

LES  
GRANDS  
BALLETS

CENTRE NATIONAL DE  
DANSE-THÉRAPIE

Actes de conférence  
*Conference Proceedings*

# PREMIER SYMPOSIUM INTERNATIONAL SUR LA DANSE ET LE MIEUX-ÊTRE

Collaborer pour faire progresser la recherche, les politiques et la pratique  
*Collaboratively Advancing Research, Practice and Policy*

**Du 24 au 26 mai 2018**  
Les Grands Ballets, Édifice Wilder: Espace danse, Montréal



© 2019 Les Grands Ballets Canadiens de Montréal  
Tous droits réservés / All Rights Reserved

Imprimé à / Printed in Montréal, Québec, Canada  
Première impression / First Printing, 2019

ISBN : 978-1-9995690-1-3

**Les Grands Ballets Canadiens de Montréal**

1435, rue de Bleury, suite 500

Montréal, QC, Canada

H3A 2H7

514.849.0269

[CentreDanseTherapie.com](http://CentreDanseTherapie.com)

# REMERCIEMENTS

## ACKNOWLEDGEMENTS

Ce projet a été financé par le Conseil de recherches en sciences humaines du Canada

Ce projet a été rendu possible en partie grâce au gouvernement du Canada



Social Sciences and Humanities  
Research Council of Canada

Conseil de recherches en  
sciences humaines du Canada



Consulat général des États-Unis, Montréal, Canada      The U.S. Department of State



Fonds de Recherche du Québec-Société et Culture

Fonds de Recherche du Québec-Société et Culture



Le Centre national de danse-thérapie tient à remercier chaleureusement les partenaires qui ont rendu le premier Symposium possible :



Ces actes de conférences ont été rendus possibles grâce au soutien de Joseph X. DeSouza, du Centre for Vision Research de l'Université York et Rebecca Barnstaple, du département des études en danse de l'Université York.

Les photos incluses dans ce document ont été prises, à moins d'indication contraire, par Antoine Saito.

Ces actes de conférence ont été financé (en partie) par le Consulat général des États-Unis. Les opinions, résultats et conclusions mentionnées dans ce document sont ceux des auteurs et ne reflètent pas nécessairement celles du Consulat général des États-Unis.

The National Centre for Dance Therapy wishes to thank the sponsors who have made this first Symposium possible:

These conference proceedings were made possible thanks to the support of Joseph X. DeSouza, from the Centre for Vision Research at York University, as well as Rebecca Barnstaple, from the Department of Dance Studies.

Pictures included in this document have been taken by Antoine Saito, unless indicated otherwise.

These conference proceedings were funded [in part] by a grant from the United States Department of State. The opinions, findings and conclusions stated herein are those of the authors and do not necessarily reflect those of the United States Department of State.



# TABLE DES MATIÈRES

## TABLE OF CONTENTS



06

### Un mot du directeur du Centre national de danse-thérapie

A Word from the Director of the  
National Centre for Dance Therapy

09

### À propos About

<i>Les Grands Ballets canadiens de Montréal</i>	09
<i>Le Centre national de danse-thérapie</i>	10
<i>Le Premier symposium international sur la danse et le mieux-être</i>	10

13

### Comité de sélection Selection Committee

17

### Articles inédits Preprint Papers

<i>Mapping the Strata of Human Movement through Laban Movement Analysis: Analysis, Synthesis, and Interpretation</i>	18
<i>Why Partnered Dance Can Optimize Motor Rehabilitation for People with Parkinson's Disease: a Neuroscientific Perspective</i>	20
<i>Looking in the Mirror: Limits of Mirror Neuron Theory (MNT) and Applications for Dance/Movement Therapy (DMT)</i>	28

39

### Conférencières invitées Keynote Addresses

45

### Conférences Conferences

55

### Ateliers expérientiels Experiential Workshops

87

### Groupes de discussion Discussion Groups

# UN MOT DU DIRECTEUR

## WORD FROM THE DIRECTOR



Ce premier Symposium international s'inscrit dans la génèse et les valeurs du Centre national de danse-thérapie, soit d'unifier les expertises, les forces et les ambitions de chercheurs, cliniciens, intervenants, artistes et représentants d'organisations qui souhaitent faire de la danse un outil de mieux-être pour notre société.

Cet événement représente pour nous l'aboutissement de cinq années de travail multidisciplinaire et intersectoriel avec des gens passionnés et convaincus. Ces actes de conférence, en consignant leurs savoirs multiples, le démontrent bien et permettront, je l'espère, de faire vivre la passion, la conviction et l'audace de tous les conférenciers, présentateurs et participants du Symposium.

Ce que vous retrouverez dans ce document est un aperçu du contenu des conférences, ateliers expérimentuels et groupes de discussion ayant été présentés du 24 au 26 mai 2018. En supplément, certains présentateurs ont généreusement rédigé et partagé avec nous des articles encore inédits à ce jour, soit Karen K. Bradley et Cecilia Fontanesi, Madeleine E. Hackney et le trio Barnstaple, Fontanesi et DeSouza.

Si vous désirez entrer en contact avec les présentateurs et auteurs, contactez le Centre national de danse-thérapie.

En espérant que ce document soit le premier d'une série, je vous invite à participer à notre prochain symposium international, afin de poursuivre et faire évoluer la discussion sur la danse pour le mieux-être.

This first international Symposium is a reflection of the National Centre for Dance Therapy's genesis and values, its goal being to unify the expertise, strengths and ambitions of researchers, clinicians, caregivers, artists and representatives of organizations who wish to make dance a tool of well-being for our society.

To us, this event represents the culmination of five years of multidisciplinary and intersectorial work with passionate, convinced people. These conference proceedings, in recording their considerable and varied knowledge, are a good demonstration of that, and my hope is that they will effectively bring to life the passion, the conviction and the boldness of all the Symposium's lecturers, presenters and participants.

What you will find in this document is an overview of the content of the lectures, experiential workshops and discussion groups that were presented on May 24 to 26, 2018. In addition, certain presenters generously wrote and shared with us articles not yet published, specifically Madeleine E. Hackney and the Barnstaple, Fontanesi and DeSouza trio.

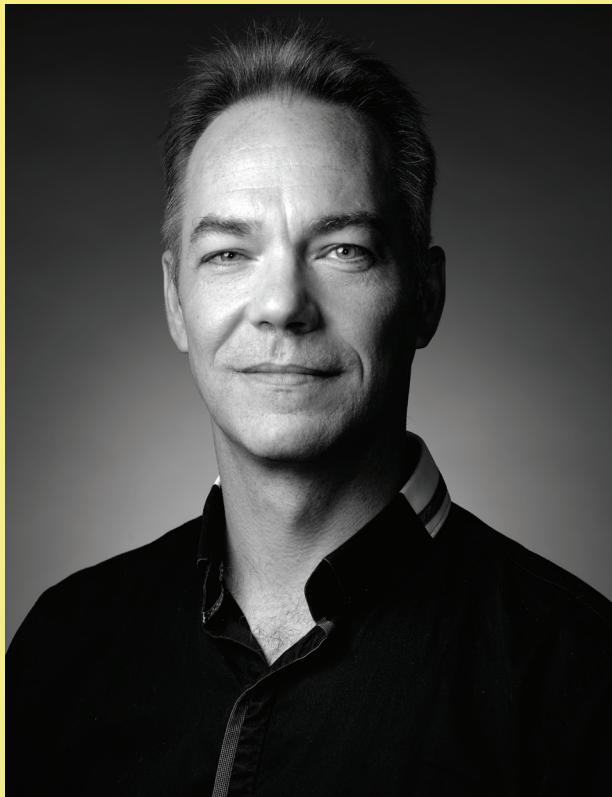
Should you wish to contact the presenters and authors, kindly get in touch with the National Centre.

Hoping that this document will be the first in a series, I invite you to take part in our next international symposium in order to continue and advance the discussion on dance for well-being.



**Christian Sénéchal**

Directeur, Centre national de danse-thérapie  
Director, National Centre for Dance Therapy



**Christian Sénéchal**

Photo : Sasha Onyshchenko



# LES GRANDS BALLETS CANADIENS DE MONTRÉAL



## ***Faire bouger le monde. Autrement.***

Depuis plus de 60 ans, Les Grands Ballets Canadiens de Montréal sont une compagnie de création, de production et de diffusion internationale qui se consacre au développement de la danse sous toutes ses formes, en s'appuyant sur la discipline du ballet classique. Les danseuses et danseurs des Grands Ballets, sous la direction artistique d'Ivan Cavallari, interprètent des chorégraphies de créateurs de référence et d'avant-garde. Établis au cœur du Quartier des spectacles à Montréal, les Grands Ballets proposent une approche holistique innovante unique au monde de laquelle sont nés Les STUDIOS, ainsi que le Centre national de danse-thérapie qui font la promotion de tous les bienfaits que procure la danse. La mission de la compagnie est également d'assurer une ouverture à l'art pour tous et c'est en ce sens qu'elle a fondé, entre autres, le Fonds Casse-Noisette qui permet à des milliers d'enfants chaque année d'être initiés au ballet. Les Grands Ballets, reconnus pour leur excellence, leur créativité et leur audace, sont pleinement engagés au sein de la collectivité et rayonnent sur toutes les scènes du monde.

[www.grandsballets.com](http://www.grandsballets.com)

## ***Moving the world. Differently.***

For over 60 years, Les Grands Ballets Canadiens de Montréal has been a creation, production and international performance company devoted to the development of dance in all its forms, while always staying faithful to the spirit of classical ballet. The dancers of Les Grands Ballets, under the artistic direction of Ivan Cavallari, perform choreographies by both long-established and trendsetting creators. Situated at the heart of Montreal's Quartier des spectacles, Les Grands Ballets embodies an innovative holistic approach, unique in the world. This approach has resulted in Les STUDIOS and the National Centre for Dance Therapy, which together promote all the benefits that dance can bring. The company's mission is also to ensure accessibility to art for everyone; in that spirit its achievements include the founding of The Nutcracker Fund, which every year enables thousands of children to enjoy a first ballet experience. Les Grands Ballets, recognized for its excellence, creativity and daring, is fully committed to the local community, and is acclaimed on stages around the world.

[www.grandsballets.com](http://www.grandsballets.com)

## ***Centre national de danse-thérapie***

Fondé en 2013, le Centre national de danse-thérapie est une division des Grands Ballets Canadiens de Montréal. Sa mission est de promouvoir la danse et le mouvement comme tremplin à la thérapie et au mieux-être. Son approche interdisciplinaire permet aux individus et aux communautés de bénéficier de recherches cliniques, de formations ainsi que de prestations de services thérapeutiques et adaptés par la danse et le mouvement.

Le Centre propose également des formations intensives à l'intention des futurs intervenants, en plus de mener plusieurs projets de recherche en collaboration avec des institutions universitaires. « La thérapie par la danse et le mouvement amène souvent les personnes isolées par leurs conditions sociales ou leur santé à s'exprimer et à socialiser davantage que dans les formes traditionnelles d'activité physique », explique Christian Séchéhal, directeur du Centre.

La thérapie par la danse et le mouvement est née aux États-Unis dans les années quarante. Elle est depuis utilisée comme traitement principal, en complément de certains soins médicaux ou psychothérapeutiques, ou encore s'inscrit dans une démarche de croissance, de mieux-être et de développement de la créativité.

## ***Premier symposium international sur la danse et le mieux-être***

Le Centre national de danse-thérapie (CNDT) des Grands Ballets Canadiens de Montréal, avec le soutien et la participation de la Fondation de la famille J.W. McConnell, est heureux d'avoir tenu cet événement d'envergure internationale axé sur la danse et le mieux-être visant à faire connaître les dernières avancées en matière de recherche et de pratique. Pendant trois jours, les participants ont été invités à partager et à enrichir leur expertise en échangeant avec d'autres professionnels issus de disciplines connexes. Cet événement a eu lieu du 24 au 26 mai 2018 à l'Édifice Wilder : Espace danse, situé à Montréal (Canada).

Centredansetherapie.com

## ***The National Centre for Dance Therapy***

Founded in 2013, the National Centre for Dance Therapy is a division of Les Grands Ballets Canadiens de Montréal with the mission to promote dance and movement as a springboard to therapy and well-being. The Centre's interdisciplinary approach enables individuals and communities to benefit from clinical research and training, as well as from the provision of therapeutic and adapted services, through dance and movement.

The Centre also offers intensive training intended for future care providers in addition to conducting several research projects in collaboration with academic institutions. As explained by Centre director Christian Séchéhal, "Dance and movement often help people who are isolated by their social condition or by the state of their health to better express themselves and to socialize more than they would through traditional forms of physical activity."

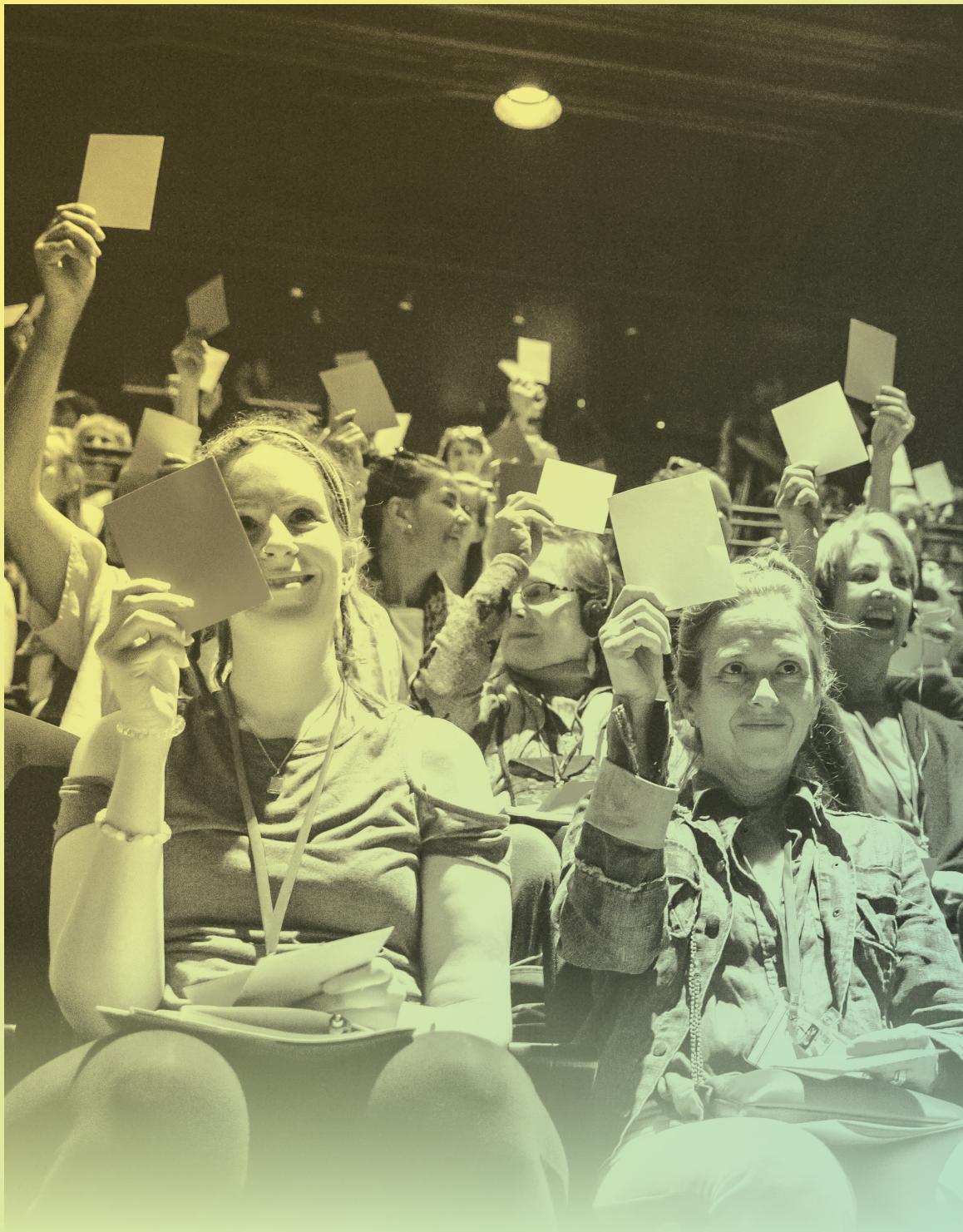
Dance/movement therapy first emerged in the United States in the 1940s. It has since been used as a standalone therapy or in complement to certain medical or psychotherapeutic treatments, and as a means to foster growth, well-being and creativity.

## ***The First International Symposium for Dance and Well-Being***

Following the success of the First National Symposium on Dance and Well-Being, Les Grands Ballets Canadiens de Montréal's National Centre for Dance Therapy, with the support and participation of the J.W. McConnell Foundation, is happy to have hosted a 3-day event featuring new research and methods in dance and well-being, with embodied learning opportunities as participants exchanged expertise related to the development of this field. This event was held May 24 to May 26, 2018, at the Édifice Wilder : Espace Danse, in Montreal, Canada.

dancetherapycentre.com





# COMITÉ DE SÉLECTION

## SELECTION COMMITTEE



***Sylvie Fortin,***

Ph. D., département de danse, UQAM (Montréal, QC)  
PhD, Dance Department, UQAM (Montreal, QC)

Sylvie Fortin, Ph. D., est professeure au département de danse de l'Université du Québec à Montréal (UQAM) et membre du comité exécutif de la chaire UQAM pour le développement de pratiques innovantes en art, culture et mieux-être. Elle a accompagné par la danse et l'éducation somatique des danseurs en formation professionnelle, mais aussi des enfants et des adultes en situation de vulnérabilité (fibromyalgie, dépression, troubles du comportement alimentaire, maladies neuromusculaires, accident vasculaire cérébral, toxicomanie). Titulaire de nombreuses bourses d'organismes subventionnaires, elle fait partie d'équipes de recherche, notamment au Centre de réadaptation Marie Enfant et à l'hôpital Sainte-Justine. Elle est auteure ou coauteure d'une centaine d'articles scientifiques et chapitres de livres. En 2008, elle a dirigé la rédaction de *Danse et Santé : du corps intime au corps social*. En 2011, elle a codirigé un numéro de *Recherches Féministes* sur les inégalités sociales en santé et, en 2014, un numéro du *Journal of Dance and Somatic Practices* sur les approches corporelles et l'interculturalité. La reconnaissance internationale envers son travail l'a amenée à prononcer des conférences et à dispenser des ateliers pratiques à travers des lieux majeurs de formation en Europe, Asie, Afrique et Amérique. En 2009, elle a reçu le *Distinguished Visiting Scholar Award* de l'Université d'Auckland.

Sylvie Fortin, PhD, is a professor at the Department of Dance of the Université du Québec (UQAM) à Montréal and a member of the executive committee of the UQAM Research Chair for the Development of Innovative Practices in Art, Culture and Well-Being. Through dance and somatic education, she has supported dancers in their professional training, but also children and adults in vulnerable situations (fibromyalgia, depression, eating disorders, drug-addiction and stroke patients). Having been awarded with various scholarships, she is part of many research teams, including at the Marie Enfant Rehabilitation Centre and CHU Sainte-Justine. She has authored and coauthored over a hundred scientific papers and book chapters. In 2008, she led the writing team of *Danse et Santé: du corps intime au corps social*. In 2011, she co-directed an issue of *Recherches Féministes* on social inequalities in the health field and, in 2014, an issue of the *Journal of Dance and Somatic Practices* on corporal approaches and interculturalism. International recognition of her work has led Sylvie to present conferences and lead practical workshops in major training organizations in Europe, Asia, Africa and the Americas. In 2009, she received the *Distinguished Visiting Scholar Award* from Auckland University.



## ***Robyn Flaum Cruz,***

Ph. D., BC-DMT, LPC, Lesley University Expressive Therapies  
PhD Program (Cambridge, MA, États-Unis)  
PhD, BC-DMT, LPC, Lesley University Expressive Therapies  
PhD Program (Cambridge, MA, USA)

Ancienne présidente de l'American Dance Therapy Association, Robyn Flaum Cruz, PhD, BC-DMT, LPC est une thérapeute certifiée en danse et en mouvement qui possède 37 ans d'expérience dans sa discipline. Rédactrice en chef émérite de la revue *Arts in Psychotherapy* et de l'*American Journal of Dance Therapy*, elle est également coauteure de *Dance/Movement Therapists in Action* (2012), un livre sur les méthodes de recherche en danse-thérapie, et de *The Art and Science of Evaluation in the Arts Therapies* (2013) de Feders, qui traite de l'évaluation dans les thérapies par les arts. Elle a publié plus de 50 articles dans les domaines de la thérapie par la danse et le mouvement, de la psychologie et de la neurologie ainsi que des troubles de communication et de la psychologie.

Previously President of the American Dance Therapy Association, Robyn Flaum Cruz, PhD, BC-DMT, LPC is a Board Certified Dance/Movement Therapist with 37 years of experience. She is Editor-in-Chief Emerita of *The Arts in Psychotherapy* and of *American Journal of Dance Therapy*, co-editor of *Dance/Movement Therapists in Action* (2012) - a book on research methods for dance therapy - and Feders' *The Art and Science of Evaluation in the Arts Therapies* (2013) - on evaluation across the arts therapies. She has published over 50 scholarly articles across the disciplines of dance/movement therapy, psychology and neurology, communication disorders, and psychology.



## ***Sarah Berry,***

Ph. D., ABD, faculté de médecine, Université McGill (Montréal, QC)  
PhD, ABD, Faculty of Medicine, McGill University (Montreal, QC)

Sarah Berry est chercheure en bioéthique à la faculté de médecine et chargée de cours en sociologie à l'Université McGill, ainsi que consultante en recherche pour l'institut de recherche du Centre universitaire de santé McGill. Ses intérêts de recherche et projets en cours se penchent sur le développement de méthodologies de recherche mixtes pour l'évaluation d'interventions innovantes en santé. Récemment, elle a été impliquée dans des travaux sur la corrélation de données neuroscientifiques et sociales, visant à s'impliquer dans une recherche translationnelle en santé mentale et reflétant diverses théories épistémologiques et étiologiques de la santé mentale. Elle coordonne actuellement une étude combinant des méthodologies neuroscientifiques (rsEEG) et scientifiques sociales (journaux de bord et auto-rapports) pour examiner les changements dans les statuts de santé mentale suivant une intervention en danse. Sarah est également présidente du Conseil d'administration du Centre de jour St-James, un organisme sans but lucratif offrant des services de soutien aux personnes vivant avec des troubles de santé mentale, des dépendances ou en situation d'itinérance.

Sarah Berry is a research fellow in Bioethics (Faculty of Medicine, McGill University), course lecturer in Sociology (McGill University), and research consultant with the Research Institute of the McGill University Health Centre. Her research interests and current projects are focused on the development of mixed-methods research methodologies for the evaluation of novel mental health interventions. Her recent work involves the correlation of neuroscientific and social scientific research data, with the aim of engaging in translational mental health research that reflects diverse epistemological and etiological theories of mental health. She is currently coordinating a study combining neuroscientific methods (rsEEG) and social scientific methods (journaling and self-report) to assess changes in mental health status following a dance intervention. Sarah is Chair of the Board of Directors at Centre de jour St-James, a Montreal nonprofit organization that provides services and support for people struggling with homelessness, mental health concerns and substance dependence.



# ARTICLES INÉDITS

## PREPRINT PAPERS



Au moment de faire un retour sur le contenu partagé au Symposium, nous avons fait appel à ses présentateurs pour obtenir des compléments d'information. Quelques auteurs nous ont fait part de textes et articles inédits sur les sujets qu'ils ont abordés dans leurs présentations et groupes de discussion. Les trois textes suivants, très étoffés, nous ont été généreusement partagés par des présentateurs et auteurs. Afin de conserver l'intégrité des propos, nous avons décidé de les présenter dans leur langue d'origine, soit l'anglais.

When the time came to look back at the content shared at the Symposium, we approached its presenters for further information. Some authors forwarded unpublished texts or articles on topics they had dealt with in their presentations and discussion groups. The following three texts, highly substantial, have been generously shared with us by presenters and authors. To maintain the integrity of the remarks, we decided to present them in their original language, that being English.

