effective than rigid, fixed-tempo RAS used in prior studies. Using multisensory (visual, auditory, tactile) cues, these therapies may be particularly suitable for the treatment of parkinsonian freezing and other gait disorders.

HAPS offices and all groups are closed Monday, May 30<sup>th</sup> in observance of Memorial Day.

STAY CONNECTED...



Over the last decade numerous scientific studies have reported on the beneficial effects of music or metronome-based gait training in patients with PD. Similar to how the metronome helps musicians maintain a steady tempo during a musical performance, RAS provides an effective approach for reducing gait impairments in PD patients. Research has demonstrated improvement in cadence, stride length, walking speed and other gait measures using RAS while listening to auditory cues. A recent study showed that the combination of several NMT sensorimotor techniques improved gait, other rhythmical activities, and balance in patients with PD (4). The findings indicate that PD patients can adopt new compensatory strategies for movement and postural control through the use of the auditory system and can meaningfully improve their motor function and quality of life by combining physiotherapy and occupational therapy with music therapy.

A variety of devices have been developed to provide customized RAS. For example, a research group in Madrid, Spain developed Listenmee®, an intelligent glasses system that employs RAS to improve gait. The glasses are portable, and contain built-in headphones that allow the user to listen to isochronous (metronome-like) auditory cues while walking. The sounds are customizable to various styles such as ambient, percussive, electronic, and vocal. The user controls the device via bluetooth with the Listenmee® smartphone application. Another device, WalkMate, which is an interactive RAS device developed in Japan utilizes pressure sensors in the shoes that feed gait timing data into a computer system, and adjust the metronome cueing tempo in real-time. After a few training sessions the gait improvement persisted, even after WalkMate was no longer used. Other devices, such as D-Jogger, a music player that adjusts the musical tempo to the listeners' gait rhythm, also may be helpful to patients with PD who experience gait difficulties and other motor problems. Finally, immersive virtual reality (VR) technology is increasingly used for visually cued gait training and rehabilitation, coupled with auditory (music) input.

Although these findings are promising, more well-controlled studies are needed to demonstrate the efficacy of rhythm and music therapies for PD. Future

research should focus not only on various tools designed to integrate music with the mind and body but also on different types of music that most effectively improves PD-related gait disorders and other PD-related symptoms, including slowness of movement (bradykinesia). Skilled music therapist can explore with the patients various rhythmic patterns or musical styles to improve their walking, balance, movement, voice volume and articulation (through singing), and even “relax” their tremor and involuntary movements associated with levodopa-related dyskinesia. NMT can be implemented in a form of passive listening to music (combined with yoga and relaxation techniques), RAS therapy, drumming groups, and dance and movement groups. With modern technology, readily-accessible devices such as smartphones and tablets can play an increasingly important role the use of music as a therapeutic instrument in the treatment of PD-related motor and non-motor symptoms.



#### *Selected references:*

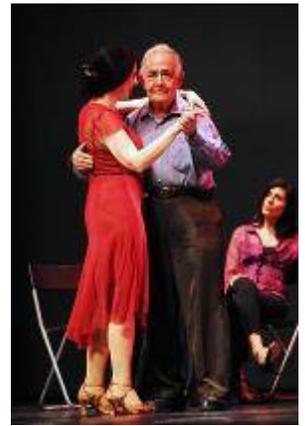
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**Joseph Jankovic, MD** is Professor of Neurology and Distinguished Chair in Movement Disorders; Director, Parkinson's Disease Center and Movement Disorders Clinic, Department of Neurology, Baylor College of Medicine. In 1977, he joined the faculty at BCM and became a founder and director of the Parkinson's Disease Center and Movement Disorders Clinic, recognized as a "Center of Excellence" by the National Parkinson Foundation and the Huntington Disease Society of America. Dr. Jankovic has published over 900 original articles and chapters and has edited or co-edited over 50 books and volumes including several standard textbooks. He is a current member of numerous scientific and medical advisory boards including HAPS Medical Advisory Board, the executive scientific advisory board of The Michael J. Fox Foundation for Parkinson's Research and National Parkinson Foundation Clinical and Scientific Advisory Board. He has mentored and trained countless individuals who have become leaders in the field of movement disorders.

## Dancers Honor Parkinson's Awareness Month

Joan Bishop, Houston Area Parkinson Society Argentine Tango Dance group leader who has been teaching HAPS clients to tango since 2010, was invited to co-curate the program, *Music That Should Be Danced*, which took place April 23<sup>rd</sup> at Miller Outdoor Theatre. The program was presented by the Foundation for Modern Music (FMM), a nonprofit organization with a mission to enhance, stimulate

and educate our community through high-quality contemporary performing arts programs and collaborations that are inclusive and accessible to people of all ages, cultural backgrounds and socio-economic levels.



The Saturday night performance offered a perfect opportunity to include Joan's students from the HAPS Tango dance class along with students from her Houston Argentine Tango Association (HATA) classes and private tango classes in a combined performance that highlighted the talented HATA dancers and students who performed, and the wonderful HAPS

tango dancers who moved with such skill and grace, set the stage for an extraordinary dance performance to Leonard Cohen's, *Dance Me to the End of Love*. It was a beautifully choreographed, expertly performed, merging of sound, visuals and exquisite movement. The dancers in the piece ranged from 5 to 92 years of age. Over 2,500 Houstonians were in attendance and response from the community has been tremendous.



## AIRPO Meets Again...

HAPS Board President Randi Carrabba and Executive Director Anne Thobae attended a 2-day meeting of leadership of the Alliance of Independent Regional Parkinson Organizations (AIRPO) in NYC in March. Meeting since 2009 as a consortium of Parkinson's patient support organizations that are not local chapters of national organizations, the 2016 gathering represented the 5<sup>th</sup> meeting of the Indies—all of which have been generously and graciously hosted by the Parkinson's Disease Foundation (PDF) which provides convening support. AIRPO has grown to include nine member organizations, all of which share a common mission to improve life for those with Parkinson's. Each serves its respective community in regions across the nation with a variety of programs based on the demographic and geographic character of its catchment area.



*Houston Area Parkinson Society is joined by Eli Pollard, Vice President of Special Initiatives and Valerie Holt, Special Initiatives Coordinator & Executive Assistant to the President of PDF, Dallas Area Parkinsonism Society, Michigan Parkinson Foundation, Northwest Parkinson's Foundation, Parkinson Association of the Carolinas, Parkinson Association of the Rockies, Parkinson Support Center of Kentuckiana, Parkinson's Association, and AIRPO's newest member,*

A major topic of interest this year was the planned merger between two of the national Parkinson's organizations, the Parkinson's Disease Foundation and National Parkinson Foundation (NPF). John Kozyak, Chair of the Board of NPF, and Steve Ackerman, Treasurer of the Executive Board of PDF, joined the group for dinner the evening of the first day's meeting. The second day included a discussion with John about how AIRPO might fit into the new combined entity and play a role in the dynamic and comprehensive "next generation" organization they anticipate once the merger is final.

By expanding communication on a national scale and understanding the changing landscape of Parkinson's organizations, AIRPO member organizations gain perspective and are able to remain relevant as they address the diverse challenges facing the Parkinson's disease community together. We extend many thanks to Robin Elliott, Eli Pollard and Val Holt at PDF for their outstanding support of AIRPO, making it possible for member organizations to enhance the collective ability to serve people with the disease.

# Parkinson's Awareness Month in Review



Parkinson's Awareness Month was a huge success! April played host to many great opportunities around our community including several health fairs, caregiver conferences and Rice University's *Pancakes for Parkinson's*. Thanks to our groups and participants who joined in and wore HAPS shirts, and sent us videos and pictures!



# Progress Toward Understanding Fatigue in Parkinson's Disease

The results of the Parkinson's Disease Foundation's (PDF) Conference on Fatigue, the first meeting supported by our Community Choice Research Awards, have now been published in the online editions of *npj Parkinson's Disease* on January 14 and *Movement Disorders* on February 16.

When PDF asked people with Parkinson's disease (PD) and care partners to submit their ideas for research in October 2013, fatigue emerged as a top priority. In response, PDF held a symposium in October 2014 that brought together leading psychiatrists, neurologists and other scientists who were experts in fatigue in PD, multiple sclerosis and cancer as well as people with PD to assess the state of knowledge and discuss how to move the field forward. Experts on fatigue in multiple sclerosis (MS) and cancer also participated, and contributed insights from research on those diseases.

## Results

The working group concluded that clear criteria for describing and defining fatigue are needed in order to find out what causes it and how to treat it. Fatigue in people with PD is often confused with other symptoms. Criteria used by experts in MS and cancer can offer guidance. Here are some of the things we know now:

- Fatigue is different from sleepiness, apathy and depression. For example, a person who is fatigued feels tired, but does not need to take a nap, and is motivated to do activities, but does not have the energy. Fatigue also is separate from depression; although the two tend to go together, treating depression does not relieve fatigue.
- It's important to rule out causes of fatigue other than PD, including low testosterone, anemia, hypothyroidism, other medical illnesses and medications.
- Fatigue after physical activity is normal, so methods are needed to consistently differentiate fatigue as a PD symptom.
- Methods are needed to measure a person's subjective feeling of fatigue, and tease this apart from their actual ability to do physical or mental tasks.

With clear standards to measure and define fatigue, research toward understanding its cause and cure — some already under way — could include:

- Identifying biomarkers that would both help diagnosis and point to insights for developing treatments.
- Using a range of brain imaging techniques to examine the underlying biology of fatigue, including the role of

inflammation, identifying changes in the brain associated with fatigue, and revealing the differences between people with PD who have fatigue and those who don't.