# ARTICLES INÉDITS

## PREPRINT PAPERS

### *Mapping the Strata of Human Movement through Laban Movement Analysis: Analysis, Synthesis, and Interpretation*

**Karen K. Bradley, MA, CMA (Maryland, MA, USA) and Cecilia Fontanesi, CMA, MPhil, PhD candidate (New York, NY, USA)**

An overview of the system of analysis requires an understanding that the categories of Laban Movement Analysis (LMA)—Body, Effort, Shape, and Space—are not segregated but overlap in complex ways. A movement moment may be “about” the mover addressing a single category (i.e. body actions) or multiple categories (i.e. a body action that is also expressive, or spatial, or expressing a mode of relationship). The question of whether the observer is using the perspective of a net or a spotlight is important. Movement analysts are taught to begin with a soft focus (the net) and then to address the context, followed by the details (the data) of Body, Effort, Space, and/or Shape. The spotlight approach tends to reveal bias, and although bias is always present, the spotlight approach can blind us to our stance.

As observers take on perspectives, they investigate with curiosity the patterns of behavior being observed. But several cautionary understandings inform any evaluation or diagnoses:

“Real objectivity is not impersonality, but wholeness; the filling out of personality to more nearly match the width of the world.” James Moffat implies that detachment from the observed experience is problematic; that we need to process what is seen through the widest lenses possible, rather than believing that any “objective” measure gives us the full picture. LMA is taught from this understanding; that the fullest of perspectives gives the most accurate picture.

Along with the notion of objectivity as wholeness, Brandon Shaw (2012) wrote: “In particular, whether we have experience performing the kind of movement enacted by the dancers can greatly alter how we perceive the movement. Kinesthetic empathy, or the ability to intuit what others are experiencing based upon their bodily behavior, is particularly shaped by our movement histories.” The direct experience of a wide selection of movement practices, dance forms,

and other manifestations of both human and non-human movement, together with reflection, contextualization and cultural awareness, is a critical part of the education of a movement analyst.

As an example of how those who use movement analysis tend to select for features, we note how animators make choices depending upon use. We ask the questions: What is emphasized? What is missing or lessened in each example?

In the Laban Theory Animation video (Sze, 2015), the body actions are front and center, but there are aspects of Space and even some Effort qualities. In another Laban Animation video (Lin, 2013), the body part/body action of walking is emphasized, and the “Effort” qualities are primarily time-based. In the Moving Space video (Centermoves, 2010), nobody is present, and the animation is simply demonstrating spatial pathways and constructs.

LMA itself privileges the movement features of an individual mover, whether that mover is presenting as a single observed entity or is in interaction with another, is part of a group, or is presenting cultural patterns that are shared within an established community. The authors suggest that using language that identifies non-verbal features of interactions, small group behavior, or cultural manifestations may be necessary to define meaning within a context and provide a broader opportunity for synthesis of such features into a coherent whole.

For interaction analysis, in addition to the LMA concepts of Modes of Shape Change (Shape-Flow, Directional Shape, Shaping) and Phrasing (shared or competitive), observing for any or all of the following provides an additional layer of information about the style of a mover in interactions: Turn-taking, Chronemics (timing style), Proxemics (Space use/shared space), Haptics (Touch behavior), Vocalics

(voice qualities), Gaze, and Co-regulation. The information gathered from observing interaction behaviors can be extremely useful to the artist, audience, therapist and client to understand some of the social cues and adaptations necessary for intelligibility.

Through the use of behavioral observation coding software (e.g. Mangold Interact, Noldus Observer, ANVIL, BORIS, ELAN, ChronoViz), it is now possible to code interactions among individuals by recording and analyzing multiple subjects from videos. Such software allows the coder to focus on gaze and facial expressions, as well as gestures, movement synchronicity, and behaviors between two or more subjects as determined by the coders. The observation still focuses on the individuals, but the data reveals points of match and mismatch between subjects.

However, when observing small group behaviors, it is important to define social interactions and their function within groups. Unlike individual behaviors, social interactions cannot be divided down or isolated to one individual's behavior, as they are a combination of acts and postures that influence each group member's behavioral sequence. These interactions include but are not limited to attuning, adapting, arguing, amending, adjusting, synchronizing (temporal, spatial, expressive), calling-responding, and bypassing. The small group develops an evolved set of behaviours that allow for inclusion or exclusion, and the individual adapts, or not, or adapts at times.

The meaning and purpose of social interactions, including dance performances and folk dances, greatly varies within different cultures across the world. The Choreometrics project includes a collection of over 3,000 film clips of dances worldwide, which have been recorded by Alan Lomax and analyzed in several hundred coding sheets by Irmgard Bartenieff and Forrestine Paulay, among others. By studying different dance traditions and styles, Choreometrics aims toward offering a cross-cultural view of human movement, investigating how these dances emerged in response to social needs and to functions they served, and in relation with the physical, as well as cultural, environment.

When cultural patterns emerge, the underlying intentions may be hypothesized by the viewer, who may recognize aggregates of meaningful instances, still influenced by her/his own experience, background, and heritage.

“When submitted to several kinds of statistical analyses the Choreometrics variables grouped themselves into factors of dimensionality, limbs, rhythm, linking/leader, intimacy, regimentation, spacing, integration, group layout, tactics, stance, torso, self-presentation, dynamics, size, refinement, and gender. These, in turn, formed clusters associated with some of the underlying motive forces of social life and communication — integration, differentiation, energy, rhythm, gender participation, and control of sexuality.”

This inquiry offers visibility and equal representation to all cultural traditions as the result of complex histories of social and expressive behaviors. In parallel to the Choreometrics project, thousands of sound recordings have been collected between the late 1940s and the 1990s, then later digitized and shared through an online platform called The Global Jukebox. This project offers a worldwide accessible digital window into our human heritage through the arts of singing, dancing, and conversing from around the world.

Through the lenses of individual, interactive, small group and cultural patterns and behaviours, a type of intersectionality is possible: movers can be seen as their unique selves, with a cultural and behavioural history that is shared with others, and as adaptable members of a dyad or group.

## References

- Centermoves (2010, Oct. 10). Moving Space: The Laban Scale (Demo). Retrieved from: [www.youtube.com/watch?v=D00kel96O-o](https://www.youtube.com/watch?v=D00kel96O-o)
- Lin, Chyicheng (2013, Dec. 8). Laban Animation. Retrieved from: <https://www.youtube.com/watch?v=6mI54rLTCMA>
- Shaw, Brandon W. (2012). Sitting-there: Embodied perception, kinesthetic empathy, and reading pain in dance spectatorship. *Doctoral Dissertations Available from Proquest*. AAI3546050.
- Sze, Steph (2015, Nov. 3). Rudolph Laban Movement Theory Animation. Retrieved from <https://www.youtube.com/watch?v=Bu0W8U7OGTo>.

# ***Why Partnered Dance Can Optimize Motor Rehabilitation for People With Parkinson's Disease: a Neuroscientific Perspective***

**Dr. Madeleine E. Hackney, PhD, BFA (Atlanta, GA, USA)**

In recent years, repeatedly, the benefits of diverse forms of exercise and dance to social, physical and emotional aspects of well-being for people with Parkinson's Disease (PD) and older adults have been demonstrated. Among these, an adapted form of Argentine tango dance has emerged as a promising therapy to address motor, cognitive and psychosocial challenges of individuals with PD. This thesis demonstrates why partnering in adapted tango may be responsible for the beneficial effects of this therapy because of the neural circuitry underlying the distinct roles of leader and follower.

PD is a neurodegenerative disease primarily affecting the *substantia nigra* in the basal ganglia of the subcortical area of the brain. PD leads to greatly reduced production of the neurotransmitter dopamine and affects the motor system most noticeably but also affects cognitive, autonomic, mental and psychosocial health of the individual; therefore, adversely impacting quality of life. Individuals with PD experience reduced mobility from postural instability, bradykinesia (extreme slowness of moving), rigidity, tremor and turning difficulty. PD affects 1 million Americans and has formidable personal and socioeconomic costs (>\$34 billion/year) that are increasing (Noyes et al., 2006). Currently, the estimated prevalence of PD is 7-10 million individuals worldwide, and PD cases are expected to double by 2030 (Dorsey et al., 2007). Multiple motor symptoms, including postural instability, gait impairment, turning difficulty and dual-tasking problems rob patients of QOL (Musilovic et al., 2008). Turning, gait initiation, and walking through doorways or other tight spaces can trigger freezing, i.e., a stoppage during gait (Morris et al., 2001), which affects 53% of patients who have had PD 5 years and more (Nieuwboer et al., 2001). Adverse changes to gait while performing a motor and cognitive task simultaneously are greater in those with PD than those without (O'Shea et al., 2002, and

Hackney & Earhart, 2009). Shorter stride length, and slower gait speed while performing a cognitive dual task may result from an underlying cognitive impairment, which is common in PD (Leroi et al., 2006). A co-morbidity of mild cognitive impairment is associated with greater falls risk in older people with PD (Camicoli & Majumdar, 2010).

Spatial cognition (Possin et al., 2008), set-switching (the ability to switch between mental tasks) (Cools et al., 2001, and Werheid et al., 2007), executive function and attention (Hausdorff et al., 2006) are impaired and impact mobility adversely in individuals with PD. However, exercise programs may improve cognition (Cruise et al., 2011), reduce rates of "near falling" (Ashburn et al., 2007), and fall incidence (Protas et al., 2005) in people with PD. As pharmacological and surgical methods remain only partially effective in treating symptoms of those with PD, additional, non-pharmacological approaches that address balance and gait difficulties are necessary (Gage et al., 2004). These therapies should be safe, participant-friendly, promote high adherence and have demonstrated efficacy in improving disease severity, mobility and QOL. Several mobility programs are effective (e.g. movement strategies, dance, tandem biking, tai chi) for people with PD (Morris et al., 2009, Earhart, 2009, Ridgel et al., 2009, Hackney et al., 2008, Kadivar et al., 2011). Traditional exercise programs often suffer from high attrition rates because of high patient task demand and lack of social interaction (Qutubuddin et al. 2007). Ideally, exercise activities should engage and sustain interest, because 60% of all Americans older than 65 do not achieve recommended daily amounts of physical activity (Macera et al., 2001). Activity levels in individuals with PD are even further reduced (Toth et al. 1997).

Fortunately, dance is often appropriate and pleasurable as a therapeutic activity, because of its benefits to

physical, mental and emotional states. Group social dance can enhance motivation in older individuals to be active and to pursue healthy, exercise-related behaviors. Habitual participation in social dancing over several years is associated with superior balance, postural stability, gait function and leg reaction times in older dancers compared to age-matched non-dancers (Eyigor et al., 2009, and Verghese, 2006). Jacobson et al. (2005) report greater improvements in balance and complex gait tasks in frail older adults that participated in an Argentine tango group than in a walking group (McKinley et al., 2008). Practicing balance while dancing could be just as effective as, and more enjoyable than, traditional physical therapy-led balance training and possibly lead to greater adherence. Another important advantage of dance could be the possibilities arising with neural plasticity, the brain's ability to modulate connections between brain cells based upon experience. Because of neural plasticity mechanisms, an individual may experience therapeutic changes that capitalize on exposure to the new movement concepts and approaches garnered through dance. These neural adaptations might promote enhanced motor and cognitive function.

Since 2006, a series of studies of 20 hours of adapted Argentine-tango dance (adapted tango) have shown gains in mobility and balance, maintained one month later in individuals with mild-moderate PD (Hackney & Earhart, 2009, Hackney et al., 2007, Hackney & Earhart, 2009, Hackney, 2010, and Hackney & Earhart, 2010). Continued studies of this program in a 30-hour format have shown similar mobility gains along with improved spatial cognition and disease severity (McKee & Hackney, 2013). Importantly, participant-friendly, adapted tango has had low attrition (15%), demonstrating patient acceptance and feasibility within a diverse patient population. More than 150 persons with PD have been recruited to participate in several interventions of several months' duration, using adapted tango to address PD-specific motor difficulties. Adherence is critical to any exercise program, but 60-85% adherence to physical activity in impaired older adults is considered high. With an 85% compliance rate, partnered dance's feasibility and benefits on functional mobility and quality of life for persons with PD were demonstrated for the first time. Maintenance of these gains has also been demonstrated (McKee & Hackney, 2013), and participants reported favorable impressions and interest in

continuing. The tango program may create a social supportive environment and a sense of community involvement, which may enhance motivation to exercise. Even a high dosage, intensive tango program was feasible and had low attrition for individuals with mild-moderate PD (Hackney & Earhart, 2009). This research has received media coverage in the New York Times, Scientific American, National Public Radio and in the world-renowned neurologist Oliver Sach's book, *Musicophilia*. Tango classes for people with PD are now offered in several states, the United Kingdom and Australia.

While the mechanisms by which tango conveys benefit are not yet understood, Argentine tango has intricate and distinctive steps, sequences and patterns, and strongly rhythmic music (with European, Caribbean and African influences). Along with these qualities, partnering in adapted tango may address specific impairments associated with PD. Partner dancing is a sophisticated, yet accessible system of tactile communication that conveys motor intentions and goals between a 'leader' (the planner of movement) and 'follower' (the externally cued mover). An 'embrace' or 'frame' between the leader and follower is the primary point of contact through which the leader indicates movement qualities and goals to which the follower responds. Partners maintain contact by holding elbows facing one another, maintaining forearms parallel to the floor. To keep the 'connection' clear between the partners, tone of the arms should remain constant 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 for communicating motor intentions. In the adapted tango classes that served as the rehabilitative therapy in these studies, participants both led and followed all dance steps with healthy partners. Therefore, the studies' participants alternated between two motor training approaches: a) leading, i.e. internally guiding movement plans, and b) following, i.e., responding to external guidance. Qualities of effective rehabilitative programs are found in both leading and following within the context of adapted tango. For example, training for postural instability is most effective if dynamic balance practice and continual adjustment to environmental demands are incorporated (Hirsch et al., 2003).

During therapeutic dance, a goal for individuals with PD and older adults is to move with dynamic balance, i.e. the process of 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. However, for those with PD, traditional steps, e.g. the *molinete* (“windmill, wheel”: grapevine pattern of the feet, performed in a rotating circle around the leader, which involves extensive and continuous contrabody movement), *ochos* (figure eight patterns involving pivoting with the feet) and the *cruzada* (“crossed”: stepping backward, then crossing one foot over the other tightly with the succeeding backward step), are modified because traditional foot placement for these steps may over-challenge the stability limits of those with PD. Specifically for individuals with PD, having complex movements broken down into simpler elements by the teacher, done frequently when following any dance pedagogy, may facilitate motor performance (Morris et al., 2009). Synchronizing movement to rhythm, inherent to dance, may enhance movement speed in those with PD (Howe et al., 2003). A partner may enhance balance as even very light touch contact can augment postural control (Jeka, 1997). It has been demonstrated that the partner does not serve as a crutch, given that balance and mobility gains were similar between a group that danced with a partner compared to a group without partners (Hackney & Earhart, 2010). The assistive partner for the patient is ubiquitously a skilled individual without functional impairments, trained to guide the individual with impairment safely through rehabilitative motor patterns conducted within an adapted tango class (Hackney & Earhart, 2010). This individual can serve as both leader and follower, fulfilling several responsibilities within these roles. This individual can a) detect the level of postural/motor disability within the individual, b) plan an optimal motor rehabilitative program (based on the principles of partnered, improvised dance) for these disabilities and c) monitor the patient continually for the loss of balance and as such, prevent falls.

Monitoring for instability is crucial because people with PD often experience falls, which leads to withdrawal, low self-esteem and poor mood (Bloem et al., 2001). In one study, 70% of PD patients fell within one year and 50% had a repeat fall the next year (Bloem et al., 2004). Falls occur as a result of multiple risk

factors, both internal and external, and the interplay of multiple body systems. To maintain balance, adults use a combination of information from the somatosensory (which encompasses touch, proprioception and vibration), vestibular and visual systems. As one ages, or if one has a progressive neurodegenerative disease like PD, the integrity of this information and the ability to use accurately the information from each of these systems decreases. Therefore, progressive movement retraining should involve activities that increase awareness and utilization of the three systems. Dance almost always uses all three systems. For example, when standing, one can place attention on the pressure of feet on the ground while keeping chin and shoulders level (somatosensory), and one can focus on a vertical target (visual). If one closes one's eyes while standing on an uneven surface like soft sand, or a foam cushion, one will likely make use of one's vestibular sense. One also uses one's vestibular system to keep balance while turning. Adapted tango can target the somatosensory, vestibular and visual systems because of the enhanced focus on tactile and kinesthetic (one's own “map” of one's body parts in space) awareness. Further, while dancing, balance will be challenged through moves that demand balance on single leg support, or complex double leg support (*cruzada* or long strides), or while turning (*molinete*), to name just a few examples.

Regardless of gender, 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 frequently moving both forward and backward, which is important from a motor rehabilitative perspective. Yet, in addition, dancing both roles allows a dancer to experience two distinct motor-cognitive reference frames that could impact movement ability in different but equally important ways: while leading, participants practice self-directed, internally generated movements, whilst followers practice responding to external cues. 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. These differences in cognitive reference frame between leading and following may address particular deficits of motor function, resulting in distinct training gains in mobility because the neural circuitry that drives leading and following movement likely differs.

Leaders must have a world-centric reference frame and to dance successfully— multitasking by focusing on environment, follower, music, and both current and future motor plans. Leading, which uses internally guided cognitive and motor skill, is thought to involve employing a “movement strategy” that demands increased focus on movement plans and mentally rehearsing and/or preparing for movement. Leaders in partnered dances must determine precise spatiotemporal movement parameters of a dance sequence, e.g., amplitude, direction, timing, and rotation. As such, leading may pose a challenge for individuals with PD, given that they have deficient executive control, specifically in cognitive processes involved in planning and executing complex, goal-directed behavior (Kliegel et al., 2005). However, movement strategies involving strong cognitive involvement and planning are also associated with mobility improvements (Morris et al., 2009). Focusing on critical movement aspects (e.g. quicker movements, longer steps) helps individuals with PD to achieve nearly normal speed and amplitude (Morris et al., 2001). Thus, although people with PD might find leading a partner to be highly revealing of their deficits, practicing the leading role could be critical for their motor progress.

The observed improved function gained via adapted tango in individuals with PD may be due to benefit from multiple external cues present when following movement. If dancing the role of the follower, participants strongly focus on external cues, which may access circuitry involving the cerebellum, thalamus and the cortex, and therefore bypass the basal ganglia (Freedland et al., 2002). Abundant evidence demonstrates benefits of rehabilitative exercise that exploits external cueing and specifically targets neural systems that support balance (Kadivar et al., 2011, and Nieuwenboer et al., 2009). External cueing has improved movement initiation (Dibble et al., 2004, and Jiang & Norman, 2006). Other research showed that people with PD have faster reaction times when externally cued compared to self-initiated movement (Ballanger et al., 2006). Importantly, while following in adapted tango, (in contrast to leading) the participant is not required to plan precise spatiotemporal parameters of movement (e.g. direction, length of step, timing, and amount of rotation). From moment to moment the follower receives movement guidance from the leader via tactile cues. Because followers are not devoting

crucial attentional resources to planning movement, potentially they can attend more to postural control, which becomes increasingly necessary as a person ages or contends with a neurodegenerative movement disorder. Therefore, both leading and following movement in rehabilitative dance have advantages. Whether one role is superior to another for rehabilitative purposes is unclear, but likely the practice of leading and following roles impacts the neural circuitry underlying such movement constructs. However, little is known about the neural mechanisms underlying motor and cognitive improvements as a result of rehabilitative training in individuals with PD.

A study utilizing positron emission tomography (PET) showed improved vocal intensity after training in the Lee Silverman Voice Training (LSVT®) LOUD program for speech improvement. These motor improvements were correlated with modification in motor, auditory, and prefrontal areas but with no associated effect on the basal ganglia (Narayana et al., 2010). However, in healthy participants, increased activity in the putamen, a region of the basal ganglia responsible for controlling movement, was noted using PET when tango movements were performed to a metered beat (Brown et al., 2006). In a related finding, after a week of tango, healthy individuals exhibited increased activity of areas involved with the control of movement (i.e., the supplementary motor (SMA) and premotor cortices) during imagined walking (Sacco et al., 2006).

Underlying mechanistic commonalities may exist amongst a variety of therapies that effectively target PD symptoms (Asanuma et al., 2006). In the case of deep brain stimulation, stimulating the subthalamic nucleus is thought to suppress abnormal downstream network activity produced by the malfunctioning basal ganglia (Trost et al., 2006). If the mechanism of improvement resulting from dance training is similar, abnormal neural activity in the basal ganglia, thalamus and cortical motor structures may be reduced. Alternatively, with effective treatment, there may be enhanced compensatory capabilities within areas involving the cerebellum, the thalamus and cortical sensory and motor areas (Yu et al., 2007). Another possibility could be a restorative mechanism, i.e. increased activity in the basal ganglia, demonstrated to be hypoactive in drug-naïve individuals in early stages of PD (Spraker et al., 2010).

In healthy individuals performing tasks in which they follow or respond to a cue, cerebellar circuitry is primarily recruited, while striatal (basal ganglia) circuitry is primarily recruited in leading tasks (Taniwaki et al., 2006, Lewis et al., 2007, and Sen et al., 2010). Because there is dysfunction of the basal ganglia, people with PD have difficulty internally generating movement (Low et al., 2002, and Wu et al., 2011). PD may influence neural circuitry governing leading and following movements on a task-specific basis. For example, during following movements, people with PD activate cerebellar, thalamic and cortical areas similarly to individuals who do not have PD; however, during leading tasks in individuals with PD, both cerebellar and striatal areas are activated (Lewis et al., 2007). In keeping with the idea of increased compensatory activity and/or connectivity of cerebellar circuits during leading tasks, striato-cortical and striatocerebellar connections are weaker in individuals with PD than in individuals without PD, while cortico-cerebellar connections are strengthened (Wu et al., 2011). As a compensatory response, those with PD tend to recruit cerebellar and thalamic circuitry to perform tasks involving internally generated movement increasingly with time (Sen et al., 2010). Whether leading or following is better for improving movement capabilities in those with PD remains equivocal. Possibly practicing the leading role could lead to enhanced activity in the striatal-cortical areas, if the mechanism of improvement is restorative. However, if the mechanism of improvement via adapted tango is largely compensatory, following dance might prove most beneficial, given that compensatory pathways involving the cerebellum are likely upregulated with such practice. More research is necessary to determine the answers to these questions.

Possibly, learning both roles and switching roles several times during a dance session is a key to enhanced mobility and the ability to accomplish daily activities. 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 comfortable 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 and through switching roles repeatedly,

older adults with PD may be better prepared to shift quickly into an appropriate motor skill to adapt to sudden changes in their environment. In adapted tango classes, instructors have encouraged the honing of partnership skills by maintaining connection through the embrace while changing weight fully, walking backward, maintaining posture, and alignment. Participants are encouraged to practice steps and develop confidence in their ability to perform these steps; however, some individuals with PD have expressed preference for learning fewer steps but repeatedly practicing them. And switching the leading and following roles is also viewed as challenging. Learning new movement can be difficult and frustrating for many people. Aging and disease probably increase the challenge. However, the act of learning, practicing and exploring new movement in a partnership should be emphasized over the perfection of any one step. Simply being exposed to new movement, attempting to perform it, and then seeing the flip version of the movement by switching from the leading to following role (and vice versa) may in fact have had great impact on the findings of mobility improvements in those with PD.

Balance and mobility disorders resulting in falls among older adults with and without PD pose a serious public health problem in the United States. Costs associated with falls among older adults are estimated to be as much as \$100 billion. Further, adults over the age of 65 represent the fastest-growing population in the United States. Today, unprecedented numbers of people age 85 and older in the US desire to maintain independence throughout their lifetime. Therefore, an immediate and pressing need exists for activity programs specifically designed to reduce physical frailty and the rising incidence of falls among the older adult population, as well as those with PD. For these programs to be most targeted in their efficacy, focused research to determine mechanisms of improvement and to optimize training programs must be conducted. Currently, there is insufficient information about human-human full-contact interactions and how humans communicate the complex, sophisticated motor intentions of partnered dance by tactile means. How do partnered dancers interpret subtle changes in pressure at points of contact in order to determine (or direct) direction, magnitude and timing? The means by which the leader communicates the tactile message to the follower and

how the follower receives the message have not been quantified by reliable measures. We currently have insufficient information about neural mechanisms by which a skilled assistive partner determines the level of postural/motor disability within the individual (e.g. via vision, pressure points of contact)—the criteria for planning an optimal motor rehabilitative program for these particular disabilities—and monitors the patient for perturbations and balance instability. Knowledge about neural changes that may occur after repeated and targeted training with leading and following tasks will allow the development of better rehabilitation training strategies for those with PD.

### ***Adapted Argentine Tango Impact Worldwide, International Influences upon the Work and the Participant***

Today, Argentine tango is a partnered dance with an incredible worldwide presence. People dance tango all over the world and many have become fanatical about the art form, a passion to which I also succumbed when I first began learning the dance in the year 2000. At this time, I had only recently returned from a year's stint as a professional dancer in Japan at an amusement park with the largest wave pool in the world, preceded by two years touring Europe with musicals, including . Little did I know then how the tango I began to learn while touring would impact my future career choices and research plans. My own international experiences as a professional dancer, dealing with multiple injuries and constantly striving to improve my technical abilities, undoubtedly laid the foundation for my inquiry into the study of dance for therapeutic purposes. My early career focused on theatrical dance forms (i.e. ballet, theater and contemporary forms) but after returning to New York, NY, I was fortunate enough to be able to explore an interest in partnered dances by being trained at Stepping Out dance studios to be a ballroom and social dance instructor. I learned to teach and perform American ballroom, International ballroom and social dances, including hustle, salsa, country western, swing, and naturally Argentine tango. For two intense years, I went every night to a different milonga (a social Argentine tango dance) in NYC, a perfect locale for me to continue to find international influences, because this dance perhaps like no other, draws individuals from all over the world together.

Language differences do not pose a problem in tango because partnered dance is a language itself, formed by a human-human tactile connection and non-verbal communication.

This advantage of non-verbal communication between partners has no doubt contributed to the fact that research into adapted tango has also appealed to individuals the world over. Studies about its effectiveness are taking place in diverse locations, including Australia, the United Kingdom, Argentina, the United States, and Canada among others. My work has been presented at the Welcome Center in London and at an annual Tango Terapia conference in Argentina; and I was invited to speak in Sweden twice, once in the Nobel Forum, upon this subject. Given the involvement of international researchers in the debilitating illness of PD, the melding of neurological rehabilitation with further study of dance and its powerful mechanisms will lead to the development of cross-cutting, novel ideas that broach international boundaries. This body of work has brought up questions about dance for its powers to heal, its powers to form connections between individuals of diverse backgrounds and needs. Dance has always had multi-faceted roles in society, which figures such as Selma Jeanne Cohen certainly recognized. My work has been a calling to demonstrate dance's ability to penetrate one of the most challenging of human conditions - degeneration of the ability to move. Through dance, we may all, even those who are most adversely challenged, be able to learn to move again.

## References

- Asanuma, K., Tang, C., Ma, Y., et al. (2006). Network modulation in the treatment of Parkinson's disease. *Brain*, 129(Pt 10), 2667-2678.
- Ashburn, A., Fazakarley, L., Ballinger, C., Pickering, R., McLellan, L. D. & Fitton, C. (2007). A randomised controlled trial of a home-based exercise programme to reduce the risk of falling among people with Parkinson's disease. *Journal of Neurology, Neurosurgery, and Psychiatry*, 78(7), 678-684.
- Ballanger, B., Thobois, S., Baraduc, P., Turner, R. S., Broussolle, E. & Desmurget, M. (2006). "Paradoxical kinesis" is not a hallmark of Parkinson's disease but a general property of the motor system. *Movement Disorders*, 21(9), 1490-1495.
- Bloem, B. R., Grimbergen, Y. A., Cramer, M., Willemsen, M. & Zwinderman, A. H. (2001). Prospective assessment of falls in Parkinson's disease. *Journal of Neurology*, 248(11), 950-958.
- Bloem, B. R., Hausdorff, J. M., Visser, J. E. & Giladi, N. (2004). Falls and freezing of gait in Parkinson's disease: a review of two interconnected, episodic phenomena. *Movement Disorders*, 19(8), 871-884.
- Brown, S., Martinez, M. J. & Parsons, L. M. (2006). The neural basis of human dance. *Cerebral Cortex*, 16(8), 1157-1167.
- Camicioni, R. & Majumdar, S. R. (2010). Relationship between mild cognitive impairment and falls in older people with and without Parkinson's disease: 1-Year Prospective Cohort Study. *Gait & Posture*, 32(1), 87-91.
- Cools, R., Barker, R. A., Sahakian, B.J. & Robbins, T.W. (2001). Mechanisms of cognitive set flexibility in Parkinson's disease. *Brain*, 124(Pt 12), 2503-2512.
- Cruise, K. E., Bucks, R. S., Loftus, A. M., Newton, R. U., Pegoraro, R. & Thomas, M. G. (2011). Exercise and Parkinson's: benefits for cognition and quality of life. *Acta Neurological Scandinavica*, 123(1), 13-19.
- Dorsey, E. R., Constantinescu, R., Thompson, J.P., et al. (2007). Projected number of people with Parkinson disease in the most populous nations, 2005 through 2030. *Neurology*, 68(5), 384-386.
- Dibble, L. E., Nicholson, D. E., Shultz, B., MacWilliams, B. A., Marcus, R. L. & Moncur, C. (2004). Sensory cueing effects on maximal speed gait initiation in persons with Parkinson's disease and healthy elders. *Gait & Posture*, 19(3), 215-225.
- Earhart, G. M. (2009). Dance as therapy for individuals with Parkinson disease. *European Journal of Physical and Rehabilitation Medicine*, 5(2), 231-238.
- Eyigor, S., Karapolat, H., Durmaz, B., Ibisoglu, U. & Cakir, S. (2009). A randomized controlled trial of Turkish folklore dance on the physical performance, balance, depression and quality of life in older women. *Archives of Gerontology and Geriatrics*, 48(1), 84-88.
- Freedland, R. L., Festa, C., Sealy, M., et al. (2002). The effects of pulsed auditory stimulation on various gait measurements in persons with Parkinson's Disease. *NeuroRehabilitation*, 17(1), 81-87.
- Gage, H. & Storey, L. (2004). Rehabilitation for Parkinson's disease: a systematic review of available evidence. *Clinical Rehabilitation*, 18(5), 463-482.
- Hackney, M. E. & Earhart, G. M. (2010). Effects of dance on balance and gait in severe Parkinson disease: a case study. *Disability and Rehabilitation*, 32(8), 679-684.
- Hackney, M. E. & Earhart, G. M. (2010). Effects of dance on gait and balance in Parkinson's disease: a comparison of partnered and non-partnered dance movement. *Neurorehabilitation & Neural Repair*, 24(4), 384-392.
- Hackney, M. E. & Earhart, G.M. (2010). Recommendations for implementing partnered dance classes for persons with Parkinson Disease. *American Journal of Dance Therapy*, 31(1), 41-45.
- Hackney, M. E. & Earhart, G. M. (2010). Effects of Dance on Gait and Balance in Parkinson Disease: A Comparison of Partnered and Non-Partnered Dance Movement. *Neurorehabilitation & Neural Repair*, 24(4), 384-392.
- Hackney, M. E. & Earhart, G. M. (2009). The Effects of a Secondary Task on Forward and Backward Walking in Parkinson's Disease. *Neurorehabilitation & Neural Repair*.
- Hackney, M. E. & Earhart, G. M. (2009). Short duration, intensive tango dancing for Parkinson disease: an uncontrolled pilot study. *Complementary Therapies in Medicine*, 17(4), 203-207.
- Hackney, M. E. & Earhart, G. M. (2009). Health-related quality of life and alternative forms of exercise in Parkinson disease. *Parkinsonism & Related Disorders*, 15(9), 644-648.
- Hackney, M. E. & Earhart, G. M. (2009). Effects of dance on movement control in Parkinson's disease: a comparison of Argentine tango and American ballroom. *Journal of Rehabilitation Medicine*, 41(6), 475-481.
- Hackney, M. E. & Earhart, G. M. (2008). Tai Chi improves balance and mobility in people with Parkinson disease. *Gait & Posture*, 28(3), 456-460.
- Hackney, M. E., Kantorovich, S., Levin, R. & Earhart, G. M. (2007). Effects of tango on functional mobility in Parkinson's disease: a preliminary study. *Journal of Neurologic Physical Therapy*, 31(4), 173-179.
- Hausdorff, J. M., Doniger, G. M., Springer, S., Yoge, G., Simon, E. S. & Giladi, N. (2006). A common cognitive profile in elderly fallers and in patients with Parkinson's disease: the prominence of impaired executive function and attention. *Experimental Aging Research*, 32(4), 411-429.
- Hirsch, M. A., Toole, T., Maitland, C. G. & Rider, R. A. (2003). The effects of balance training and high intensity resistance training on persons with idiopathic Parkinson's disease. *Archives of Physical Medicine and Rehabilitation*, 84(8), 1109-1117.
- Howe, T. E., Lovgreen, B., Cody, F. W., Ashton, V. J. & Oldham, J. A. (2003). Auditory cues can modify the gait of persons with early-stage Parkinson's disease: a method for enhancing parkinsonian walking performance? *Clinical Rehabilitation*, 17(4), 363-367.
- Jeka, J. J. (1997). Light touch contact as a balance aid. *Physical Therapy*, 77(5), 476-487.
- Jiang, Y. & Norman, K. E. (2006). Effects of visual and auditory cues on gait initiation in people with Parkinson's disease. *Clinical Rehabilitation*, 20(1), 36-45.
- Kadivar, Z., Corcos, D. M., Foto, J. & Honzinski, J. M. (2011). Effect of step training and rhythmic auditory stimulation on functional performance in Parkinson patients. *Neurorehabilitation & Neural Repair*, 25(7), 626-635.
- Kliegel, M., Phillips, L. H., Lemke, U. & Kopp, U. A. (2005). Planning and realisation of complex intentions in patients with Parkinson's disease. *Journal of Neurology, Neurosurgery, and Psychiatry*, 76(11), 1501-1505.
- Leroi, I., Collins, D. & Marsh, L. (2006). Non-dopaminergic treatment of cognitive impairment and dementia in Parkinson's disease: a review. *Journal of the Neurological Sciences*, 248(1-2), 104-114.
- Lewis, M. M., Slagle, C. G., Smith, A. B., et al. (2007). Task specific influences of Parkinson's disease on the striato-thalamo-cortical and cerebello-thalamo-cortical motor circuitries. *Neuroscience*, 147(1),

224-235.

- Low, K. A., Miller, J. & Vierck, E. (2002). Response slowing in Parkinson's disease: a psychophysiological analysis of premotor and motor processes. *Brain*, 125(Pt 9), 1980-1994.
- Macera, C. A., Ham, S. A., Yore, M. M., et al. (2005). Prevalence of physical activity in the United States: Behavioral Risk Factor Surveillance System, 2001. *Preventing Chronic Disease*, 2(2), A17.
- McKee, K. E. & Hackney, M. E. (2013). The effects of adapted tango on spatial cognition and disease severity in Parkinson's disease. *Journal of Motor Behavior*, 45(6), 519-529.
- McKinley, P., Jacobson, A., Leroux, A., Bednarczyk, V., Rossignol, M. & Fung, J. (2008). Effect of a community-based Argentine tango dance program on functional balance and confidence in older adults. *Journal of Aging and Physical Activity*, 16(4), 435-453.
- Morris, M. E., Iansek, R. & Kirkwood, B. (2009). A randomized controlled trial of movement strategies compared with exercise for people with Parkinson's disease. *Movement Disorders*, 24(1), 64-71.
- Morris, M. E., Huxham, F., McGinley, J., Dodd, K. & Iansek, R. (2001). The biomechanics and motor control of gait in Parkinson disease. *Clinical Biomechanics* (Bristol, Avon), 16(6), 459-470.
- Muslimovic, D., Post, B., Speelman, J. D., Schmand, B. & de Haan, R.J. (2008). Determinants of disability and quality of life in mild to moderate Parkinson disease. *Neurology*, 70(23), 2241-2247.
- Narayana, S., Fox, P. T., Zhang, W., et al. (2010). Neural correlates of efficacy of voice therapy in Parkinson's disease identified by performance-correlation analysis. *Human Brain Mapping*, 31(2), 222-236.
- Nieuwboer, A., Dom, R., De Weerd, W., Desloovere, K., Fieuws, S. & Broens-Kaucsik, E. (2001) Abnormalities of the spatiotemporal characteristics of gait at the onset of freezing in Parkinson's disease. *Movement Disorders*, 16(6), 1066-1075.
- Nieuwboer, A., Rochester, L., Muncks, L. & Swinnen, S. P. (2009). Motor learning in Parkinson's disease: limitations and potential for rehabilitation. *Parkinsonism & Related Disorders*, 15 Suppl. 3, S53-58.
- Noyes, K., Liu, H., Li, Y., Holloway, R. & Dick, A.W. (2006) Economic burden associated with Parkinson's disease on elderly Medicare beneficiaries. *Movement Disorders*, 21(3), 362-372.
- O'Shea, S., Morris, M. E. & Iansek, R. (2002). Dual task interference during gait in people with Parkinson disease: effects of motor versus cognitive secondary tasks. *Physical Therapy*, 82(9), 888-897.
- Qutubuddin, A. A., Cifu, D. X., Armistead-Jehle, P., Carne, W., McGuirk, T. E. & Baron, M. S. (2007). A comparison of computerized dynamic posturography therapy to standard balance physical therapy in individuals with Parkinson's disease: a pilot study. *NeuroRehabilitation*, 22(4), 261-265.
- Possin, K. L., Filoteo, J. V., Song, D. D. & Salmon, D. P. (2008). Spatial and object working memory deficits in Parkinson's disease are due to impairment in different underlying processes. *Neuropsychology*, 22(5), 585-595.
- Protas, E. J., Mitchell, K., Williams, A., Qureshy, H., Caroline, K. & Lai, E. C. (2005). Gait and step training to reduce falls in Parkinson's disease. *NeuroRehabilitation*, 20(3), 183-190.
- Ridgel, A. L., Vitek, J. L. & Alberts, J.L. (2009). Forced, not voluntary, exercise improves motor function in Parkinson's disease patients. *Neurorehabilitation & Neural Repair*, 23(6), 600-608.
- Sacco, K., Cauda, F., Cerliani, L., Mate, D., Duca, S. & Geminiani, G. C. (2006). Motor imagery of walking following training in locomotor attention. The effect of "the tango lesson". *NeuroImage*, 32(3), 1441-1449.
- Sen, S., Kawaguchi, A., Truong, Y., Lewis, M. M. & Huang, X. (2010). Dynamic changes in cerebellothalamo-cortical motor circuitry during progression of Parkinson's disease. *Neuroscience*, 166(2), 712-719.
- Spraker, M. B., Prodoehl, J., Corcos, D. M., Comella, C. L. & Vaillancourt, D. E. (2010). Basal ganglia hypoactivity during grip force in drug naive Parkinson's disease. *Human Brain Mapping*, 31(12), 1928-1941.
- Taniwaki, T., Okayama, A., Yoshiura, T., et al. (2006). Functional network of the basal ganglia and cerebellar motor loops *in vivo*: different activation patterns between self-initiated and externally triggered movements. *NeuroImage*, 31(2), 745-753.
- Toth, M. J., Fishman, P. S. & Poehlman, E. T. (1997). Free-living daily energy expenditure in patients with Parkinson's disease. *Neurology*, 48(1), 88-91.
- Trost, M., Su, S., Su, P., et al. (2006). Network modulation by the subthalamic nucleus in the treatment of Parkinson's disease. *NeuroImage*, 31(1), 301-307.
- Vergheze, J. (2006). Cognitive and mobility profile of older social dancers. *Journal of the American Geriatrics Society*, 54(8), 1241-1244.
- Werheid, K., Koch, I., Reichert, K. & Brass, M. (2007). Impaired self-initiated task preparation during task switching in Parkinson's disease. *Neuropsychologia*, 45(2), 273-281.
- Wu, T., Wang, L., Hallett, M., Chen, Y., Li, K. & Chan, P. (2011). Effective connectivity of brain networks during self-initiated movement in Parkinson's disease. *NeuroImage*, 55(1), 204-215.
- Wu, T., Long, X., Wang, L., et al. (2011). Functional connectivity of cortical motor areas in the resting state in Parkinson's disease. *Human Brain Mapping*, 32(9), 1443-1457.
- Yu, H., Sternad, D., Corcos, D. M. & Vaillancourt, D. E. (2007). Role of hyperactive cerebellum and motor cortex in Parkinson's disease. *NeuroImage*, 35(1), 222-233.

# ***Looking in the mirror: Limits of Mirror Neuron Theory (MNT) and Applications for Dance/Movement Therapy (DMT)***

**Rebecca Barnstaple, PhD Candidate<sup>1,4,5,6</sup>, Cecilia Fontanesi, CMA, MPhil, PhD candidate, CUNY, and Joseph X. DeSouza, PhD,<sup>1,2,3,4,5,6,7</sup>**

1. Centre for Vision Research 2. Department of Psychology 3. Department of Biology 4. Department of Dance  
5. Neuroscience Graduate Diploma Program 6. Graduate Program in Interdisciplinary Studies, York University, Toronto, ON  
7. Canadian Action and Perception Network (CAPnet) 8. CUNY

“Mirror Neurons” and the “mirror neuron system” have been invoked in association with cognition, empathy, sociality, language, action understanding, and dysfunction in these areas for almost three decades. The concept of mirror neurons and a mirror neuron system in humans has acquired traction in diverse fields, including that of dance/movement therapy. This paper reviews the literature pertaining to the origins of mirror neurons and the mirror neuron system in humans, offering that applications which presume the existence and role of mirror neurons in higher-order human behaviour are misguided, and in some cases, may preclude the development of more accurate or useful explanatory models.

## ***Introduction***

The concept of “Mirror Neurons”, which in early days were sometimes dubbed, rather appropriately, “monkey-see-monkey-do neurons” (Carey, 1996), emerged when a research group in Parma, Italy (Rizzolatti et al., 1996) found, quite by accident, that cells they were recording from in monkey cortex F5 fired when the monkey saw an experimenter execute an action. This was surprising, as the cells they were recording from were in motor cortex, and directly involved in the monkey’s own actions (they were not taken to be sensory or associative cells). The implications of these same cells’ involvement in the observation of action performed by another monkey/human has since begat a ream of hypotheses, great and small. These include central roles for mirror neurons in language acquisition (Gallese, 2007), empathy (Preston & deWaal, 2002, Decety & Jack-

son, 2004, and Gallese & Goldman, 1998), sociality (Iacoboni, 2009), “action understanding” (di Pellegrino et al., 1992, Rizzolatti et al., 1996, Rizzolatti & Craighero, 2005, and Rizzolatti et al., 2010), explaining autism (Oberman et al., 2005, Dapretto et al., 2006, Perkins et al., 2010, and Oberman et al., 2008), and the birth of civilisation (Ramachandran, 2000). Many people have been very excited by the concept of mirror neurons, however, attribution of higher-order processes such as “understanding” (which is not at all understood, by anyone) to a minority of specific cells in an area of cortex that, upon further investigation, may itself not be that well understood, seems misguided. It also impedes more in-depth inquiry into these complex phenomena and encourages simplistic sufficing both within and outside the field of neuroscience. This review explores the science of mirror neurons and the implications of their “discovery”, particularly in relation to their uses (and abuses) in Dance/Movement Therapy (DMT). One of these applications relates to the use of a technique referred to as “mirroring” in DMT, which many dance therapists suppose is explained by, and derives its effectiveness from, “mirror neurons”. While it is important that diverse fields and professionals such as dance therapists have an interest in applying neuroscientific findings in their theories and methods, and there are certainly many paths to explore concerning how movement is made by, and in turn influences, the central nervous system, in this case they may be barking at the wrong monkey.

## Origins

First, a little history - it is instructive to revisit the experiment and context in which mirror neurons were first discovered (technically, it was more like “uncovered”) if we are to better understand what is known, and not known, but rather supposed about them. The studies that first reported these neurons (Rizzolatti et al., 1998, Rizzolatti et al., 1996, di Pellegrino et al., 1992, and Gallese et al., 1996) involved single-cell recording in monkey area F5 (see Table 1 for details on the applications and limitations of techniques in neuroscience), a technique of brain-mapping that entails the measurement of action potentials from single cells in (in this case) awake and behaving animals (specifically, Macaque monkeys). This technique has contributed to much of what we know about brain organisation and neuronal function in various systems, particularly the visual; while of fundamental importance for demonstrating aspects of how the brain works, single-cell recording and related techniques may also have contributed to our not understanding how the brain works. Drawing on computational/mechanistic models of brain functioning, early work in this area presumed a neural “code” for X (neural activation) relative to Y (stimulus). As understanding of networks, plasticity, and functional brain organisation grows, it is increasingly likely that our models of neuronal signalling must include multiple responses to changeable stimuli that may be related in ways that have little to do with linear logic. At this time, we still do not have a framework that can provide an answer to what Li and Tsien (2017) recently referred to as the two hard problems at the heart of brain decoding research: what is the basic wiring logic of the brain, and what is the basic operational rule for representing real-time information? They write, “In the absence of such an overarching framework under which neurons connect or organize themselves, merely reading out neural signals corresponding to external stimulus identity is very much like a fictional biologist who may discern a foreign message from a radio yet has no idea about how radios work.” (*ibid*). In the case of Mirror Neurons, when specific cells showed activation that was unexpected in the context of the original experiment, this was taken to indicate the discovery of “a surprising new class of premotor neurons” (di Pellegrino et al.,

1992). A more clear-headed interpretation could be that the activation of these cells in an unanticipated context may be taken as an indication of the limits of the accepted model of brain wiring/function at that time. In any case, as described in Table 1, the methods of the original research (single-cell recording) that detected “mirror neurons” are not well-equipped or sufficient to come to the kind of conclusions and hypotheses about higher-order cognition, sociality, language, and empathy that mirror neuron theory has come to be associated with.

**Table 1 - Neuroimaging Techniques**

Technique	How it works	Limitations
<b>Single-cell recording</b>	Measures action potentials from individual neurons via electrodes implanted in the brain.	Requires brain surgery; cannot be performed on humans unless they are already having brain surgery and give consent. Does not show connections to other neurons or brain areas.
<b>fMRI</b> Functional Magnetic Resonance Imaging	Measures changes in oxygen levels in the blood related to BOLD signal (blood oxygenation level response) by taking many images and combining them over time.	Signal change can imply either excitation or inhibition, as both involve neural activity that requires oxygen. Good spatial resolution (within millimeters); temporal resolution on the order of full seconds. Requires complex statistical analysis and the combination of multiple images.
<b>EEG</b> Electroencephalography	Measures electrical activity of large populations of neurons near the surface of the brain (cortical) via electrodes placed on the scalp.	Good temporal but poor spatial resolution; signal is generated by many neurons, sometimes in disparate regions of the brain, and is affected/diffused by passing through the scalp.
<b>TMS</b> Transcranial Magnetic Stimulation	Uses a magnetic pulse to create a temporary “lesion” in the brain (knock-out an area).	Allows for speculation about function without causing permanent changes; still limited in terms of spatial accuracy – affects populations of neurons in an area of >5mm.
<b>PET</b> Positron Emission Tomography	Measures brain activity indirectly through changes in blood flow, indicated by the introduction of a radioactive tracer.	Fairly high spatial resolution (around 1cm), very poor temporal resolution (on the order of minutes). Also requires the use of radioactive isotopes – cannot be repeated frequently on the same subject.
<b>MEG</b> Magnetencephalography	Measures magnetic fields associated with large populations of neurons using magnetometers; similar to EEG. Can be combined with fMRI for greater localisation specificity.	Good temporal resolution, and signal is not diffused by the scalp; however, there are problems with signal intermixing and spatial resolution is still poor.