- Studying the effectiveness of non-drug therapies such as exercise, energy management strategies, and mindfulness-based stress reduction, which have proven helpful for fatigue in people with MS.

## What Does It Mean?

Fatigue is a common, severe and debilitating problem for people with Parkinson's disease. Half of people with PD report that it is a major problem, and a third say it is their single most disabling symptom. Yet we have much to learn about what causes it, how to diagnose it and how to treat it. Progress is being made, and with a better definition of this PD symptom, clinical trials to understand fatigue and discover treatments can be more effective. For now, there are no treatments based on evidence from scientific research. Although several trials have conducted to test treatments for fatigue in PD, most have proved unsuccessful. (One studying methylphenidate (Ritalin®) showed a positive effect, but this positive effect was not replicated in other clinical trials).

Better fatigue scales and novel treatments are therefore required. Common sense would say to first rule out causes of fatigue other than PD, like other illnesses or disrupted sleep. In addition, anecdotally, people with PD often say they feel energized after exercising. Exercise can improve a range of PD symptoms, so there is no harm in trying it as a remedy for fatigue, and it might help.

## References:

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*This article was originally published as part of "Parkinson's Science News: What Does it Mean?" on the Parkinson's Disease Foundation (PDF) website on March 24, 2016. It is reprinted, in its entirety, with permission from PDF. For other science news, please visit [www.pdf.org/science\\_news](http://www.pdf.org/science_news).*



## Join a HAPS Music Therapy class near you...

- \* Tuesdays on Memorial Drive at Gessner
- \* 2<sup>nd</sup> and 4<sup>th</sup> Thursdays in The Woodlands
- \* Fridays in Bellaire

Get started today! Contact Angelica at the HAPS office at 713-313-1652 or check the insert in this newsletter for more information on these groups!

## Sugar Land Yoga

Starting this month, HAPS will offer two yoga classes in the Sugar Land area on Thursdays! Chair yoga, done in a seated position, will be held from 12:30-1:30 followed by a traditional yoga class which is done on the floor using mats from 1:30-2:30. Check the group insert for location!



## Welcome Ebonee!



Ebonee Edmunds attended the University of St. Thomas, where she acquired a degree in Marketing. She began her career as a Marketing Intern for the non-profit organization AVANCE. During this time, she assisted in marketing and multiple corporate volunteer projects. After leaving AVANCE, Ebonee spent a brief period of time as a Finance Manager, procuring and facilitating small business loans and has spent the last two years as a Proposal Coordinator for a Logistics company. Although her career has taken her on many paths, her passion for service, helping the community and families has remained strong. She is incredibly excited and grateful, to begin her journey with such a wonderful and dedicated team at Houston Area Parkinson Society. Join us as we welcome Ebonee to her new role as Administrative Assistant at HAPS.



HAPS is currently enrolling individuals for the upcoming Parkinson's Enrichment Program (PEP) session which begins in June!

This fun, five-week enrichment program is offered quarterly to **individuals with mild to moderate Parkinson's disease**. The four-hour program is presented at Memorial Drive Lutheran Church each Friday for five consecutive weeks and has components of exercise; recreation; socialization; education; peer-led discussion; professionally facilitated support; and lunchtime conversations. Previous sessions have included virtual travel, art, dance, photography and educational lectures.



Registration is required and space is limited. Contact Celeste Harris, LMSW at 713-313-1706 or [harris@hapsonline.org](mailto:harris@hapsonline.org) for more information.



Please note! While disaster relief operations related to the recent floods are underway at the American Red Cross Building, **HAPS' Tai Chi class on Tuesdays with Mary has been cancelled** for the entire month of May. Class is scheduled to resume the first Tuesday in June.

# CONTRIBUTIONS

We are extremely grateful to the following individuals for their generous support of HAPS. Without the continued support of our donors, none of our programs or services would be possible.

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Barbara Werner  
Mary and Allen Williford

*While we make every effort to be accurate and thorough, it is possible to accidentally omit or misspell a name. Please contact the HAPS office with corrections.*

## U.S. Senate Passes Parkinson's Awareness Resolution



On April 20, 2016, the U.S. Senate officially recognized April as Parkinson's Awareness Month. The resolution was introduced by the Senate co-chairs of the Congressional Caucus on Parkinson's Disease, Debbie Stabenow (D-MI) and Johnny Isakson (R-GA). Our elected officials have helped bring an increased awareness to a disease that affects between 500,000 and 1.5 million Americans. Senator Stabenow states, "We recognize Parkinson's Awareness Month to honor patients and their loved ones. We must continue to support medical research that can lead to breakthrough treatments and improve quality of care."

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