Rizzolatti and others in Parma, Italy (henceforth referred to as the Parma group) were interested in mapping the function of neurons in monkey cortex F5, a region of what is traditionally considered motor or premotor cortex. Neurons in this area are/were thought to be primarily (or perhaps exclusively) related to motor function, and the Parma group was working in the tradition of Woolsey, Evarts, and others whose electrophysiological studies were predicated on, and furthered this assumption (Woolsey et al., 1952, and Evarts, 1968). What they discovered were that many F5 neurons become active during particular goal-directed hand movements, such as

grasping, holding, and tearing; some fire only in relation to types of hand grips, such as pinching, grasping from a specific direction, or grasping with the whole hand; and a proportion of F5 neurons are activated by visual stimuli requiring a particular type of grasp [; emphasis mine ] (Rizzolatti et al., 1988). This evidence of motor neurons firing in response to visual stimuli were surprising; common neurosense at the time was that the brain had two major systems – sensory (inputs, such as the visual system) and motor (outputs, movements or behaviour). What further interested the Parma group was evidence that F5 neurons fired in relation to two or more motor acts,

such as during grasping movements of the hand in the absence of mouth movements and during grasping movements of the mouth in the absence of hand movements. Given that distinct sets of muscles were used in these actions, they offered an interpretation that “something more abstract than a single movement is coded by F5 neurons” and ruled out explanation of their activity in terms of individual movements (Rizzolatti et al., 1988). These two aspects (1. Identified “motor” neurons responding to visual stimuli; and 2. Specific neurons firing in relation to more than one specific motor act), taken together, provided the basis for much of the speculation as to what mirror neurons are and do – the idea that they either contain or code for abstract concepts, and can somehow attribute or access “meaning” beyond specific motor acts.

In 1992, the Parma group published the results of a set of experiments they conducted to further study the activity of F5 neurons (di Pellegrino et al., 1992), which included conditions that separated stimulus-associated responses from the activity related to the movements. In these experiments, a macaque monkey was trained to retrieve objects of different sizes and shapes from a testing box with a variable delay after stimulus presentation. This created the conditions for the incidental recording of F5 neurons that showed activation when the monkey observed one of the experimenters performing an action – in this case, picking up food and placing it in the box – while there was no overt movement of the monkey. This “surprising new class of premotor neurons” (*ibid*, p. 176), that discharge both during observation and execution of a motor act, are what went on to be called “mirror neurons”. In this and subsequent research, the Parma group defined their function, identified several subtypes, and went on to offer increasingly broad speculations as to their existence and role in human cognition. Due to the overlap of monkey area F5 with the human homologue of Broca’s area and its associations with language, many of the early conjectures made connections with motor theories of speech perception, which had enjoyed some popularity in the past (Liberman, 1967). Rizzolatti et al, building on contemporary theories extending the motor theory of speech (1996) posited “... the functional specialization of human Broca’s area derives from an ancient mechanism related to production and understanding of motor act. From this mechanism evolved, possibly in relation with the development of a more complex

social life, first the capacity to make and interpret facial communicative gestures and, then, the capacity to emit and understand ‘verbal gestures’”. Once a language area is involved, it is a short explanatory leap to meaning production and comprehension. However, as Hickock, a major critic of mirror neuron theory argues, “there is no evidence from monkey data that directly tests this theory, and evidence from humans makes a strong case against the position” (2009). As Hickock is fond of pointing out, much of the hype associated with mirror neurons is due to their presumed connection with higher-order human behaviours and achievements, such as action understanding, language, empathy, and imitation. The issue is, mirror neurons – if we stick to a clear and precise definition of these as individual cells that are shown to demonstrate activity in both execution and observation of the same action – have not been recorded in humans (with one exception – see next section). All mirror-neuron research conducted with, or related to humans, is based on research with monkeys and conjecture built on these findings; we cannot, under normal circumstances record from single neurons in awake and behaving humans. PET, fMRI, TMS and other techniques used in human research can only identify (without much granularity) populations of neurons or general brain areas, often trading-off spatial accuracy for temporal measures. For this reason, we must take mirror neuron research associated with humans with a grain of salt. While neural activation occurs and can be measured when we watch, or observe, behaviour, this does not necessarily mean that we are simulating for the purposes of action understanding. If this were the case, it implies an impoverished version of action understanding that proponents of embodiment would not be comfortable with, as it diminishes the importance of context and environmental cues. This and other philosophical problems will be explored at greater depth in later sections; at this point, I will review the one study that attempts to measure mirror neuron activity in humans.

### **Mirror Neurons in Humans**

At the time of writing, a search of PubMed returned 1671 papers which referenced mirror neurons and 2149 for “mirror neuron”. The great majority of these are concerned with research involving humans (not monkeys), and it is research involving human subjects

(and potential applications) that continues to make mirror neurons a subject of interest in fields beyond neuroscience. A common opening to papers involving mirror neurons briefly touches on their discovery (the monkey research by the Parma group), then moves on to say that subsequent studies have revealed the existence of mirror neurons, or more conservatively, a “mirror system” in humans. However, although human neuroimaging experiments can demonstrate a broad overlap between human cortical areas active during action observation and homologous areas in monkeys where mirror neurons have been reported, this in and of itself is not sufficient to determine whether this is indeed the activity of the same neurons, or even if the system is working in a similar way. Problematically, some of the research that has sought to clarify the locations of mirror neurons more precisely has instead served to expand their possible locations to include areas such as the parietal cortex (Gallese et al., 2002), primary motor and dorsal premotor regions (Tkach et al. 2007), and human studies have expanded these regions even further. If we cannot determine that the activity being measured is produced by the self-same neurons (or for that matter, even know to a high-degree of specificity which neurons are being measured), the mirror neuron hypothesis loses much of its credibility and usefulness. It may be that we are confusing various kinds of intrinsic activation and/with the necessarily ongoing importance of action observation, which—especially in the context of MNT—is associated with higher-level cognitive and social skills, and surely will involve many areas of cortex at various temporal phases. Perhaps all that can really be stated is that something happens, and the brain indicates activity (which may be a response). But this is not what is said; instead, most papers contain statements such as this: “Subsequent studies revealed the existence of a mirror system also in humans”, listing Fadiga et al. 1995; Grafton et al. 1996; Rizzolatti et al. 1996a,b; Hari et al. 1998; Iacoboni et al. 1999, 2001; Nishitani & Hari 2000, 2002; Buccino et al. 2001; Decety et al. 2002; Koski et al. 2002, 2003; Grezes et al. 2003 (Ferrari et al., 2009). What must be made note of, however, is that NONE of the above papers (with the exception of Rizzolatti, who I take is cited here for his own references to human research), employed techniques capable of indicating “true” mirror neuron activity in the strict sense. Fadiga et al used TMS, Grafton et al

used PET, Hari et al and Nshitani & Hari were MEG studies, and Iacoboni et al, Buccino et al, and Grezes used fMRI.

As indicated in Table 1, techniques in neuroscience provide information at various levels of detail. The only technique that tells us anything about specific neurons is direct, single-cell recording, which is not, under normal circumstances, possible in humans (getting ethics for this kind of work is extremely difficult). All other techniques are ways to explore brain regions, or populations of neurons, to greater or lesser degrees of refinement/granularity, both spatial and temporal. While there are thousands of papers published on topics related to the function, dysfunction, or role of mirror neurons in humans, there is to my knowledge just ONE that can legitimately claim to have measured/observed the action of specifically identified neurons with the intent to probe the mirror system—“Single-Neuron Responses in Humans during Execution and Observation of Actions”, from Mukamel, published in 2010 (Mukamel et al., 2010).

In this study, Mukamel et al recorded extracellular single and multi-unit activity in 1177 neurons from 21 patients with pharmacologically intractable epilepsy, and they report findings that are at best inconclusive in terms of demonstrably proving mirror neuron activity. There were three related aspects to their experiment, which included action observation, action execution, and action suppression (control condition). In the action-execution aspect, subjects alternately watched or were asked to perform grasping a cup with either a precision or whole-hand grip (all stimuli were presented on a laptop screen positioned by the patient’s bedside). A second aspect focused on facial expressions (smile/frown), which subjects either watched, or were prompted to perform by a visually presented word. In the control task, the same words were shown, and the patients were instructed not to execute the action. The areas for recording were medically determined, and thus ranged more broadly than (and did not specifically correlate with) areas strictly defined in the original monkey research. In all, 652 neurons (369 single units and 283 multi units were recorded from in the medial frontal cortex, including from the supplementary motor area (both SMA-proper and pre-SMA), and anterior cingulate cortex (both the dorsal and rostral ACC); 525 neurons were recorded from in the medial frontal

cortex (296 single units, and 229 multi units) in the amygdala, hippocampus, parahippocampal gyrus (PHG) and entorhinal cortex (EC). From examining the cell's response either during action observation and/or action execution, cells were classified as either Action-observation neurons, Action-execution neurons, Action-Observation/Execution non-matching neurons, or Action Observation/Execution matching neurons. The Action-observation neurons were those that only responded during one or more action-observation conditions and not during any of the action-execution conditions (smile observation and frown observation); Action-executing neurons responded during one of or more action-execution conditions and not during any of the action-observation conditions (precision-grip execution); Action Observation/Execution non-matching neurons responded during action-observation and action-execution in different conditions (smile observation; frown execution) and finally, Action Observation/Execution matching neurons responded during both the execution and observation of the same action (smile observation and execution). This is important, as it is only the cells in this last category that strictly conform with the description of mirror neurons as defined by the original experiments of the Parma group. Significant proportions of cells with these specific response patterns were only found in the medial frontal lobe (SMA) and medial temporal lobe; more specifically, in hippocampus, parahippocampal gyrus, and entorhinal cortex.

What most surprised the group was finding action observation/execution matching neurons in the medial temporal lobe (MTL), as this is not an area associated with mirror neurons. As the only cells included for consideration were those that did not respond during the control condition (when the word stimuli – the concept – was presented, but subjects were instructed not to perform the action), the group acknowledges that this may be taken to indicate that these neurons cannot “represent the concept of the action” (a blow to the whole action-understanding hypothesis). They offer an alternative account that these cells may represent proprioceptive processing or may show re-activation during spontaneous recall of episodic memory, something their group previously explored in an engram-style investigation (Gelbard-Sagiv et al., 2008). The idea that action observation/execution matching neurons in the medial temporal

lobe may be involved in matching the sight of actions of others with the memory of those same actions performed by the observer makes a lot of sense; as Mukamel et al write, “Thus during action-execution, a memory of the executed action is formed, and during action-observation this memory trace is reactivated. This interpretation is in line with the hypothesis of multiple mirroring mechanisms in the primate brain, a hypothesis that can easily account for the presence of mirroring cells in many cortical areas” (2010). Thus, it is conceivable that “mirror neurons” are involved in action recognition, as opposed to understanding. As memory creation, storage and retrieval are key functions of the brain, and essential for complex behaviours, this hypothesis is attractive (and a lot less convoluted than that of understanding gestures, verbal or otherwise).

Research by Heyes, Hickock and others points to the related possibility that mirror neurons may be involved in associative learning (which requires memory). Heyes (2010) offers that an associative learning hypothesis has three advantages over that of action understanding—it provides a testable explanation for the differences between monkeys and humans, is consistent with emerging evidence that mirror neurons contribute to a range of social cognitive functions but do not play a dominant, specialised role in action understanding, and it is supported by recent data showing that the mirror neuron system can be transformed by sensorimotor experience and learning, even in adulthood. This is at least as exciting as the idea that these cells are involved in action understanding, and far more plausible; it also has clearer applications and relevance for the field of dance/movement therapy, which has been highly interested in mirror neurons, although, as will be explored below, perhaps not for the right reasons.

### Dancing Neurons

Dance therapists love mirror neurons. At a recent conference (American Dance Therapy Association, San Antonio, 2017), I couldn't help but notice that mirror neurons were referenced several times a day, both in the context of research (as an explanatory device and to suggest that neuroscience recognises and provides evidence for specific dance therapy techniques, such as “mirroring”) and socially (I am too tired to dance, I will sit and watch you with my

mirror neurons as science has shown that this is pretty much the same thing). One can hardly blame dance therapists for their excitement concerning mirror neurons. Neuroscientist V.S. Ramachandran famously claimed that “mirror neurons will do for psychology what DNA did for biology: they will provide a unifying framework and help explain a host of mental abilities that have hitherto remained mysterious and inaccessible to experiments” (2000); in a TED talk ten years later, he went so far as to dub them “The Neurons that Shaped Civilisation” (2010). Many prominent researchers have promoted the idea that the mirror neuron system is the basis for the fundamental mechanism underlying Theory of Mind (Gallese & Goldman, 1998), and our ability to understand the actions of others through direct simulation of observed events (Gallese et al., 2004). There are several problems with taking these claims at face value and importing them, without critical examination, into the realm of dance therapy. Among these are that simulation is not necessarily synonymous with empathy; mirror neurons, as originally identified in monkeys, are not associated with imitation, non-goal directed actions, or emotional content (all of which are involved in the DMT practice of “mirroring”); ascribing action understanding, social cognition, and emotional/empathetic involvement to singular neurons seems largely misguided; suggesting that acting is interchangeable with observing is a weird idea for a field of movement experts to promote; and finally, as outlined in the previous section, much of the research associated with mirror neurons using human subjects is wildly overstated and not strictly useful. What follows is an outline of common (mis)applications of MNT in DMT, some explication of why these are misguided and may instead be limiting applications of neuroscience in DMT, and suggestions for profitable directions for future research in DMT, mirror neurons, and at the confluence of single-cell activation and complex behaviours.

### ***Dance/Movement Therapy and “Mirroring”***

Dance/Movement Therapy is based on the study and transformation of movement behaviour within a therapeutic setting. The American Dance Therapy Association (ADTA) defines dance therapy (on their website) as “the psychotherapeutic use of movement to further the emotional, cognitive, physical and social

integration of the individual”. A relatively new profession in Canada, dance therapy has been practiced for well over fifty years in the U.S. and U.K., and as the field expands there is growing interest in conducting studies and connecting with research that can provide an empirical basis for DMT’s central theories and methods. The marriage of “mirroring” with “mirror neurons” is an example of such an attempt—“The research on mirror neurons is particularly pertinent to the work of dance/movement therapists in that it provides scientific support for the mirroring technique used in dance/movement therapy practice” (Berrol, 2006). “Mirroring” is a technique frequently employed in dance therapy, which “...occurs when two people make similar body movements that are coordinated or slightly echoed in time” (McGarry & Russo, 2011). Mirroring is thought to be involved in, or the basis of, “kinesthetic empathy” (this term is also prevalent in the humanities (Reynolds & Reason, 2012)), and much of the literature published in the field of dance therapy focuses on this aspect. In their paper “Mirroring in Dance/Movement Therapy: Potential mechanisms behind empathy enhancement” (2011), McGarry and Russo take up Wispe’s definition of empathy (1986) as that which “allows a person to take another’s viewpoint to understand the intentions behind their actions more fully; in other words, ‘feeling what they feel’” (p. 179). At first glance, this definition may seem naturally in alignment with Gallese’s writings on mirror neurons and their involvement in simulation and Theory of Mind (1998); however, if we look more closely, problems emerge. First, “simulation” is directly linked with a computational theory of mind, which imagines that cognition occurs in a “black box” and cannot directly access the world as a whole; this implies an impoverished ability to understand others by abstracting and removing context. If I cannot perceive why you are crying (fighting, laughing, chasing me with a hammer) without simulating the same actions with my own system, this suggests that the behaviours (and thoughts) of others are fundamentally opaque, and require complex interpretive computations to be understood. By overemphasising the specific actions of conspecifics while deleting or ignoring most contextual and environmental information, there is a reduction in the inherent complexity of others, their actions, and the world we inhabit. The requirement to simulate actions as we perceive them would also cause a significant delay in

reaction time—unfortunate in the case of your chasing me with a hammer. According to theories that suggest mirror neurons are involved in simulation and representation of behaviour, the understanding of motor events consists of “the capacity to recognize that an individual is performing an action, to differentiate this action from others analogous to it, and to use this information in order to act appropriately” (Gallese et al. 1998, p. 606). This rather robotic process of interpretation, action selection, and response described by Gallese does not closely resemble the empathy ascription implied by dance therapists.

In a seminal article that may be responsible for initiating the interest in mirror neurons within the field of dance therapy, Berrol (2006) asserts that Gallese “emphasizes that these inherent mirroring properties help explain the mechanisms of social, kinesthetic and emotional cognition or understanding” (p. 303). She also posits that the location of mirror neurons in the insula (drawing on Gallese, Rizzolatti & Fogassi) should be of particular interest to clinicians for “the association of mirror neurons with social conscience (or the superego – identified with feelings of disgust, shame guilt, pride and sexual desire).” (p. 306). This application of MNT that posits involvement in social conscience or in psychological concepts such as the superego is a huge leap from experiments that showed single neurons with an undefined role in action observation and execution. And this level of assumption is not uncommon; according to published research in dance therapy, mirroring—and by association, mirror neurons—affects emotional understanding (McGarry & Russo, 2011), as well as the strengthening of empathy between therapist and client, and between clients. These assertions are based on studies such as Fraenkel’s which analysed videotaped interactions for synchronous movement behaviour and correlations with feelings of empathy/closeness (1983); qualitative research reporting enhanced emotional awareness through movement (such as Mills & Daniluk (2002)); and the work of therapists like Janet Adler, whose use of mirroring with autistic children is documented in the film *Looking for me* (1970). In these examples, what is under consideration are complex behaviours and situations—not merely the replication of a goal-directed, isolated action. This is another order of empathic engagement entirely from that supposed by proponents of simulation models involving mirror neurons, which can seem

rather cold by comparison: “When the observation of an action performed by another individual evokes a neural activity that corresponds to that which, when internally generated, represents a certain action, the meaning of it should be recognized, because of the similarity between the two representations.” (Gallese et al., 1988, p.606). In Gallese’s estimation, which may still be overstated, mirror neurons may help us to recognise meaning. Dance therapy literature, on the other hand, suggests that mirroring (conflated with mirror neuron activity), “functions to increase emotional understanding of others, and enhance emotional bonding in the process, making it an important exercise to explore further through research.” (McGarry & Russo, 2011). These differing conceptions of mirror neurons’ role in “action understanding” and/or empathy are not suitable for conflation, and both extrapolate (somewhat wildly) from the original research.

A major hurdle for the direct application of MNT in dance therapy is that the monkey studies actually demonstrate something quite opposite to what is presumed—“mirror neurons” do not fire in cases of imitation or non-goal directed action. Mirroring in dance therapy is both imitative and non-goal directed, which suggests that if we are to invoke the activation of individually defined and specially-tuned neurons as the basis for this technique, they would necessarily have to exclude mirror neurons. According to the original research, “Activity in these cells is not exhibited in cases of pantomime (lacking an object to grasp) nor in the observation of objects alone (lacking hand movement)” (Rizzolatti et al., 1996). Mirroring in dance therapy does not usually involve the use of objects, and even when props are present, actions are seldom if ever explicitly goal-directed. To that end, according to Gallese et al, gestures having emotional meaning did not cause activation in the original research; “The visual responses of mirror and mirror-like neurons resulted from an interaction of the agent of the action with the object target of the action. The sight of the agent alone or of the object alone was ineffective. Even when the monkey saw both the hand miming an effective action and an object appropriate for it, the response was absent when the action was not directed toward the object (Rizzolatti et al., 1996, p. 604, emphasis mine). In the absence of objects and goal-directed action, as in the case “mirroring”, it seems unlikely (based on the original research) that mirror neurons can function as an explanation for, or mechanism behind, this technique.

## Conclusion

Despite the excitement around MNT in the fields such as dance therapy, which take it to suggest a scientifically validated basis for elements of a complex, humanistic practice that can be challenging to empirically define, I offer that an uncritical embrace of mirror neurons and the hype around them impedes proper research and offers nothing of additional explanatory value. Assertions such as Berrol's "A keystone for the therapeutic process of D/MT, the concept of mirroring is now the subject of neuroscience" [2006, p. 303], seems to suggest both fields are investigating the same phenomenon, with a shared basis of understanding and mutually compatible methods and goals. This is almost certainly not the case; there are no neuroscientific studies on the practice of mirroring in DMT. The methods for this are either not available, or under development; neuroimaging on moving subjects is a frontier that has yet to be breached.

A more conservative view, such as that expressed by Karkou and Meekums in their recent Cochrane review of DMT for Dementia (2017), acknowledges MN research while recognising essential differences in how concepts are applied between fields. While marking the association between kinaesthetic empathy, "movement mirroring", and the activation of mirror neurons, Karkou and Meekums specify that "...mirror neuron activity is associated with watching movements; different processes may be involved in actively mirroring movements, and so while some aspects of kinaesthetic empathy may involve mirror neuron activity, the processes involved in experiencing and conveying empathy are likely to be different." (2017, p. 5). They also point out that "the significance of mirror neurons within therapeutic kinaesthetic empathy is unclear; emotional engagement through a deliberate attempt to imagine oneself into another's experience appears to be an important additional requirement, used by dance movement therapists alongside their embodied engagement." (Meekums, 2012). This last point is key – dance therapists employ specific skills related to complex movement behaviour and aim to associate this with emotional, cognitive, or social functioning. This requires years of training (in both dance and psychotherapy) and eventual expertise, which far outstrips the conceptual basis of the monkey research matching action-execution

with action-observation (that went on to presume action-understanding).

If we turn our attention to alternative theories, such as Heyes associative hypothesis, which she asserts is supported by data that shows, even in adulthood, that the mirror neuron system can be transformed by sensorimotor learning (2010), there is a stronger base and richer set of ideas to explore in relation to the work of dance therapists, who aim to transform movement behaviour through interaction. Heyes writes, "The associative account implies that mirror neurons come from sensorimotor experience, and that much of this experience is obtained through interaction with others. Therefore, if the associative account is correct, the mirror neuron system is a product, as well as a process, of social interaction." (2010). Whatever mirror neurons, or the MNS are or do, the idea that the mechanisms underlying action observation and other-understanding are formed and develop with sensorimotor experience and social interaction is a boon to disciplines such as dance therapy. The associative account provides a clear basis for techniques that focus on movement behaviour, and suggests why transformation, learning, and growth can occur from participation in dance at any point in life, as shown in recent studies that demonstrate cognitive, motor, social, and emotional benefits resulting from dance (Houston & McGill, 2013, Westheimer et al., 2015, Kshetriya et al., 2015). Richer conceptions such as these, which allow for complex behaviour, environmental context, and learning effects, truly warrant careful investigation in terms of how neural mechanisms relate to complex social behaviour.

## References

- Adler, J. (1970). *Looking for me*. New York: NYU Film Library. American Dance Therapy Association (2009). Retrieved from [www.adta.org](http://www.adta.org).
- Berrol, C. F. (2006). Neuroscience meet dance/movement therapy: Mirror neurons, the therapeutic process and empathy. *The Arts in Psychotherapy*, 33, 302-315.
- Carey, D. P. (1996). Neurophysiology: 'Monkey see, monkey do' cells. *Current Biology*, 6 (9), 1087-1088.
- Dapretto, M., Davies, M. S., Pfeifer, J. H., Scott, A. A., Sigman, M., Bookheimer, S. Y., Iacoboni, M. (2006). Understanding emotions in others: mirror neuron dysfunction in children with autism spectrum disorders. *Nature Neuroscience*, 9(1), 28-30.
- Decety, J. & Jackson, P. L. (2004). The functional architecture of human empathy. *Behavioral and Cognitive Neuroscience Reviews*, 3 (2), 71-100.
- di Pellegrino, G., Fadiga, L., Fogassi, L., Gallese, V. & Rizzolatti, G. (1992). Understanding motor events: a neurophysiological study. *Experimental Brain Research*, 91(1), 176-80.

- Evarts, E. V. (1968). Relation of pyramidal tract activity to force exerted during voluntary movement. *Journal of Neurophysiology*, 31(1), 14-27.
- Ferrari, P. F., Bonini, L. & Fogassi, L. (2009). From monkey mirror neurons to primate behaviours: possible 'direct' and 'indirect' pathways. *Philosophical Transactions of the Royal Society B*, 364, 2311-2323.
- Fraenkel, D. (1983). The relationship of empathy in movement to synchrony, echoing, and empathy in verbal interactions. *American Journal of Dance Therapy*, 6(1), 31-48.
- Gallese, V. (2007) Mirror neurons and the social nature of language: The neural exploitation hypothesis. *Social Neuroscience*, (3)3, 317-333.
- Gallese, V., Fogassi, L., Fadiga, L., & Rizzolatti, G. (2002). Action representation and the inferior parietal lobule. *Common Mechanisms in Perception and Action: Attention and Performance*, 19, 247-266.
- Gallese, V., Fadiga, L., Fogassi, L. & Rizzolatti, G. (1996). Action recognition in the premotor cortex. *Brain*, 119(2), 593-609.
- Gallese, V. & Goldman, A. (1998). Mirror neurons and the simulation theory of mind-reading. *Trends in Cognitive Sciences*, 2(12), 493-501.
- Gallese, V., Keysers, C. & Rizzolatti, G. (2004). A unifying view of the basis of social cognition. *Trends in Cognitive Sciences*, 8(9), 396-403.
- Gelbard-Sagiv, H., Mukamel, R., Harel, M., Malach, R., & Fried, I. (2008) Internally generated reactivation of single neurons in human hippocampus during free recall. *Science*, 322, 96-101.
- Heyes, C. (2010). Where do mirror neurons come from? *Neuroscience & Biobehavioral Reviews*, 34(4), 575-83.
- Hickok, G. (2009). Eight problems for the mirror neuron theory of action understanding in monkeys and humans. *Journal of Cognitive Neuroscience*, 21(7), 1229-1243.
- Houston, S. & McGill, A. (2013). A mixed-methods study into ballet for people living with Parkinson's. *Arts & Health*, 5(2), 103-119.
- Iacoboni, M. (2009). Imitation, empathy, and mirror neurons. *Annual Review of Psychology*, 60, 653-70.
- Karkou, V. & Meekums, B. (2017). Dance movement therapy for dementia. *Cochrane Database of Systematic Reviews* 2. Art. No.: CD011022. DOI: 10.1002/14651858.CD011022.pub2.
- Kshetriya S, Barnstaple R, Rabinovich D & DeSouza JFX (2015). Dance and Aging: A critical review of findings in neuroscience. *American Journal of Dance Therapy*, 1-32.
- Li, M. & Tsien, J. Z. (2017). Neural Code—Neural Self-information Theory on How Cell-Assembly Code Rises from Spike Time and Neuronal Variability. *Frontiers in Cellular Neuroscience*.
- Liberman, Cooper, Shankweiler & Studdert-Kennedy, 1967.
- MacNeilage, P. F. (1998). The frame/content theory of evolution of speech production. *Behavioral and Brain Sciences*, 21(4), 499-511.
- McGarry, L. M. & Russo, F. A. (2011). Mirroring in Dance/Movement Therapy: Potential mechanisms behind empathy enhancement. *The Arts in Psychotherapy*, 38, 178-184.
- Meekums, B. (2012). Kinesthetic Empathy and Movement Metaphor in Dance Movement Psychotherapy. In Reynolds, D., Reason, M. (Ed.), *Kinaesthetic Empathy in Creative and Cultural Practices*. Bristol, England: Intellect Publishing.
- Mills, L. & Daniluk, J. (2002). Her body speaks: The experience of dance therapy for women survivors of child sexual abuse. *Journal of Counseling & Development*, 80(1), 77-85.
- Mukamel, R., Arne, D., Ekstrom, J. K., Iacoboni, M. & Itzhak, F. (2010). Single-Neuron Responses in Humans during Execution and Observation of Actions. *Current Biology*, 20(8), 750-756.
- Oberman, L. M., Hubbard, E. M., McCleery, J. P., Altschuler, E. L., Ramachandran, V. S. & Pineda, J. A. (2005). EEG evidence for mirror neuron dysfunction in autism spectrum disorders. *Cognitive Brain Research*, 24(2), 190-8.
- Oberman, L. M., Ramachandran, V. S., Pineda, J. A. (2008). Modulation of mu suppression in children with autism spectrum disorders in response to familiar or unfamiliar stimuli: the mirror neuron hypothesis. *Neuropsychologia*, 46(5): 1558-65.
- Perkins, T., Stokes, M., McGillivray, J. & Bittar, R. (2010). Mirror neuron dysfunction in autism spectrum disorders. *Journal of Clinical Neuroscience: Official Journal of the Neurosurgical Society of Australasia*, 17(10), 1239-43.
- Preston, S. D. & deWaal, F. B. M. (2002). Empathy: Its ultimate and proximate bases. *Behavioral and Brain Sciences*, 25, 1-72.
- Ramachandran, V. S. (2000). Mirror neurons and imitation learning as the driving force behind "the great leap forward" in human evolution. *Edge*. Retrieved from: [http://www.edge.org/3rd\\_culture/ramachandran/ramachandran\\_p1.html](http://www.edge.org/3rd_culture/ramachandran/ramachandran_p1.html).
- Reynolds, D. & Reason, M. (2012). *Kinesthetic Empathy in Creative and Cultural Practices*. Chicago, IL: Intellect.
- Rizzolatti, G., Camarda, R., Fogassi, L., Gentilucci, M., Luppino, G., & Matelli, M. (1988). Functional organization of inferior area 6 in the macaque monkey. II. Area F5 and the control of distal movements. *Experimental Brain Research*, 71(3), 491-507.
- Rizzolatti, G. & Craighero, L. (2004). Review: The mirror-neuron system. *Annual Review of Neuroscience*, 27, 169-92.
- Rizzolatti, G., Fadiga, L., Matelli, M., Bettinardi, V., Paulesu, E., Perani, D. & Fazio, F. (1996). Localization of grasp representations in humans by PET: 1. Observation versus execution. *Experimental Brain Research*, 111(2), 246-252.
- Rizzolatti, G., Fogassi, L. & Gallese, V. (2001) Neurophysiological mechanisms underlying the understanding and imitation of action. *Nature Reviews Neuroscience*, 2(9), 661-670.
- Rizzolatti, G. & Sinigaglia, C. (2010). The functional role of the parieto-frontal mirror circuit: interpretations and misinterpretations. *Nature Reviews Neuroscience*, 11, 264-274.
- Tkach, D., Reimer, J. & Hatsopoulos, N. G. (2007). Congruent activity during action and action observation in motor cortex. *The Journal of Neuroscience*, 27(48), 13241-13250.
- Westheimer, O., McRae, C., Henchcliffe, C., Fesharaki, A., Glazman, S. & Ene, H. et. Al. (2015). Dance for PD: a preliminary investigation of effects on motor function and quality of life among persons with Parkinson's disease (PD). *Journal of Neural Transmission*, 122(9): 1263-1270.
- Wispé, L. (1986). The distinction between sympathy and empathy: To call forth a concept, a word is needed. *Journal of Personality and Social Psychology*, 50(2), 314-321.
- Woolsey, C. N., Settlage, P. H., Meyer, D. R., Sencer, W., Pinto Hamuy, T. & Travis, A. M. (1952). Patterns of localization in precentral and "supplementary" motor areas and their relation to the concept of a premotor area. *Research Publications – Association for Research in Nervous and Mental Disease*, 30, 238-264.



# CONFÉRENCIÈRES INVITÉES

## KEYNOTE ADDRESSES



Le Premier symposium international sur la danse et le mieux-être se voulant représentatif de la diversité d'acteurs que comporte le secteur de la danse et du mieux-être, nous avons mandaté notre comité de sélection pour proposer des conférencières à l'image de cette diversité, afin d'ouvrir chacune des trois journées de l'événement.

Du point de vue du patient et des institutions (elle est représentante du programme « Les patients pour la sécurité des patients » de l'Organisation mondiale de la santé), Katrine Kirk a livré un touchant témoignage sur comment la danse l'a aidée à guérir. Dr Hackney a, quant à elle, démontré par sa recherche et ses interventions les bienfaits de la danse sur les personnes atteintes de Parkinson, du point de vue de la physiothérapie. Quant à Robyn Flaum Cruz, elle aborde l'importance de la recherche pour soutenir les interventions en danse et l'heureux mélange possible de ces deux disciplines.

The First International Symposium for Dance and Well-Being sought to be representative of the diversity of players in the world of dance and well-being. With this in mind, we tasked our selection committee with suggesting lecturers who reflect that diversity for the opening talk of each of the three days of the event.

From the point of view of the patient and of institutions (she is a representative of the World Health Organization program “Patients for Patient Safety”), Katrine Kirk delivered a touching account of how dance helped her heal. Dr. Hackney demonstrated through her research and her interventions the benefits of dance on people with Parkinson’s disease, from the standpoint of physiotherapy. And Robyn Flaum Cruz addressed the importance of research for supporting interventions in dance and the possible happy blend of the two disciplines.

# Katrine Kirk,

M. Sc. (Copenhagen, Danemark)  
MSc (Copenhagen, Denmark)

## **Danser en équilibre – Guide de survie d'une patiente**

La médecine a tendance à voir l'effet placebo comme une source d'erreur. Mais pourquoi ne pas plutôt le considérer comme une preuve évidente de la connexion entre le corps et l'esprit qui a une influence directe sur le mieux-être d'un patient? Étant donné que notre condition physique et notre état mental ont une incidence sur notre santé, pourquoi notre système de santé ne met-il pas davantage l'accent sur le soutien au patient dans la mobilisation de ses ressources physiques et mentales? La danse-thérapie peut-elle s'avérer un moyen simple d'obtenir de meilleurs résultats cliniques pour les patients gravement malades?

Katrine Kirk a raconté sa propre histoire : comment le ballet classique l'a aidée à se remettre d'un traitement contre le cancer au pronostic désastreux.

Dans cette conférence, Katrine a utilisé son expérience personnelle pour illustrer l'importance de renforcer le corps et l'esprit des patients pour aider à la guérison. De plus en plus de recherches le confirment : la plupart des patients atteints de maladies graves ne sont pas encouragés par le personnel médical à s'aider à devenir plus fort physiquement.

*Katrine Kirk est une spécialiste de l'engagement des patients. Il y a de nombreuses années, alors qu'elle suivait un traitement contre le cancer, elle a décidé de bifurquer professionnellement, et de passer de la recherche universitaire organisationnelle à l'amélioration des soins de santé au Danemark. En tant qu'associée fondatrice de PAR3 Healthcare Management Consultants, elle a donné des centaines de conférences inspirantes aux gestionnaires et aux praticiens de la santé. PAR3 offre des services-conseils sur la gestion du changement et de l'amélioration des procédés. Katrine Kirk s'intéresse plus particulièrement à la façon dont les systèmes de soins de santé et les professionnels peuvent faire participer les patients et leurs familles au traitement et aux soins.*

## **Dancing on Thin Ice – A Patient's Survival Strategies**

Medicine tends to look at the placebo effect as a source of error, but why not look at it this way: as strong evidence of a mind-body connection that has direct influence on patients' well-being? And given that our physical condition and mental state affects our health, why does our healthcare system not place a much stronger emphasis on supporting patients in mobilizing their physical and mental resources? Could dance therapy be a simple way to achieve better clinical outcomes for seriously ill patients?

Katrine Kirk told a deeply personal story about how classical ballet training helped her pull through cancer treatment in the face of dismal odds.

In this talk, Katrine Kirk has used her own experience to illustrate the importance of strengthening patients' bodies, minds and spirit to promote healing. There is a growing body of evidence about this, but most patients with serious illnesses are not encouraged by their healthcare providers to help themselves become stronger.

*Katrine Kirk is a patient engagement specialist. While going through cancer treatment many years ago, she decided to shift her career away from academic organizational research and towards improving healthcare in Denmark. As a founding partner of PAR3 Healthcare management consultants, she has given hundreds of inspirational talks to healthcare managers and clinicians. PAR3 consults on change management in improvement projects. Katrine's focus is on how healthcare systems and individual professionals can engage patients and their families in treatment and care.*



# Dre Madeleine E. Hackney,

Ph. D., B.A. (Atlanta, GA, États-Unis)  
PhD, BFA (Atlanta, GA, USA)

## ***Comment la danse avec un partenaire peut faciliter la réadaptation motrice chez les personnes atteintes de la maladie de Parkinson***

Les travaux de Madeleine E. Hackney se concentrent sur la conception et l'optimisation de thérapies basées sur la danse et le mouvement créatif afin d'améliorer la mobilité, la cognition et la qualité de vie chez les personnes âgées atteintes de troubles du mouvement. La danse peut servir de thérapie auxiliaire à la pharmacologie et à la chirurgie dans le cas de maladies telles que le Parkinson puisque la danse semble avoir des bienfaits sur les plans moteur, social et cognitif. La danse avec un partenaire est un moyen tactile sophistiqué qui transmet les objectifs de mouvements entre le « leader » et celui qui suit le mouvement. Ces rôles intègrent autant les mouvements guidés internes qu'externes.

Hackney a présenté les résultats d'une thérapie qu'elle a conçue : le tango argentin adapté pour améliorer les fonctions motrices, cognitives et psychosociales chez les personnes atteintes de la maladie de Parkinson. Elle a partagé ses données actuelles explorant l'efficacité unique de diriger par rapport à suivre et l'impact du tango adapté sur les mécanismes neuraux sous-jacents qui régissent les mouvements internes et externes des membres inférieurs.

**Madeleine E. Hackney est chercheuse scientifique à l'Atlanta VA Center for Visual and Neurocognitive Rehabilitation et professeure adjointe au département de médecine de l'Emory School of Medicine.**

Ancienne danseuse professionnelle et enseignante, Mme Hackney détient un baccalauréat en danse de la New York University et un doctorat en sciences du mouvement de la Washington University à Saint Louis. Elle est surtout réputée pour ses recherches en tango argentin adapté pour les personnes atteintes de la maladie de Parkinson ou de déficience visuelle et les personnes âgées.

Comme conférencière invitée, Mme Hackney a présenté ses travaux à l'échelle nationale et internationale, notamment à l'Institut Karolinska en Suède et à Tel-Aviv, en Israël. En 2015, elle a reçu le Selma Jeanne Cohen Dance Lectureship Award de la Fondation Fulbright.

## ***Why Partnered Dance Could Help Optimize Motor Rehabilitation for People with Parkinson's Disease***

Madeleine E. Hackney's work focuses on the design and optimization of creative movement/dance-based therapies to improve mobility, cognition and quality of life in older individuals with movement disorders. Dance may serve as an auxiliary therapy to pharmacology and surgery for conditions like Parkinson's disease (PD) because dance appears to have motor, social and cognitive benefits. Partner dancing is a sophisticated, yet accessible system of tactile communication that conveys movement goals between a "leader" and "follower". These roles incorporate aspects of both internally and externally guided movement.

Hackney has presented findings related to efficacy of a therapy which she designed: Adapted Argentine Tango (Adapted Tango) for improving motor, cognitive and psychosocial function in people with PD. She has discussed her ongoing data collection which explores the unique efficacy of leading versus following, and the impact of adapted tango on underlying neural mechanisms governing internally and externally guided lower limb movement.

**Dr. Madeleine E. Hackney is a Research Scientist at the Atlanta VA Center for Visual and Neurocognitive Rehabilitation and an Assistant Professor at the Emory School of Medicine, Department of Medicine.**

A former professional dancer and instructor, Dr. Hackney holds a BFA in Dance from New York University, and a PhD in Movement Science from Washington University in St. Louis. She is best known for her research in adapted Argentine tango for people with Parkinson's disease, visual impairments and older adults.

Dr. Hackney has presented her work nationally and internationally as an invited speaker, including at the Karolinska Institute in Sweden, and in Tel Aviv, Israel. In 2015, she was the recipient of the Selma Jeanne Cohen Dance Lectureship award provided by the Fulbright foundation.

# ***Robyn Flaum Cruz,***

LPC, Lesley University Expressive Therapies PhD Program (Cambridge, MA, États-Unis)  
Ph. D., BC-DMT, LPC, Lesley University Expressive Therapies PhD Program (Cambridge, MA, USA)

## ***La danse de la recherche***

Plus nous en apprenons sur la danse en l'adaptant pour améliorer notre fonctionnement physiologique et psychologique, plus cette discipline semble être une combinaison parfaite de l'art et de la science. Beaucoup d'entre nous ont abordé la danse parce qu'il s'agit d'une forme d'art complètement incarnée, combinant tous les aspects du moi vécu avec ceux de l'esthétique. Et c'est précisément cette qualité, en tant que forme pleinement incarnée engageant toutes nos parties physiologiques, affectives et cognitives, qui permet à la danse d'avoir autant d'applications variées pour s'attaquer à la maladie et relever les défis de la vie.

Pour certains, la danse est un moyen de communication qui permet d'exprimer et de comprendre ce qui ne peut être mis en mots. Pour d'autres, la danse est la clé pour stimuler et coordonner un corps qui n'est plus synchronisé avec lui-même. Pourtant, quelle que soit la manière dont on l'utilise, tous ceux d'entre nous qui font appel à la danse comme moyen d'intervention doivent intégrer la recherche dans leur compréhension de la danse et son application dans leur travail. Nous devons ainsi apprendre à danser avec la recherche, qu'il faut aborder avec la même maîtrise, la même ouverture et la même créativité que nous apportons à cette forme d'art. Il s'agit d'adopter des méthodes phénoménologiques qui font appel à notre amour de la danse comme forme d'art et de recourir aussi à des méthodes plus traditionnelles qui considèrent la danse comme une science physique. En combinant ces deux approches et ce qu'elles peuvent nous révéler, nous arrivons à créer une « danse » de recherche qui insuffle à notre travail une orientation, un sens et des déclinaisons encore plus passionnantes.

La biographie de Robyn Flaum Cruz est disponible en page 14.

## ***The Dance of Research***

The more we learn by adapting dance to enhance physiological and psychological functioning, the more it seems to be the perfect blend of art and science. Many of us come to dance because of its quality of being a completely embodied art form, combining all aspects of the lived self with aesthetics. And it is exactly that quality, as a fully embodied form engaging all physiological, affective, and cognitive parts of us, that allows dance to have so many varied applications in addressing illness and challenges of living.

For some, dance is communication that allows expression and understanding of what cannot be put into words. For others, dance is the key to stimulate and coordinate a body that has fallen out of sync with itself. Yet, regardless of these different meanings and uses, all of us who use dance as an intervention with others need to include research in our understanding of dance and how we apply it to our work. To do this, we must learn to dance with research, approaching it with the same mastery, openness, and creativity we bring to our art form. This involves truly embracing phenomenological methods that appeal to our love of dance as an art form as well as welcoming more traditional methods that capture the workings of dance as a physical science. Marrying these two approaches and what they can reveal together creates a research “dance” that infuses our work with direction, meaning, and even more exciting applications.

Robyn Flaum Cruz's bio is available on page 14.



# CONFÉRENCES

## CONFERENCES



Les conférenciers étaient invités à présenter des résultats de recherche, des cadres théoriques, de nouvelles pratiques, des applications pratiques pour divers intervenants ou encore des exemples d'intégration de la danse dans divers contextes. Ils ont tous été sélectionnés à l'aveugle par le comité de sélection pour la qualité de leur proposition et l'aspect innovant et/ou multidisciplinaire de leur propos.

Lecturers were invited to present results from their research, theoretical frameworks, new practices, practical applications for various participants in the field, or examples of the integration of dance in different contexts. The selection committee proceeded by blind selection and each lecturer was chosen for the quality of their work and their innovative or multidisciplinary approach.

# Krysta L. Hyde,

Ph. D. (Montréal, QC, Canada)  
PhD (Montreal, QC, Canada)

## ***La danse comme moyen de comprendre les interactions entre le cerveau humain et le comportement***

La danse est une forme universelle d'expression qui offre une riche source d'étude scientifique. La danse offre une occasion unique d'étudier la plasticité cérébrale et son interaction avec le comportement. Alors que certaines études se sont intéressées aux corrélats comportementaux de la danse, on connaît moins les assises cérébrales de la danse. Des études sur l'observation de la danse avancent que l'entraînement en danse à court et à long terme affecte l'activité cérébrale dans les circuits reliés à l'action et de la simulation mentale.

En dépit des défis méthodologiques, la faisabilité de tests de neuro-imagerie sur des personnes en train de danser a été démontrée, et plusieurs régions du cerveau sont impliquées dans l'exécution d'une danse. Les travaux de notre laboratoire de recherche suggèrent que l'entraînement en danse à long terme modifie la structure cérébrale de la matière grise et de la matière blanche. Nous présentons ici nos travaux récents sur les corrélats comportementaux et neuro-naux de la danse. Pour stimuler le dialogue continu entre la danse et la science, les orientations futures de la recherche sur la danse et le cerveau ainsi que les conséquences à tirer sont abordées. La recherche sur les neurosciences et la danse mènera à une meilleure compréhension des liens entre le comportement du cerveau et la plasticité cérébrale pour les experts et les non-spécialistes et pourra être appliquée à l'élaboration de programmes de thérapie par la danse et le mouvement.

## ***Dance as a Window to Study Human Brain-Behavioural Interactions***

Dance is a universal form of human expression that offers a rich source for scientific study. Dance provides a unique opportunity to investigate brain plasticity and its interaction with behavior. While some studies have investigated the behavioral correlates of dance, less is known about the brain basis of dance. Studies on dance observation suggest that long and short term dance training affect brain activity in the action observation and simulation networks.

Despite methodological challenges, the feasibility of conducting neuroimaging while dancing has been demonstrated, and several brain regions have been implicated in dance execution. Work from our laboratory suggests that long-term dance training changes both gray and white matter brain structure. Here we present recent work from our lab on the behavioural and neural correlates of dance. To stimulate ongoing dialogue between dance and science, future directions in dance and brain research as well as implications are discussed. Research on the neuroscience of dance will lead to a better understanding of brain-behavior relationships and brain plasticity in experts and non-experts and can be applied to the development of dance-based therapy programs.

# ***Heryka Miranda,***

M. A. (Hamilton, ON, Canada)  
MA (Hamilton, ON, Canada)

## ***Phénoménologies de la guérison et de la justice : Land Dance dans les camps de travailleurs migrants***

Les travailleurs agricoles migrants éprouvent souvent des sentiments d'isolement, de nostalgie et de solitude en raison de la précarité de leur emploi. Cette étude phénoménologique explore les expériences de participation de travailleurs agricoles migrants mexicains et guatémaltèques de Niagara, en Ontario, à des séances expérimentales de « danse pour la détente » basées sur un cadre de thérapie expressive basée sur le mouvement. Les questions de recherche explorées sont les suivantes : quelles approches basées sur un cadre MBEAT peuvent promouvoir des sentiments de bien-être chez les travailleurs agricoles migrants ; et comment ces approches pourraient-elles aider les travailleurs agricoles migrants à répondre aux expériences vécues de précarité dans le cadre du programme des travailleurs étrangers temporaires ? Les séances comprenaient des exercices pour développer la conscience corporelle, des techniques de centralisation et d'expression personnelle. L'étude explore également la transformation que la land dance avait sur la vie d'un travailleur agricole migrant cherchant la visibilité et la justice des migrants. La pertinence du MBEAT et du land dancing est mise en évidence par les travailleurs agricoles migrants dans les réflexions verbales post-session via des groupes de discussion et des entretiens individuels.

## ***Phenomenologies of Healing and Justice: Land Dance in Migrant Labor Camps***

Migrant farm workers often experience feelings of isolation, home sickness and loneliness due to the precariousness of their employment. This phenomenological study explores the experiences of Niagara, Ontario Region, Mexican and Guatemalan migrant farm workers' participation in experiential "dance for relaxation" community arts sessions based upon a movement-based, expressive arts therapy (MBEAT) framework. The research questions explore what approaches, based upon a MBEAT framework, can promote feelings of wellness in migrant farm workers, and how might these approaches help migrant farm workers respond to the lived experiences of precarity under the temporary foreign worker program. Sessions included exercises to develop body awareness, grounding and centering techniques, and personal expression. The study also explores the transformation that land dancing had on the life of one migrant farm worker seeking visibility and migrant justice. The relevance of MBEAT and land dancing is evidenced by migrant farm workers in post session verbal reflections using a focus group style of inquiry and individual interviews.

## ***Donna Newman-Bluestein,***

BC-DMT, CMA, LMHC (Dedham, MA, États-Unis)  
BC-DMT, CMA, LMHC (Dedham, MA, USA)

### ***La danse et le mouvement expressif améliorent la qualité de vie des personnes atteintes de démence***

Comment la danse et le mouvement expressif peuvent-ils être utilisés pour inspirer, stimuler et faire participer des personnes dont la vie est affectée par des troubles de mémoire? Cette présentation porte sur un programme de danse et de mouvement expressif offert depuis 10 ans dans les résidences avec services de soutien, les centres de soins de longue durée, et dans les cafés Mémoire pour les personnes présentant divers niveaux de troubles de la mémoire et de problèmes physiques. Cette structure ouverte avec un début et une fin familiers, une liste de lecture de musique enregistrée, des accessoires et des matériaux sensoriels évocateurs est conçue pour intégrer les mouvements selon ce que les participants peuvent offrir, quelles que soient leurs capacités physiques ou cognitives. Des fondements théoriques, des interventions et des objectifs sont proposés. Une feuille de notation des mouvements basée sur le système Laban et une évaluation de la qualité de vie des personnes atteintes de démence avancée sont également présentées afin d'évaluer l'efficacité d'un tel programme de danse et de mouvement expressif. Ces outils ont été développés pour évaluer les participants souffrant de troubles neurocognitifs qui seraient incapables de répondre aux questions de l'entrevue pour les raisons suivantes : (1) ils ont un écueil au niveau de la communication verbale ; (2) les questions posées au cours d'une séance interféreraient avec le processus ; et (3) leur mémoire peut être insuffisante à court terme après une séance de groupe. Pour plus de précisions, étant donné la complexité des cas, il est préférable d'utiliser ces outils tout en observant les séquences vidéo d'individus précis pendant une séance de groupe d'une heure. Grâce à une évaluation continue des objectifs visés par le mouvement pour qu'ils s'harmonisent aux indicateurs de qualité de vie, il est possible d'offrir des moments significatifs et enrichissants aux personnes atteintes de démence et, bien entendu, à nous-mêmes.

### ***Dance and Expressive Movement Improve Quality of Life for People Living with Dementia***

How can dance and expressive movement be used to inspire, uplift, and engage people whose lives are affected by memory impairment? This presentation centers on a dance/expressive movement program provided for the past 10 years in Assisted Living and long-term care facilities and Memory Cafés for people with varying levels of memory impairment and physical challenges. The open structure, including familiar beginnings and endings, a playlist of recorded music, props, and sensorial evocative materials, is designed to incorporate the movements and offerings of all participants, regardless of physical or cognitive abilities. Theoretical foundations, interventions and goals are proposed, as well as a Laban-based Movement Coding Sheet and a Quality of Life Movement Assessment for Persons with Advanced Dementia, for evaluating the effectiveness of such a dance/expressive movement program. These tools were created to assess participants with neuro-cognitive disorders who would be unable to answer interview questions because: (1) they lack expressive verbal communication; (2) questions asked during a session would interfere with the process; and (3) they may have insufficient short-term memory after a group. Because of the need for detail and complexity, these tools are best used while observing video footage of specific individuals during a 1-hour group. Clarifying movement goals to align with quality of life indicators and continual, on-going assessment help us improve our ability to provide meaningful, enriching, life-enhancing moments for individuals with dementia, and, indeed, for ourselves.

# ***Stephanie Voyer,***

Candidate à la maîtrise (Toronto, ON, Canada)  
MA Candidate (Toronto, ON, Canada)

## ***La thérapie par la danse et le mouvement pour la communauté queer : la danse comme vecteur de transformation pour les jeunes en transition***

Bien que la recherche ait établi les bienfaits de la thérapie par la danse et le mouvement (TDM) pour les jeunes et les populations opprimées, peu d'études sont axées sur les personnes LGBT, et aucune étude connue n'a encore abordé précisément la TDM chez les jeunes transgenres. Comblant cette lacune, l'objectif de cette recherche est d'étudier les façons dont les jeunes transgenres intègrent la danse tout en explorant les bienfaits thérapeutiques qui y sont associés. Selon une démarche multiméthodologique, des entrevues ont d'abord été réalisées afin de recueillir des expériences personnelles sur la danse en relation avec l'identité sexuelle et, par la suite, une recherche ethnographique a été effectuée au Rainbow Camp – un camp d'une semaine pour les jeunes LGBT âgés de 12 à 18 ans. Les programmes observés favorisaient un espace sécurisé d'expression personnelle au moyen du mouvement tels que la danse sociale, les spectacles d'artistes amateurs et les ateliers de perfectionnement animés par des drag queens. Bien que peu sûrs d'eux au début, la plupart des campeurs ont commencé à s'investir progressivement dans la danse ; leur confiance en eux s'est accrue de façon exponentielle, et de profonds bienfaits pour la santé mentale se sont manifestés. Les observations ont révélé qu'il existe des similitudes entre l'expérience de la danse chez les jeunes transgenres et les principes de la TDM qui influent positivement sur la santé mentale, la confiance en soi et la relation entre le corps et l'esprit. Cette recherche conclut que les jeunes transgenres recherchent des occasions de s'exprimer par la danse et le mouvement pour affirmer leur identité, ce qui indique qu'il faudrait poursuivre la recherche en vue d'élaborer un programme de TDM destiné aux jeunes aux prises avec des problèmes liés à l'identité sexuelle et au malaise corporel qui y est associé. Les jeunes transgenres sont une catégorie démographique négligée et cette recherche peut sensibiliser cliniciens, thérapeutes et éducateurs afin que les angoisses associées au mouvement éprouvées par les personnes en transition sexuelle puissent être comprises, respectées et abordées dans les pratiques de TDM.

## ***Queering Movement Therapy: Transformative Dance for Transitioning Youth***

Although research has established the benefits of dance/movement therapy (DMT) for youth and oppressed populations, there have been few studies focusing on LGBT people, and no known studies have specifically examined DMT with transgender youth. Addressing this void, the purpose of this research is to investigate the ways transgender youth participate in dance while exploring the positively correlated therapeutic benefits. Using a multi-methodological approach, interviews were initially conducted as means of collecting personal experiences with dance in relation to gender identity and, subsequently, ethnographic research was employed at Rainbow Camp – a week-long camp for LGBT youth between ages 12 and 18. The programs observed fostered a safe space for self-expression through movement such as social dance, talent shows, and performance workshops led by drag queens. Though insecure at first, most campers began to engage progressively with dance; their confidence grew exponentially and profound mental health benefits occurred. Observations revealed that similarities exist between transgender youth dance experience and the principles of DMT that improve mental health, confidence, and mind/body connection. This research concludes that transgender youth seek opportunities in dance and movement to affirm their identities indicating that further research should be pursued to develop a DMT program specific to youth struggling with gender identity and related body discomfort. Transgender youth are an overlooked demographic and this research can bring awareness to clinicians, therapists, and educators so that the anxieties associated with movement for people transitioning genders can be understood, respected, and addressed in DMT practices.

# ***Rachel Bar<sup>1</sup>, Melissa Tafler<sup>2</sup>,***

<sup>1</sup>M.A. (Toronto, Ontario, Canada) <sup>2</sup>MSW, T.S. (Toronto, Ontario, Canada)

<sup>1</sup>M.A. (Toronto, Ontario, Canada) <sup>2</sup>MSW, RSW (Toronto, Ontario, Canada)

## ***Danse et démence dans les soins de longue durée***

De plus en plus de recherches préconisent que la danse présente plusieurs avantages physiques et psychosociaux pour les personnes âgées. Les personnes atteintes de démence en soins de longue durée sont l'un des sous-groupes d'aînés dont l'accès à la danse et à ses bienfaits est limité. Pour tenter de pallier cette lacune, Baycrest Health Sciences et l'École nationale de ballet du Canada ont mis sur pied un programme de danse à l'intention des personnes atteintes de démence et de leurs aidants en soins de longue durée. L'élaboration du programme a été guidée par la recherche sur le terrain et a porté plus particulièrement sur le besoin d'accroître la réproductibilité et la fiabilité des programmes de danse axés sur la santé. Cet exposé présente notre vision de la danse pour cette population, ce qui motive notre approche ainsi que l'évaluation et les enseignements du programme à ce jour. En outre, nous abordons le processus d'élaboration de notre protocole de formation pour enseigner aux enseignants et instructeurs de danse comment travailler avec cette population.

## ***Dance and Dementia in Long-term Care***

A growing body of research suggests dance has several physical and psychosocial benefits for older adults. One subgroup of older adults with minimal access to dance and its benefits are people with dementia in long-term care. To help address this dearth in the field, Baycrest Health Sciences and Canada's National Ballet School have developed together a dance program specifically for people with dementia and their caretakers in long-term care. The program's development was informed by research in the field and specifically addressed the need for more replicability and reliability in dance programming for health. With this talk, we introduce our approach to dance for this population, our rationale behind the approach, and evaluation and learnings of the program to date. We additionally discuss the development of our training protocol to teach dance instructors how to work with this population.

## ***Claire Cherrière,***

P.T., M. Sc., Sylvie Fortin, Ph. D., et Mélissa Martel, P.T. (Montréal, QC)  
PT, MSc, Sylvie Fortin, PhD, and Mélissa Martel, PT (Montreal, QC)

Coauteurs : Marie Laurence Cyr, M. Sc., Marie Joanie Raymond, B. Sc.,  
Louis Nicolas Veilleux, Ph. D., et Martin Lemay, Ph. D.  
Coauthors: Marie Laurence Cyr, MSc, Marie Joanie Raymond, BSc,  
Louis Nicolas Veilleux, PhD, and Martin Lemay, PhD

### ***De la conception aux recommandations : réflexions rétrospectives sur les programmes de danse pour enfants atteints de troubles neurologiques***

Les troubles neurologiques tels que la paralysie cérébrale ou la neuropathie ont des incidences sur les fonctions motrices et parfois cognitives ainsi que sur les facteurs psychosociaux. La danse peut être utilisée comme thérapie d'appoint pour améliorer ces fonctions. Au cours des dernières années, quatre programmes de danse ont été élaborés et mis en œuvre dans un contexte de réadaptation pédiatrique. Ces programmes visaient à améliorer les dimensions motrices, cognitives et psychosociales des enfants atteints de troubles neurologiques. Les programmes de danse duraient de 10 à 12 semaines (60 minutes par séance, deux fois par semaine) et comprenaient divers types de danse. Ces programmes ont été spécifiquement adaptés aux besoins des enfants atteints de paralysie cérébrale ou de neuropathie. Les séances de danse étaient données par des physiothérapeutes, des instructeurs de danse adaptée et un chercheur en danse. Les dimensions motrices, cognitives et psychosociales ont été évaluées au début et à la fin de chaque programme de danse. À la suite de ces quatre programmes, un groupe de discussion a été formé avec les personnes impliquées dans leur élaboration et leur mise en œuvre afin de cerner les obstacles et les facteurs favorables à l'intégration de la danse comme thérapie d'appoint en réadaptation pédiatrique. Au regard des résultats obtenus sur les dimensions motrices, cognitives et psychosociales, nous avons identifié des facteurs qui peuvent expliquer les bénéfices observés dans nos différents projets ainsi que les facteurs limitatifs. Ces facteurs étaient liés à la conception du programme, à son contenu et à l'évaluation de ses retombées. Nous proposons des recommandations pour la conception, la mise en œuvre et l'évaluation d'un programme de danse pour les enfants atteints de troubles neurologiques.

### ***Retrospective Reflections on Dance Programs for Children with Neurological Impairments: from Conception to Recommendations***

Neurological disorders such as cerebral palsy or neuropathy have impacts on motor and sometimes cognitive functions as well as on psychosocial aspects. Dance can be used as an adjunct therapy to improve these functions. Over the last few years, four dance programs were developed and implemented in a pediatric rehabilitation context. These programs aimed at improving motor, cognitive and psychosocial dimensions in children with neurological disorders. The dance programs were 10 to 12 weeks long (60 minutes per session, two sessions a week) and included various types of dance. These programs were specifically adapted to the needs of children with cerebral palsy or neuropathy. Dance sessions were provided by physiotherapists, adapted dance teachers and a dance researcher. Motor, cognitive and psychosocial dimensions were evaluated before and after each dance program. Following these four programs, a focus group was held with the people involved in the development and implementation of the programs in order to identify facilitating factors and barriers of using dance as an adjunct therapy in pediatric rehabilitation. Based on the results obtained on the motor, cognitive and psychosocial dimensions, we have identified factors that can explain the benefits observed in our different projects as well as limiting factors. These factors were related to the design of the program, its content and the evaluation of its effects. We propose recommendations for developing, implementing and evaluating a dance program for children with neurological impairments.

# **Tudor Vrinceanu,**

M. A. (Montréal, QC, Canada)  
MA (Montreal, QC, Canada)

Coauteurs : Alida Esmail, B.A., David Predovan, M. Sc., Jens Pruessner, Ph. D., et Louis Bherer, Ph. D.  
Coauthors: Alida Esmail, BFA, David Predovan, MSc, Jens Pruessner, PhD, and Louis Bherer, PhD

## ***La thérapie par la danse et le mouvement entraîne une baisse de la sécrétion de cortisol au réveil chez les personnes âgées – est-ce un signe de réduction du stress ?***

Le vieillissement est associé à de nombreuses maladies chroniques ainsi qu'à une sensibilité accrue au stress. La présente étude porte sur les effets de la thérapie par la danse et le mouvement (TDM) et de l'entraînement aérobie (EA) sur le stress chronique (mesuré par la sécrétion de cortisol au réveil – SCR) chez les personnes âgées. Des personnes en bonne santé âgées de 60 ans et plus ont été réparties au hasard en trois groupes : TDM, entraînement aérobie et liste d'attente. Les séances de TDM comprenaient des exercices de motricité générale, de conscience corporelle et de socialisation. L'EA consistait en une activité de haute intensité sur un vélo stationnaire. Les deux groupes d'entraînement étaient supervisés par un instructeur agréé et se sont rencontrés à raison de trois fois par semaine pendant trois mois. Les participants de tous les groupes ont fourni, avant et après leur programme d'entraînement respectif, des échantillons de salive sur trois jours à raison de 30 et 60 minutes après le réveil et ont fait évaluer leur condition physique. On a pu observer une dynamique avec le groupe TDM chez qui les valeurs salivaires de cortisol étaient plus faibles après l'entraînement, tandis que les deux autres groupes ne montraient aucun changement par rapport aux valeurs initiales de leur SCR. La puissance aérobie maximale ne s'est améliorée que dans le groupe EA, alors que le groupe TDM n'a montré aucune amélioration sur le plan du fonctionnement physique. Les résultats sont analysés plus longuement en termes de mécanismes physiques et psychologiques pouvant expliquer les variations du niveau de cortisol.

## ***Dance/Movement Therapy Leads to a Lower Cortisol Awakening Response in the Elderly—A Sign of Stress Reduction?***

Aging is associated with numerous chronic conditions as well as an increased stress response. The present study looks at the effects of dance/movement therapy (DMT) and aerobic training (AT) on chronic stress (measured by the cortisol awakening response – CAR) in older adults. Healthy older adults aged 60 and over were randomized into three groups: DMT, aerobic training, and waiting list. The DMT training was comprised of exercises including gross motor skills, body awareness, and socialization. The AT consisted of high intensity activity on a recumbent bicycle. Both training groups were supervised by a licensed instructor and met three times a week for three months. Participants of all groups provided, before and after their respective program, saliva samples on three days at 0, 30 and 60-minutes after awakening (CAR), and had their fitness level evaluated. A group interaction was found with the DMT group showing lower salivary cortisol values post-training, while the other two groups showed no change from baseline in their CAR. Maximal aerobic power improved only in the AT group, while DMT showed no group-specific physical functioning improvements. The results are further discussed in terms of physical and psychological mechanisms that could explain the change in cortisol.

# ***Brigitte Lachance,***

P. T. (Montréal, QC, Canada)  
PT (Montreal, QC, Canada)

Coauteures : Maude Provost, P.T., Camille Charlebois, P.T., Roxanne Pelletier, P.T., Anne Nhu Truc Vu, P.T.,

Bonnie Swaine, Ph. D., P.T.

Coauthors: Maude Provost, PT, Camille Charlebois, PT, Roxanne Pelletier, PT, Anne Nhu Truc Vu, PT,  
Bonnie Swaine, PhD, PT

## ***Identification des meilleurs outils pour mesurer l'intangible : au carrefour de la danse et de la santé***

Une évaluation, qui utilise un dispositif de recherche à sujet unique, sera entreprise pour une intervention de danse-thérapie en déficience physique (DTDP) offerte aux usagers adultes en réadaptation. Pour cette étude, il est primordial de trouver des outils permettant de mesurer l'impact de la DTDP sur la mobilité globale, ainsi qu'un outil qui ne devrait pas être influencé par l'intervention. Pour atteindre cet objectif, un devis qualitatif à l'aide d'un groupe de discussion a été employé selon la méthode TRIAGE (Technique de recherche d'information par animation d'un groupe d'experts). Douze experts aux compétences variées en recherche, en réadaptation et en danse ont répondu à un sondage en ligne portant sur la pertinence de 16 outils à inclure dans l'étude. Ces résultats ont été discutés en groupe avec neuf des experts pour établir un consensus sur les trois outils qui permettront de mesurer le changement et l'outil qui ne devrait pas changer suite à la DTDP. La discussion a également porté sur d'autres critères importants à considérer tels que le temps d'administration, ainsi que le fardeau pour l'administrateur et le participant. Le MiniBEST Test, le Four Square Step Test, le 6-Minute Walk Test et le Multidirectional Reach Test ont été jugés pertinents à employer dans l'évaluation de la DTDP, tandis que la force de préhension des pinces digitales ne devrait pas évoluer malgré la participation à la DTDP. Le groupe a souligné la nécessité d'expérimenter avec ces outils pour le choix final de ceux à employer dans l'étude d'impact.

## ***Identifying the Best Tools to Measure the Intangible: At the Intersection of Dance and Healthcare***

An evaluation featuring a single-subject research design will be conducted for a dance therapy for physical impairment intervention (DTPI) administered to adult users in rehabilitation. For the study, it is critical to identify tools able to measure the impact of DTPI on overall mobility, along with another tool whose results should not be influenced by the intervention. To that end, a qualitative design involving a focus group was employed using the TRIAGE method (Technique for Research of Information by Animation of a Group of Experts). Twelve experts with varied skills sets in research, rehabilitation and dance answered an online survey about the merit of 16 tools to be included in the study. The results were discussed by nine of the experts as a group in order to reach a consensus on three tools able to measure changes and an additional tool that should not show any change following the DTPI. The discussion also addressed other important factors that must be considered, such as administration time and the burden on the administrator and participant. The MiniBEST Test, Four Square Step Test, 6-Minute Walk Test and Multidirectional Reach Test were all deemed relevant in evaluating the DTPI intervention, while grip strength as measured by pinch gauges should not change despite the subject's participation in the DTPI. The group stressed the need to experiment with these tools in order to make their final choice of tools to be used in the impact study.



# ATELIERS EXPÉRIENTIELS

## EXPERIENTIAL WORKSHOPS



Le Symposium se voulant une expérience complète de ce que sont les interventions par la danse dans un contexte de mieux-être, il était essentiel de faire bouger ses participants, qu'il s'agisse de danseurs, d'intervenants ou de chercheurs. Les vingt-et-un ateliers décrits ci-dessous ont permis aux deux cents participants du symposium d'expérimenter des approches variées, dédiées à des clientèles plus uniques que les autres, et ainsi d'en tirer, nous l'espérons, des inspirations pour d'éventuels projets de recherche, des sources d'enrichissement professionnel et de nouveaux intérêts de pratique.

The Symposium was intended as a complete experience of dance interventions in a context of well-being. As such, it was essential to get participants moving, whether they were dancers, caregivers or researchers. The twenty-one workshops described below allowed the two hundred Symposium participants to partake in varied approaches, each dedicated to unique clienteles. From this we hope to spur inspiration for potential research projects, sources of professional enrichment and new interests to enrich one's practice.

## Jackie Mills

(Kingston, ON, Canada)  
(Kingston, ON, Canada)

### ***Sit'N'Dance, un moyen pour ceux souffrant de troubles physiques ou cognitifs de pouvoir faire de la danse récréative***

Cette séance, à la fois amusante, informative et bénéfique, permet aux participants d'apprendre ou de mettre sur pied un programme de danse en position assise adaptée à leurs clients. Sit'N'Dance est un moyen de pouvoir danser à nouveau pour les populations gériatriques ayant des troubles de cognition, une mobilité réduite ou des problèmes de santé. Les participants, assis en cercle, apprennent et reproduisent des mouvements simples démontrés par l'instructeur. Le programme encourage les réminiscences, la mémoire séquentielle, l'interaction sociale et la mémorisation, en plus de fournir des exercices aérobiques. Il est conçu pour être très flexible et se modeler aux niveaux d'aptitude et aux besoins spécifiques de chacun. Les participants à l'atelier apprendront plusieurs danses assises faciles à suivre, basées sur des styles tels que le jazz, la danse de salon, la danse folklorique (danse traditionnelle), le swing, etc. Quelques suggestions de mouvements de danse assis et des méthodes pour s'adapter à des besoins spéciaux sont données. Aucune expérience préalable en danse n'est nécessaire. Sit'N'Dance a été présenté partout au Canada et aux États-Unis.

La majorité des personnes qui assistent à la conférence ont une solide expérience en danse ou en enseignement de la danse. Ils comprennent à quel point cela bouleverserait leur vie de perdre la capacité de danser et comment la danse assise permet aux personnes handicapées de le faire à nouveau.

Après avoir passé 17 ans à adapter la danse sociale et folklorique pour des clients souffrant d'incapacités physiques ou mentales, j'ai beaucoup appris (parfois par l'erreur) et je veux partager mes connaissances afin d'éviter aux gens d'avoir à « réinventer » quoi que ce soit.

### ***Sit'N'Dance, a Way for Those with Impaired Health or Cognition to Be Able to Dance Recreationally***

This session has taught participants to learn about or implement a program of adapted seated dance for their clients in a fun, informative and beneficial way. Sit'N'Dance is a means for geriatric populations with impaired cognition, mobility or health to be able to dance again. Participants seated in a circle learn simple moves demonstrated by a leader and imitated by the participants. The program encourages reminiscence, sequential memory, social interaction and recall, in addition to providing aerobic exercise. It is designed to be very flexible, tailored to specific ability levels and needs. Workshop participants learn several easy to follow seated dances based on styles such as jazz, ballroom, folk (traditional dance), swing, etc. Some ideas for creating seated dance moves and methods of adaptation for special needs are presented. No previous dance experience needed. Sit'N'Dance has been presented throughout Canada and the USA.

A majority of conference attendees have a strong dance performance or dance teaching background. They understand how life-changing it would be to lose the ability to dance and how seated dance enables those with disabilities to do so again.

After 17 years of adapting social and folk dance for clients with physical or mental disabilities, I have learned a lot (sometimes through error) and want to share that knowledge so people don't have to "reinvent."

My main aim with this workshop is to show participants an example of a seated dance class and how their dance material can be adapted for use with clients with disabilities.

Here are a few comments from some of my classes that represent the impact of this program:

## ATELIERS EXPÉRIENTIELS EXPERIENTIAL WORKSHOPS

Mon but principal avec cet atelier est de donner aux participants un exemple d'un cours de danse assise et de leur montrer comment le matériel de danse peut être adapté pour les clients handicapés.

Voici quelques commentaires recueillis dans certains de mes cours qui démontrent l'impact de ce programme :

« Elle avait la tête relevée. Je ne l'avais pas vu faire ça depuis des mois. C'était incroyable. »

Préposé qui travaillait avec une petite dame, frêle et recroquevillée, une résidente d'un foyer de soins infirmiers, Amherstview, en Ontario

« - Je veux participer à ce cours chaque semaine.

- Eh bien, vous le ferez pendant 13 semaines.

- Non, je veux faire ça chaque semaine jusqu'à la fin de mes jours! »

Résident d'un foyer de soins infirmiers, Kingston, en Ontario

« Ça nous apporte de la joie. Il faut de la joie dans l'exercice. »

Résident d'un foyer de soins infirmiers, Calgary, en Alberta

« C'était très amusant. »

Participante au cours de Danse pour la maladie de Parkinson, Kingston, en Ontario

« Ça a été fabuleux, tout le monde avait tellement de plaisir. »

Résident d'un foyer de soins infirmiers, unité de soins pour la démence, Kingston, en Ontario

Voici pourquoi je fais ce travail et pourquoi je désire tant former plus de professeurs de danse adaptée : afin de les habiliter à apporter la joie de la danse à ceux qui pensent ne plus jamais avoir cette capacité.

“She had her head up. I haven’t seen her do that in months. It was amazing.”

Aid who was working with a small, frail, curled up woman, a nursing home resident, Amherstview, ON

“- I want this class every week.

- Well, you are getting it every week for 13 weeks.

- No, I want it every week for life!”

Nursing home resident, Kingston, ON

“It gives us joy. We need joy in exercise.”

Nursing home resident, Calgary, AB

“It was a hoot.”

Participant in Dance for Parkinson's class, Kingston, ON

“It’s just been fabulous, everybody’s having such a good time.”

Nursing home resident, Dementia unit, Kingston, ON

This is why I'm doing this work and want so much to help train more adapted dance teachers: to enable them to bring the joy of dance to those who think they might never dance again.

# ***Ilona Posner<sup>1</sup>, Alida Esmail<sup>2</sup>, David Predovan<sup>3</sup>, Jens Pruessner<sup>4</sup>, Louis Bherer<sup>5</sup>***

<sup>1</sup>M. Sc. (Toronto, ON, Canada) <sup>2</sup>B.A., <sup>3</sup>M. Sc., <sup>4,5</sup>Ph.D.

<sup>1</sup>MSc (Toronto, ON, Canada) <sup>2</sup>BFA, <sup>3</sup>MSc, <sup>4,5</sup>PhD

## ***Le tango argentin pour acquérir de l'équilibre à l'aide de la technologie***

Cet atelier montre comment le tango peut motiver les participants à essayer une nouvelle activité physique et sociale, à les garder occupés, à former une communauté, ainsi qu'à améliorer leur santé et leur bien-être. Le tango argentin « social » gagne énormément en popularité partout dans le monde. Les danseurs de tous âges et de tous horizons, entre autres un nombre considérable de danseurs âgés, connaissent un regain de vie grâce aux opportunités de danser lors d'innombrables événements de tango social qui ont lieu dans de grandes villes de tous les continents. L'équilibre fait partie intégrante de la pratique du tango argentin social improvisé. Pour apprendre cette danse, il faut notamment apprendre à communiquer subtilement avec une autre personne, ce qui implique nécessairement le fait de travailler son propre équilibre. La technologie démontrée pendant l'atelier a été spécialement conçue pour permettre aux nouveaux danseurs de visualiser leur centre de gravité et accroître leur équilibre. Des recherches antérieures ont prouvé que le tango argentin comporte des effets bénéfiques sur la santé : réduire les niveaux de dépression et de stress (Pinniger, 2012 : 377) en plus d'améliorer l'équilibre, la mobilité et l'endurance (Hackney, 2001). Cette dernière recherche suggère comment le développement de l'équilibre pourrait être rehaussé par la technologie. Ilona Posner, l'organisatrice de l'atelier, enseigne le tango depuis plus de treize ans passés à donner des cours à Toronto, ainsi que des ateliers ailleurs au Canada, aux États-Unis et à l'échelle internationale en Suisse, en Chine et en Inde. Après avoir constaté les bienfaits du tango dans sa propre vie et celles de ses élèves, elle souhaite combiner sa passion pour le facteur humain de la technologie — dont l'expérience utilisateur et l'interaction humain-ordinateur — avec son amour de la danse. En 2012, elle a voyagé en Argentine afin d'étudier la tango thérapie; depuis lors, elle s'est efforcée de contribuer au domaine du bien-être par la danse.

## ***Argentine Tango for Balance Training Assisted by Technology***

This workshop demonstrates how Tango can motivate participants to try a new physical and social activity, keep them engaged, form a community, as well as improve their health and well-being. Social Argentine tango is exploding in popularity around the world. Tango dancers of all ages and from all walks of life, including a significant number of aging dancers, are gaining a new lease-on-life through tango dancing opportunities at numerous social tango events held in all major cities on all continents. Balance is an integral aspect of dancing social improvised Argentine tango. Training to dance the tango includes learning to subtly connect to another person, which necessarily implies working to improve one's own balance. The technology demonstrated during the workshop is specifically designed to help new dancers visualize their center of gravity and improve their balance. Prior research has shown that Argentine tango has health benefits: reducing levels of depression and stress (Pinniger, 2012 : 377) and improving balance, mobility and endurance (Hackney, 2001). This new work suggests how the improvement of balance might be enhanced with the use of technology. Workshop organizer Ilona Posner has been teaching tango for over 13 years, giving classes in Toronto and workshops around the world, in Canada, the US, Switzerland, China and India. After experiencing the benefits of tango dancing in her own life and that of her students, she hopes to combine her other passion for the human side of technology—namely User Experience and Human Computer Interaction—with her love of dance. In 2012, she travelled to Argentina to study tango therapy and has since then tried to contribute to the field of dance and well-being.

## ***References***

- Hackney M.E. et al. (2001). Journal of Geriatric Physical Therapy, 35(4), 206-217.  
Pinniger R. et al. (2012). Complementary Therapies in Medicine, 20(6), 377.



## ***Sarah Robichaud,***

B. A., fondatrice.... PD Network Canada (Toronto, ON, Canada)  
BA, DWP Founder... PD Network Canada (Toronto, ON, Canada)

Coauteures : Robin McPhail-Dempsey, B.A. (danse), Dip. ExAT, et Miriam Schacter, B.A., psychothérapie certifiée, instructrice de danse appliquée et pédagogue (Toronto, ON)  
Coauthors: Robin McPhail-Dempsey, BFA (dance), Dip. ExAT, and Miriam Schacter, BA, Dip. Registered Psychotherapist, applied-dance instructor, educator (Toronto, ON)

### ***Regard expérientiel et méthodologique sur le projet de danse intergénérationnel de Dancing With Parkinson's et les modèles de danse intergénérationnelle de la Première Nation de Pikangikum***

« J'avais l'habitude de ne pas parler... et maintenant je peux m'exprimer. »

– Un participant âgé de 16 ans au projet de danse intergénérationnelle de la Première Nation de Pikangikum

Au cours des 10 dernières années, le projet Dancing with Parkinson's (DWP) et ses collaborateurs dans le domaine de l'intervention en danse ont créé des initiatives en danse intergénérationnelle à court et à long terme qui visent à tendre la main aux communautés isolées ou à risque, ainsi qu'aux personnes âgées et aux jeunes issus de couches de populations vulnérables.

Favorisant une expression significative incarnée à travers l'art de la danse, chaque projet aborde des thèmes communautaires pertinents tels que la négligence par opposition à l'affection, l'isolement par opposition à la communauté, le racisme ou l'âgisme par opposition à la tolérance. Dans le but de maximiser leur accessibilité, les programmes offrent de multiples possibilités de participer pour répondre aux besoins des clients confrontés à l'isolement ou à la maladie, par exemple en les encourageant à passer quand ils se sentent assez bien, à participer et à s'engager dans les communautés en ligne, à assumer la responsabilité de cochoréographe et celle des prestations publiques, de même qu'à partager leur expérience à titre de bénévole. Les témoignages de clients et les rapports d'étude ont démontré que la danse transcende les différences culturelles et linguistiques fondamentales, y compris celles qui sont fondées sur l'âge et les capacités de chacun.

S'inspirant du succès de programmes tels que le Projet

### ***An Experiential and Methodological Focus on the Dancing With Parkinson's Intergenerational Dance Project and Pikangikum First Nation Intergenerational Dance Project Models***

"I used to not talk... and now I can express myself."

– Dance participant, age 16, Pikangikum First Nation Intergenerational Dance Project

Over the last 10 years, Dancing with Parkinson's (DWP) and collaborators in the field of dance intervention have created successful short- and long-term intergenerational dance initiatives aimed at connecting isolated or at-risk communities, as well as seniors and youth in specialty populations.

Fostering meaningful embodied expression through the artistry of dance, each project addressed relevant community-responsive themes such as neglect vs. cherishment, isolation vs. community and racism/ageism vs. understanding. The programs offered multiple avenues for participation, which met the needs of clients facing significant isolation or illness, in an effort to maximize accessibility. This was achieved by encouraging clients to drop in when well enough to attend, to participate and engage in on-line communities, to lead in co-choreographic roles and public performances and to share expertise via volunteerism. Through client testimonials and survey reports, it was shown that dance transcends fundamental cultural and linguistic differences including those based on age and ability.

Drawing upon the success of programs such as the DWP Intergenerational Dance Project 2016-2017, The Pikangikum First Nation Intergenerational Dance Project and others, symposium attendees have the opportunity to learn, experience and apply ideas to build on the tools and methodologies that continue

## ATELIERS EXPÉRIENTIELS EXPERIENTIAL WORKSHOPS

de danse intergénérationnelle 2016-2017 de DWP, le projet de danse intergénérationnelle de la Première Nation de Pikangikum et d'autres, les participants au symposium ont l'occasion d'apprendre, d'expérimenter et de mettre en pratique des idées afin d'utiliser les outils et les méthodologies qui continuent de contribuer à des expériences sécuritaires et percutantes dans le domaine des projets de danse intergénérationnelle pour le mieux-être.

to contribute to the delivering of safe and impactful experiences in the field of intergenerational dance projects for well-being.

## ***Mariko Tanabe,***

RSME, RSMT, praticienne et enseignante certifiée de Body-Mind Centering® et directrice de programme de Canada (Montréal, QC, Canada)

RSME, RSMT, Certified Practitioner and Teacher of Body-Mind Centering® and Licensed Program Director for Canada (Montreal, QC, Canada)

### ***Autonomisation par les organes: une approche de Body-Mind Centering®***

De notre cœur battant à nos entrailles profondes, nos organes jouent un rôle vital dans notre corps alors que celui-ci respire, transforme, absorbe et digère. Ils constituent – à l'intérieur de notre enveloppe squelettique et musculaire – le contenu profond de notre être. Comme ils assurent notre survie interne, ils deviennent des environnements naturels pour nos souvenirs, nos émotions et nos histoires personnelles. Le tonus de nos organes a un effet direct sur celui de nos muscles et de leurs tissus environnants. En utilisant les enseignements de l'approche du Body-Mind Centering® (BMCsm), les participants peuvent explorer leurs organes pour développer des mouvements plus intégrés, un enracinement profond, une prise en main créative et un rééquilibrage émotionnel.

Le Body-Mind Centering® est une approche somatique qui passe par l'expérience pour explorer le toucher, le mouvement et la conscience. Mis au point par Bonnie Bainbridge Cohen, le BMCsm met de l'avant la cognition incarnée et consciente des principes anatomiques, physiologique, psychophysiological, embryologique et développementaux.

L'étude du BMCsm sert à démythifier les systèmes de l'organisme dans le cadre de l'expérience directe de l'anatomie et la physiologie de nos différents organes par l'entremise du toucher, de la voix, du mouvement et de la méditation. Qu'il s'agisse du cœur, des poumons, du foie ou des organes digestifs, amorcer le mouvement subtil et l'éveil des récepteurs sensoriels nous organise pour interroger notre sagesse intérieure, tout en éveillant la vitalité du mouvement et de l'expression du corps.

« ... au fil d'un millénaire, l'intelligence innée du corps a été délaissée au profit de l'exclusivité de la rationalité (...). La pleine conscience se déploie réellement quand on développe notre conscience

### ***Empowerment Through Organs: A Body-Mind Centering® Approach***

From our beating hearts to our deep entrails, our organs play a vital role in our bodies as we breathe, process, absorb and digest. They provide the deep contents of our bodies inside our muscular skeletal container. As they carry out the functions of our internal survival, they become natural environments for our memories, emotions and personal histories. The tone of our organs has a direct effect on the tone of our muscles and their surrounding tissues. Utilizing the teachings of Body-Mind Centering® (BMCsm), participants can explore their organs and learned ways to solicit the support of the organs for more integrated movement, grounding, creative empowerment and emotional rebalancing.

Body-Mind Centering® is an experiential, somatic approach to embodiment, movement and consciousness. Developed by Bonnie Bainbridge Cohen, BMCsm promotes the conscious embodiment of anatomical, physiological, psychophysical, embryological and developmental principles.

Through the study of BMCsm, the body systems are demystified as the anatomy and physiology of our different organs are directly experienced through touch, voice, movement and meditation. Whether it is the heart, the lungs, the liver or digestive organs, opening the subtle movement and awakening the sensory receptors organize us to connect with our inner wisdom, while awakening the vitality of the body's movement and expression.

" . . . over the millennia, the innate intelligence of the body was abandoned for the exclusivity of rationality ( . . . ). Consciousness actually unfolds through the development of body awareness, of learning to understand the nuances and meanings of our internal physical sensations ( . . . ). Having an intimate relationship with ( . . . ) your physi-

corporelle, quand on apprend à comprendre les nuances et les significations de nos sensations physiques internes (...). Le fait d'avoir un lien intime avec (...) nos sensations physiques est critique parce que celles-ci nous guident au travers des expériences et des nuances de notre vie. »

– Peter A. Levine, PhD

Le BMCsm permet aux gens d'améliorer leurs capacités physiques et mentales, de soulager le stress, d'approfondir leur connaissance de soi, ainsi que de vivre dans la joie, le confort et l'émancipation.

Au cours des 15 dernières années, Mariko Tanabe a exploré la méthode du Body-Mind Centering® avec des danseurs, des thérapeutes, des enseignants, des ostéopathes, ainsi que des individus de tous âges et de tous horizons. Ses bienfaits lui ont été prouvés à maintes reprises.

### Référence / Reference

Levine, P. A. (2010). In an Unspoken Voice – How the Body Releases Trauma and Restores Goodness. Berkeley, CA: North Atlantic Books, p.135.

cal sensations is critical because they guide you through the experiences and nuances of your life.”

– Peter A. Levine, PhD

BMCsm enables people to improve their physical and mental abilities, relieve stress, gain a deeper knowledge of themselves, and experience joy, comfort and empowerment.

During the past 15 years, Mariko Tanabe has been exploring Body-Mind Centering® work with dancers, therapists, teachers, osteopaths and people of all ages and backgrounds. The benefits have been proven to her over and over again.

## ***Dr Richard Coaten,***

RDMP (Calderdale, Royaume - Uni)  
RDMP (Calderdale, UK)

### ***Bâtir des ponts et danser l'entre-deux***

En psychothérapie par la danse et le mouvement (DMP), la relation à l'expérience du vécu corporel est essentielle et elle sous-tend tous les aspects qui définissent qui nous sommes, comment nous nous sentons intérieurement et quels liens nous entretenons avec les autres et le monde extérieur. Cela découle de notre corps émotionnel et sensoriel tout en étant en rapport avec lui. Dans un contexte psychothérapeutique, le mouvement et la danse offrent un important moyen non verbal de retrouver une connexion à soi, particulièrement lorsqu'en raison de la neurodégénérescence ce lien au soi peut être sérieusement menacé. L'exploration personnelle du mouvement et de la danse avec un professionnel de la DMP peut s'avérer extrêmement libérateur pour une personne souffrant de problèmes de santé mentale, entre autres ceux qui comportent toute forme de neurodégénérescence. Être habilité à établir un contact avec les mécanismes de la psyché, ainsi que la nature métaphorique et symbolique de nos communications par l'entremise du vécu corporel, aide potentiellement à rétablir ce qu'on a appelé la « conscience incarnée » (Kontos, 2005) des personnes atteintes de démence. Il est possible d'améliorer la qualité de vie, la confiance en soi et le bien-être. Le mouvement rythmique et la danse ont la capacité de restaurer une cohérence et un sentiment d'identité lorsque des individus sont désorientés ou bien qu'ils éprouvent une souffrance physique ou existentielle. « Passer par l'entremise du corps » quand la cognition est défaillante est non seulement logique, c'est une solution qui permet d'accompagner la personne, dans quelque mesure dont elle a besoin; cela favorise également ce que j'ai décrit par l'idée de « révéler une humanité cachée » (Coaten, 2002). Pendant que nous écoutons et bougeons avec attention, au sein de la « relation thérapeutique », de nouveaux « ponts de compréhension » (Coaten, 2009) se forment autour de qui nous avons été et de qui nous sommes en train de devenir, dans le contexte des approches de soins à la fois créatives et enrichissantes.

### ***Building Bridges and Dancing the In-Between***

In Dance Movement Psychotherapy (DMP), the relationship to lived-body experience is fundamental and underpins every aspect of who we are, how we feel in ourselves, and our relationship to others and the world. It grows out of and in relation to our sensing, feeling body. Movement and dance within a psychotherapeutic context offer an important, primarily nonverbal, way to regain a connection to "self," especially when that relationship to "self" may be seriously threatened through neurodegeneration. Personal exploration of movement and dance with a dance movement psychotherapist can be very liberating for a person with mental health problems, including those with any form of neurodegeneration. Being equipped to connect to the workings of the psyche, to the metaphoric and symbolic nature of our communications by way of lived-body experience, can help restore what has been described as "embodied selfhood" (Kontos, 2005) for people with dementia. Quality of life, self-confidence and well-being can all be enhanced. Rhythmic movement and dance can bring back coherence and a sense of identity when we are disoriented or in physical or existential pain. To "go by way of the body," when cognition is failing not only makes good sense, it is a means by which it is possible to be alongside a person, however they need us to be. It also promotes what I have described as "revealing a hidden humanity" (Coaten, 2002). As we listen and move attentively, in the context of the "therapeutic relationship," so new "bridges of understanding" (Coaten, 2009) are formed around who we have been and who we are now becoming, in the context of both creative and meaningful approaches in care.

Dance Movement Psychotherapy has the potential for ever-deepening levels of meaningful relationship, reducing loneliness and isolation as people are helped to rediscover remaining capacities: as lived-body experience is enhanced and celebrated, a sense of meaning in life is rediscovered despite a sometimes

La psychothérapie par la danse et le mouvement a le potentiel de créer une relation de plus en plus significative qui atténue la solitude et l'isolation tandis qu'on aide les personnes à redécouvrir leurs capacités restantes en rehaussant et célébrant l'expérience du vécu corporel puis en retrouvant un sens à la vie en dépit d'une perte potentiellement grande et multiple. Cependant, et ceci est très important, la DMP se déroule dans un contexte donné en relation avec mon travail au sein de l'équipe multidisciplinaire d'un service hospitalier pour personnes âgées du Nord de l'Angleterre à l'emploi du National Health Service. L'équipe entière œuvre dans le cadre de ce qu'on appelle maintenant « des soins axés sur la personne » (Kitwood & Bredin, 1992), une approche fondée sur les valeurs pour les soins et le traitement d'individus souffrant de troubles de la mémoire et de démence qui situent le patient au cœur des soins. Les valeurs et la pratique de la DMP, de pair avec les valeurs et la pratique des soins axés sur la personne, contribuent grandement selon moi à rehausser la qualité de vie des personnes atteintes de démence, autant au Royaume-Uni que dans le reste du monde.

### Références / References

- Coaten, R. (2009). Building Bridges of Understanding: the use of embodied practices with older people with dementia and their care staff as mediated by Dance Movement Psychotherapy, PhD Thesis, London: Research Repository, Roehampton University.
- Coaten, R. (2002). Movement matters: revealing the hidden humanity within dementia through movement dance and the imagination. *Dementia: The International Journal of Social Research and Care Practice*, 1(3), 386-392.
- Kitwood T. & K. Bredin (Ed). (1992) Person to Person: A Guide to the Care of those with Failing Mental Powers, Loughton: Gale Centre Publications.
- Kontos, P. (2005). Embodied Selfhood in Alzheimer's disease: Rethinking person-centred care. *Dementia: The International Journal of Social Research and Practice*, 4(4), 553-570.

great and manifold loss. However, and this is of great importance, DMP takes place in a specific context in relation to my work as part of a multidisciplinary team in an Older People's Hospital Ward in the North of England, employed by The National Health Service. The whole teamwork within the context of what has become known as "Person-Centred Care", (Kitwood & Bredin, 1992) is a values-based approach to the care and treatment of people with memory problems and dementia that places the person firmly at the centre of care. The values and practice of DMP, combined with the values and practice of Person-centredness make, in my opinion, a profoundly important contribution to improving quality of life for people with dementia, both in the UK and around the world.

## ***Lucie Beaudry<sup>1</sup>, Sylvie Fortin<sup>2</sup>, Annie Rochette<sup>3</sup>***

<sup>1</sup>RSMT, RSME, doctorante, <sup>2</sup>Ph. D., <sup>3</sup>Ph. D. (Montréal, QC)

<sup>1</sup>RSMT, RSME, PhD candidate, <sup>2</sup>PhD, <sup>3</sup>PhD (Montreal, QC)

### ***Danse adaptée pour les patients post-AVC***

Cet atelier présente le processus d'élaboration d'une intervention de danse adaptée pour personnes affectées par une combinaison de déficits neurologiques résultant d'un accident vasculaire cérébral récent ( $\leq 25$  jours). L'intervention s'inscrit dans le cadre d'une étude menée à l'Hôpital de réadaptation Villa Medica, à Montréal. Ses objectifs étaient d'améliorer – de façon agréable – la réadaptation des patients et de contribuer à leur rétablissement en créant un lien entre la nature multimodale de la danse et les recommandations de l'équipe multidisciplinaire de neurologie. Cet atelier présente des catégories de mouvements perméables issus du jumelage susmentionné. Ces catégories empruntent des éléments aux pratiques de réadaptation, de danse et d'éducation somatique afin de former un contenu d'intervention à la fois pertinent et cohérent avec les visées thérapeutiques. L'atelier vise à répondre aux exigences actuelles du milieu qui préconise une meilleure compréhension des contenus d'intervention – ce qui n'est pas toujours évident lorsqu'il s'agit d'interventions dansées. L'atelier commence par une description de la méthodologie (information médicale du patient et questionnaire, groupe de discussion, observations sur place et listes de contrôle TIDieR), suivie par l'introduction de différentes catégories de mouvements, d'une synthèse pratique et expérimentuelle du contenu développé (en position assise et debout) et se termine par un court montage d'extraits audiovisuels tournés sur le terrain pour aider à approfondir l'analyse du contenu. L'atelier se clos par une courte période de questions et réponses.

### ***Adapted Dance for Post-Stroke Patients***

This workshop presents the development process of an adapted dance intervention for people affected by a combination of neurological deficits resulting from a recent stroke ( $\leq 25$  days). The intervention was part of a study conducted at the Villa Medica Rehabilitation Hospital in Montreal. Its objectives were to intensify – in a pleasant fashion – the rehabilitation of participating patients, and to contribute to their recovery by creating a connection between the multimodal nature of dance and the needs and recommendations of the multidisciplinary hospital neurology team. This workshop introduces categories of permeable movements that result from the aforementioned connection. These categories borrow elements from rehabilitation, dance and somatic education practices, in order to form an intervention content that's both relevant to, and coherent with, the therapeutic intention. The workshop, in so doing, aims to respond to current literature advocating for a better understanding of intervention contents – much of which is still not clearly formulated when it comes to intervention through dance. The workshop begins with a description of the methodology (patient medical information and questionnaire, discussion group, on-site observations and TIDieR checklists), followed by the introduction of different movement categories, a practical/experiential synthesis of developed content (in sitting and standing positions), and finishing with a short montage of audio-visual excerpts shot in the field to help further examine the content. The workshop concludes with a short question and answer period.

# ***Paula Martinez-Takegami,***

DMT (Paris, France)  
DMT (Paris, France)

## ***Utilisation d'objets médiateurs au sein des ateliers de thérapie par la danse et le mouvement***

L'utilisation d'objets et d'accessoires dans le cadre de la danse et d'espaces de création artistique est chose fréquente. Artistes et pédagogues travaillant auprès des enfants les utilisent très régulièrement. En thérapie par la danse et le mouvement (TDM), ils sont aussi largement utilisés, mais leur utilisation est régie par un certain nombre de «règles» et en lien avec des objectifs thérapeutiques. Comment choisir ces objets ou accessoires au sein d'un atelier de TDM? Qu'est-ce que ces éléments soutiennent dans le travail clinique auprès de nos patients? Quelles autres fonctions remplissent-ils? Ce sont à ces questions que cet atelier tente de répondre, en offrant aussi des pistes de réflexions cliniques et théoriques. Cet atelier invite les participants à tester et à explorer l'utilisation de différents objets et accessoires utilisés au sein d'ateliers de TDM auprès d'adolescents psychotiques, de patientes avec des troubles du comportement alimentaires et d'enfants en situation de mal-être. Après un temps d'exploration en mouvement, en petits et grands groupes, nous nous retrouvons pour étudier les qualités de chaque objet, ce qu'ils apportent d'un point de vue cognitif, émotionnel, corporel et sensoriel, tout en les mettant en lien avec des situations cliniques. Nous voyons également que certaines précautions sont à prendre sur le choix des objets et leurs utilisations ainsi que leurs différentes fonctions: objet transitionnel, éveil à la créativité et à l'imaginaire, enrichissement de la palette du mouvement, objet métaphorique et symbolique ou éveil des capacités cognitives.

## ***Using Accessories and Mediating Objects in Dance/Movement Therapy Workshops***

The use of accessories and mediating objects in dance and artistic creation is commonplace. Artists and educators working with children use them frequently. While they are also very common in dance/movement therapy (DMT), their use is governed by a certain number of "rules" and they are geared to therapeutic goals. How should the objects and accessories to be used in a DMT workshop be selected? What role do these items have in clinical work with patients? What other functions do they have? This workshop addresses these questions supported by references to clinical and theoretical studies. It invites participants to try out and explore various objects and accessories used in DMT workshops for psychotic teenagers, patients with eating disorders and children experiencing coping problems. Following a period of movement exploration in small and large groups, we reassemble to study the advantages of each object and how it can contribute from the cognitive, emotional, physical and sensorial points of view, all while examining its use in clinical settings. We also see that certain precautions must be taken in regard to the choice of objects, their uses and their various functions (transitional objects, stimulation of creativity and the imagination, enrichment of the movement palette, metaphorical and symbolic objects, and the stimulation of cognitive abilities).

# ***Ayana Spivak<sup>1</sup>, Neslihan Memiguven<sup>2</sup>,***

<sup>1</sup>M.A., Esther Rabinovitch, B.A., <sup>2</sup>M. Sc. (Richmond Hill, ON)

<sup>1</sup>MA, Esther Rabinovitch, BA, <sup>2</sup>MSc (Richmond Hill, ON)

## ***Accroître l'indépendance et la participation à la vie communautaire – Groupe de danse-thérapie avec de jeunes adultes touchés par des déficiences développementales***

Population étudiée : jeunes adultes ayant une déficience intellectuelle et un diagnostic complexe et participant au programme Springboard SOAR (Seeking Opportunities Accessing Resources), Toronto, Ontario, 2013-2017.

Type d'intervention utilisée : techniques de thérapie par la danse et le mouvement (TDM) basées sur l'approche Marian Chace qui comprennent : une activité de mouvement rythmique partagée en groupe, le développement de l'interaction au sein du groupe en utilisant la danse comme outil de communication non verbale, le mouvement en miroir et la transformation d'un thème de groupe en mouvement.

Le but de cette approche est d'offrir aux participants des occasions d'enrichir leur vie et d'améliorer leur bien-être grâce aux objectifs suivants : stimuler la créativité et l'expression de soi ; développer une image corporelle positive, un sentiment d'indépendance et de joie ; s'engager socialement et émotionnellement ; créer les bases de relations interpersonnelles ; augmenter la capacité de rester en contact avec les autres, être attentif et engagé ; renforcer l'estime de soi en fonction de la connaissance de ses propres ressources, et offrir des choix ainsi qu'un environnement accueillant. Les objectifs spécifiques de cet atelier expérientiel ont été de présenter la méthodologie de la thérapie par la danse et le mouvement et la technique Marian Chace au sein d'une population présentant des déficiences développementales complexes ; à donner aux participants de l'atelier une occasion d'assister à une séance de TDM ; à explorer les avantages potentiels de la danse, y compris certains aspects tels qu'un sentiment accru d'autonomie, d'estime de soi et d'engagement social, et à encourager les chercheurs à explorer le potentiel de la TDM auprès d'une population présentant des déficiences complexes au niveau du développement.

## ***Increasing Independence, Participating in Community - Dance Therapy Group Work with Young Adults with Developmental and Complex Disabilities***

Specific population: Young adults with developmental disabilities and complex diagnosis, participants of Springboard SOAR program (Seeking Opportunities Accessing Resources), Toronto, Ontario, 2013 – 2017.

Type of intervention used: dance/movement therapy (DMT) techniques, based on the Marian Chace approach, which includes shared rhythmic group movement activity, development of group interaction through dance as nonverbal communication, mirroring and transformation of a group theme into movement.

The goal of this workshop is to provide participants with opportunities for life enrichment and enhancement of well-being through the following objectives: encouraging creativity and self-expression, developing positive body-image, sense of independence and joy, engaging socially and emotionally, creating the foundation for interpersonal relationships, increasing the ability to stay in contact with others, being attentive and involved, strengthening self-esteem based on knowledge of their own resources, as well as offering choices and providing an accepting environment. The specific objectives of the experiential workshop aimed to introduce the methodology of DMT and the Marian Chace technique in the context of a population with developmental and complex disabilities, to provide participants of the workshop with an opportunity to participate in a DMT session, to explore potential benefits of dance, including aspects such as an increased sense of independence, self-esteem and social engagement, and to encourage researchers to explore the benefits of DMT for a population with developmental and complex disabilities.

# ***Tetiana Lazuk<sup>1</sup>, Joanabbey Sack<sup>2</sup>, Maura Fisher<sup>3</sup>, Zuzana Sevcikova<sup>4</sup>***

<sup>1</sup>Ph. D., R-DMT, <sup>2</sup>M.A., BC-DMT, RDT, <sup>3</sup>P.T., <sup>4</sup>M.A., BC-DMT, RDT, CCC (Montréal, QC)

<sup>1</sup>PhD, R-DMT <sup>2</sup>MA, BC-DMT, RDT, <sup>3</sup>PT, <sup>4</sup>MA, BC-DMT, RDT, CCC (Montreal, QC)

## ***Parkinson en mouvement - Une méthode unique intégrant les principes de la thérapie par la danse et le mouvement dans les cours de danse pour les personnes atteintes de la maladie de Parkinson***

Parkinson en mouvement (PEM) est un organisme sans but lucratif fondé en 2007 qui a développé des cours de danse, de mouvement et d'entraînement vocal destinés aux personnes aux prises avec la maladie de Parkinson (MP). En se basant sur les études les plus récentes portant sur les effets positifs de la musique et de certaines stratégies de mouvement sur les personnes atteintes de la MP, PEM est une initiative unique qui réunit l'expertise de la thérapie par la danse et le mouvement (TDM) et de la physiothérapie. Nous utilisons les principes de LSVT BIG pour intégrer des mouvements de grande amplitude ainsi que des stratégies basées sur des recherches récentes en rééducation avec des formes de danse sélectionnées pour encourager le plaisir et la compréhension du mouvement. En s'inspirant des principes de base de la TDM, nous avons mis sur pied un format de classe qui assure un lien continu entre structures et improvisation. En s'inscrivant à nos classes et en suivant nos cours, les participants montrent des améliorations notables en matière de force, d'équilibre, d'endurance, d'amplitude, de démarche et de posture ; ils intègrent des mouvements utiles dans leurs activités quotidiennes. Leurs commentaires écrits et verbaux sur l'expérience de Parkinson en mouvement témoignent de l'efficacité de cette approche.

## ***Parkinson en Mouvement - a Unique Approach Integrating Principles of Dance/Movement Therapy into Dance Classes for People with Parkinson's Disease***

Parkinson en Mouvement (PEM) is a non-profit organization founded in 2007 which has developed dance-movement and voice training classes designed for people with Parkinson's disease (PD). Based on recent and current research addressing the positive effects of music and of certain strategies of movement for people with PD, PEM is a unique initiative which brings together the expertise of both dance/movement therapy (DMT) and physiotherapy. We are using the principles of LSVT BIG to integrate large amplitude movements as well as strategies based on recent rehabilitation research with selected forms of dance to encourage the pleasure and understanding of movement. Based on the principles of DMT, we have developed and created a class format that has a continuous and well planned flow between structure and improvisation. While participating in and following our classes, participants show improvements in strength, balance, endurance, range of motion, gait and posture; they integrate useful movements in daily activities. Their written and verbal comments on their experience with Parkinson en Mouvement speaks to the effectiveness of this approach.

## ***Amber Elizabeth Gray,***

BC-DMT (Santa Fe, NM, États-Unis)  
BC-DMT (Santa Fe, NM, USA)

### ***Accès au corps : danse-thérapie et bien-être des réfugiés***

Tout être humain a le droit d'habiter son corps de la manière qu'il choisit. Le nombre de personnes déplacées n'a jamais été aussi élevé dans le monde et les services psychologiques offerts aux réfugiés aux États-Unis sont sous-financés et mis à rude épreuve. Les réfugiés qui ont fui la persécution et la violence pour trouver refuge aux États-Unis se retrouvent souvent au sein de systèmes de santé traditionnels et avec des traitements associés aux maladies mentales alors qu'ils éprouvent essentiellement des symptômes de détresse psychologique. De nombreux réfugiés sont habitués aux rituels de guérison et aux processus socioculturels communautaires qui intègrent les arts.

Cet atelier a présenté une brève présentation des structures théoriques de la thérapie par la danse et le mouvement (TDM) auprès des réfugiés, des immigrants et d'autres personnes déplacées par la violence ainsi qu'une exploration des concepts et des pratiques présentés. La psychothérapie réparatrice par le mouvement est basée sur l'expérience de plus de 20 ans de la présentatrice avec les réfugiés, et rappelle ses efforts d'intégration de la TDM dans la pratique clinique des programmes en santé mentale, des cliniques de santé publique, et via la formation et la supervision de programmes internationaux en vigueur dans les zones affectées par des conflits ou là où les réfugiés attendent d'être relocalisés. Les approches de la TDM qui ont été partagées pourront être adaptées à tous les participants qui travaillent dans le milieu de la danse, du mouvement, des arts créatifs, des droits humanitaires ou de la santé mentale.

### ***Right to Embody: Dance/Movement Therapy and Refugee Well-Being***

Every human being has the right to inhabit their bodies in ways that they choose. With the number of displaced people at an all-time global high, mental health services for refugees in the United States are strained and underfunded. Refugees fleeing persecution and violence, who are resettled in the USA, are often referred into mainstream or medical model mental health systems when they present signs of psychological distress. Many refugees are accustomed to healing thought rituals and sociocultural processes that are community based and integrate the arts.

This workshop combined a brief presentation of a theoretical framework for dance/movement therapy (DMT) with refugees, immigrants and others displaced by violence, accompanied by movement explorations of the concepts and practices presented. Restorative Movement Psychotherapy is based on the presenter's 20 years of work with refugees, integrating DMT into clinical practice in mental health programs, public health clinics, and through training and supervision for international programs in conflict affected areas or where refugees are awaiting resettlement. The DMT practices shared are adaptable for all participants who work with movement, dance, creative arts, human rights and mental health.

## ***Debbie Rosas,***

(Portland, OR, États-Unis)  
(Portland, OR, USA)

### ***La santé par la technique de mouvement Nia***

Debbie Rosas, créatrice de la technique Nia, tient cet atelier pour permettre aux participants d'expérimenter la danse somatique. La pratique de Nia favorise la santé holistique ; elle est accessible à tous les types de corps et à tous les niveaux de forme physique. Les participants sont amenés à se connecter à la musique et au mouvement par le biais de leurs émotions, explorant la sensation d'un bien-être optimal. Ils sont invités à plusieurs reprises à développer des sensations corporelles qui favorisent le plaisir et le confort. En établissant un lien avec la musique et en s'engageant à fond mentalement, les participants peuvent éprouver des degrés élevés de joie, de satisfaction et de forme physique holistique. Ils connaissent l'épanouissement de tout le corps avec l'esprit, les émotions et la présence de l'esprit personnel. Bien que la technique Nia ait été lancée en 1983, il s'agit encore d'une nouvelle pratique qui marie pleine conscience, mouvement somatique et science neurologique. C'est une approche qui favorise la connexion du cerveau et du corps et a comme objectif d'améliorer la santé. Depuis sa création, la pratique du mouvement Nia repose sur l'idée que lorsque nous bougeons comme notre corps a été conçu, nous pouvons le conditionner et améliorer notre forme physique. Simultanément, avec le jumelage des techniques somatiques, l'on peut découvrir comment utiliser de façon thérapeutique le mouvement Nia pour stimuler l'autoguérison. La pratique de Nia guide les gens pour qu'ils redécouvrent leur corps et réussissent à écouter efficacement les signaux sensoriels de celui-ci afin d'effectuer des choix éclairés en matière de forme physique et de mieux-être. La technique du mouvement Nia est soutenue par 52 principes axés sur le corps qui permettent aux individus d'acquérir les compétences nécessaires pour atteindre une forme physique somatique, explorer la créativité du mouvement et élargir leur perception. Chaque compétence somatique aboutit à la découverte d'une nouvelle connaissance de soi par l'exploration des sentiments personnels.

### ***Nia—Through Movement We Find Health***

Debbie Rosas, Creator of Nia Technique, holds this workshop for participants to experience the Nia somatic dance style. Nia practice promotes holistic health; it is accessible to all body types and levels of fitness. Participants are guided to connect to music and movement through their felt sense, exploring the sensation of optimal well-being. Students are continually guided to connect to body sensations that promote pleasure and comfort. In creating a relationship to music and fully engaging the participants' mental focus, students can experience high levels of joy, satisfaction and holistic fitness, i.e. whole body fulfillment with mind, emotions and presence of personal spirit. Although Nia Technique was launched in 1983, it is still an emerging practice in well-being which synthesizes mindfulness, somatic movement and neurological science, supporting the brain-body connection for health. Since its inception, Nia movement practice has been rooted in the idea that when we move the way the body is designed to, we can more effectively condition the body from a fitness perspective. Simultaneously, with the coupling of somatic techniques, people can discover how to use Nia movement therapeutically to self-heal. Nia practice guides people to become body literate – meaning they can listen effectively to sensory cues from the body to make fitness and well-being choices. Nia movement practice is supported by 52 body-centered principles that teach people skills to achieve somatic fitness, explore movement creativity and expand their perception. Each somatic skill results in the discovery of new self-knowledge through personal felt sense exploration.

## Cécile Martinez,

(La Farlède, France)

### ***Au-delà du handicap : atelier de danse intégrée***

Atelier proposé à des personnes en situation de handicap et des personnes valides. L'action pédagogique proposée lors de cet atelier de danse inclusive, dirigé par une chorégraphe et enseignante, mettait en évidence la notion d'écoute de l'autre, du groupe, de sa différence. Chaque participant pouvait développer sa propre gestuelle et s'enrichir de celle des autres, pour créer ensemble en fonction des contraintes existantes. Les participants ont été invités à explorer l'espace, les dimensions du corps, les rythmes, se donner une identité plus affirmée, plus affinée, moins déstructurée et dépasser les clivages de la différence. Cet atelier a proposé un moyen d'expression créatif, évolutif et construit, afin d'accompagner les danseurs dans une recherche gestuelle à la fois personnelle et collective qui met en jeu leur personnalité et leur sensibilité. Découvrir ou redécouvrir le langage du corps.

### ***Beyond Handicap: An Integrated Dance Workshop***

The pedagogical approach put forward in this inclusive dance workshop, led by a choreographer and teacher, focused on being attentive to others, to the group and to our differences. Each participant had an opportunity to develop his or her own gestural language and learn from other participants, with a view to creating a joint work together in keeping with existing constraints. Participants were invited to explore space, body sizes and rhythms, to adopt a more assured, more precise and more structured identity and to look past their differences. The workshop provided dancers with a creative, adaptive and constructed means of expression that they can leverage in a personal and collective exploration of movement adapted to their personality and sensitivity. Discover, or rediscover, the wonders of body language.

# Nadyne Bienvenue,

(Blainville, QC, Canada)

## *Intégrer la pleine conscience par la danse*

Les ateliers de Nadyne Bienvenue ont comme objectif de développer les attitudes et aptitudes de la pleine conscience (Thich Nhat Hanh, Jérôme Treiber) par une approche corps-esprit. Inspirés par J. Kabat-Zinn (1982), le premier à intégrer les apprentissages de la pleine conscience dans une perspective d'intervention psychologique préventive, et par les travaux de T. Shafir (2015) sur la régulation des émotions par le mouvement, ces ateliers ont été mis au point pour ancrer les apprentissages de pleine conscience par l'expérience corporelle. La danse donne l'occasion de se reconnecter à soi et à son corps. Se réapproprier le mouvement de façon consciente et vigilante facilite le dialogue entre le corps et l'esprit. Visant à améliorer le bien-être, le sentiment de liberté et la capacité à être dans l'instant présent, nous explorons différents éléments essentiels à cette pratique, dont le non-jugement et la bienveillance, en préconisant un processus d'acceptation active de l'expérience vécue, quelle qu'elle soit. À l'aide de causerie, méditation, visualisation et respiration, l'approche permet d'expérimenter ces éléments dans notre corps et de créer des références physiques. Les participants peuvent vivre des prises de conscience selon le thème et leur cheminement. Ils peuvent utiliser ensuite ces outils dans leur quotidien pour modifier leurs réactions. Il est très important de développer et promouvoir ce type d'approche corps-esprit dans un cadre préventif et non seulement comme une thérapie. Elle contribue à une bonne hygiène de vie pour une meilleure santé mentale. Apprendre à contrôler son esprit et prendre conscience des expériences que l'on vit peut largement contribuer à réduire le stress et l'anxiété et les symptômes qui leur sont reliés.

L'impact de ce type d'approche se vit par le participant d'abord, mais se reflète aussi sur son entourage et sur toutes les relations qu'il entretient avec le monde extérieur.

## *Integrating Mindfulness in Dance*

The primary purpose of Bienvenue's workshops is to develop the attitudes and aptitudes of mindfulness (Thich Nhat Hanh, Jérôme Treiber) with a mind-body approach. The workshops are inspired by J. Kabat-Zinn (1982), who first integrated mindfulness lessons into the practice of preventative psychological intervention, and by the works of T. Shafir (2015) on emotion regulation through movement. As a result, these workshops were designed to promote internalization of mindfulness practices through bodily experience. Dance provides an opportunity to reconnect with oneself and one's body. Reclaiming movement in a conscious and attentive manner facilitates dialogue between the body and mind. With an aim to improve well-being, a sense of freedom and the capacity to live in the present moment, we explore various elements that are essential to this practice, namely non-judgment and compassion, and we recommend, and emphasize, a process of active acceptance of the lived experience, whatever it is. Through discussion, meditation, visualization and breathing, this approach allows us to experiment these elements in our body and create physical references. Participants also develop an awareness depending on the theme and their journey. They then use these tools in their everyday life to modify their reactions. It is very important to develop and promote this type of mind-body approach as a preventative measure, and not only as a therapy, as it contributes to a healthy lifestyle that promotes better mental health. Learning to control one's mind and becoming aware of one's experiences can have a significant impact in reducing stress, anxiety and their related symptoms.

This type of approach has an impact that is first felt by the patient but that is also reflected on their circle as well as all of their relationships with the outside world.

# ***Carol Anderson<sup>1</sup>, Terrill Maguire<sup>2</sup>***

<sup>1</sup>B.A., M.A. (Toronto, ON, Canada), <sup>2</sup>(Toronto, ON, Canada)

<sup>1</sup>BFA, MA, (Toronto, ON, Canada), <sup>2</sup>(Toronto, ON, Canada)

## ***Mouvement pleine conscience : un atelier de mouvement et d'écriture***

Avec leurs ateliers de mouvement et d'écriture, Terrill Maguire et Carol Anderson créent des frontières poreuses à l'ouverture au geste créatif par le mouvement conscient. Leur pratique, qui associe le mouvement et le yoga à l'écriture, favorise une expérience originale et sans filtre de l'expression du corps et de l'esprit guidée par des experts dans un environnement fiable. La chorégraphe, danseuse et éducatrice primée Terrill Maguire et l'écrivaine, artiste de la danse et enseignante Carol Anderson partagent un même engagement profond et actif envers la pleine conscience du mouvement et de l'expression créative comme clés de la santé et du mieux-être à long terme. Depuis 2012, elles ont conçu des ateliers d'écriture et de pratique du mouvement de tous niveaux dans de nombreux studios, conférences, activités éducatives et communautaires à Vancouver, Toronto, Montréal, à l'Haliburton School of the Arts et dans le comté de Prince Edward. Cet atelier-conférence offre un survol de cette pratique fluide du mouvement et de l'écriture. Voici quelques commentaires des participants d'ateliers précédents :

« J'ai apprécié tous les aspects de l'atelier – le rythme, la combinaison de l'écriture et du mouvement »

« Très agréable ! Belle variété. Excellent leadership ! »

« Un bel équilibre entre le mouvement et l'écriture... »

## ***Mindful Motion: A Moving/Writing Workshop***

With their moving/writing workshops, Terrill Maguire and Carol Anderson create mutable boundaries for opening creative gesture through mindful motion. Their practice, an interweaving of movement, yoga and writing, fosters fresh, unfiltered experience of body/mind expression in safe, expertly guided circumstances. Award-winning choreographer, dancer and educator Terrill Maguire and noted writer, dance artist and teacher Carol Anderson embody deep and active commitment to mindfulness in movement and creative expression as lifelong keys to health and well-being. Since 2012, they have designed workshops for participants at all levels of writing and moving practice in numerous studio, conference, educational and community situations in Vancouver, Toronto, Montreal, Haliburton School of the Arts, and Prince Edward County. This combined conference and workshop format offers a quick dive into this fluid practice of moving and writing. Comments by previous workshop participants include:

"...enjoyed every aspect of the workshop – the pace, the combination of writing and movement."

"Very enjoyable! Well timed variety. Excellent leadership!"

"A beautiful balance between movement and writing..."

# ***Floortje Rous,***

M.A. (Pays-Bas)  
MA (The Netherlands)

## ***Danse moderne pour les aînés, la méthode de Dance Connects***

Dance Connects a été fondée en 2015 à Amsterdam, aux Pays-Bas, afin de donner aux aînés la chance de découvrir les bienfaits de la danse moderne pour leur mieux-être. La danse moderne n'est souvent accessible qu'aux jeunes et aux privilégiés, mais Dance Connects estime que tout le monde peut danser et devrait avoir accès à cette forme d'art, quels que soient son origine sociale ou son appartenance ethnique, son expérience, son état de santé physique ou mental. La danse est un outil très efficace pour ralentir le déclin des capacités physiques et mentales liées à l'âge et en même temps, une façon parfaite de travailler au mieux-être social. Ainsi, Dance Connects a développé un programme de danse accessible où, près de chez eux, les aînés d'Amsterdam sont encouragés à travailler sur leur bien-être général d'une manière créative et amusante.

Le but de l'atelier était de fournir un cadre inspirant à ceux qui œuvrent dans le domaine de la danse ou auprès des aînés, et à ceux qui aimeraient intégrer la danse à des programmes sociaux, de santé ou communautaires. Les participants ont expérimenté en mots et en images, et avec la musique et la danse, comment la stimulation, la conscience et le mouvement mènent à la valorisation et au rapprochement. L'atelier était offert comme un cours de danse, avec des notes théoriques et des résultats de recherche propres à chacun. Il donnait un aperçu d'une méthode réussie qui stimule le corps et l'esprit grâce à un juste équilibre entre mouvement, apprentissage, création et socialisation.

## ***Modern Dance for Elders, the Method of Dance Connects***

Dance Connects was founded in 2015 in Amsterdam, the Netherlands, to give elders a chance to experience the benefits of modern dance for their well-being. Modern dance is often only available for the young and fortunate, but Dance Connects believes that everybody can dance and everybody should have access to this art form no matter his or her social or ethnic background, experience, physical or mental state of mind. Dancing is a very effective tool to slow down age-related decline in physical and mental abilities and at the same time a perfect way to work on social well-being. Therefore, Dance Connects developed an accessible dance program in which elders of Amsterdam are stimulated to work on their overall well-being in a creative and fun way close to home.

The aim of the workshop was to give an inspirational framework for those who work in dance or with elders and for those who would like to implement dance in social, health or community programs. Participants experienced in word, image, music, and dance how activation, awareness and movement lead to development and connection. The workshop was constructed like a dance class with theoretical site notes and own research results. It gave an insight in a successful method that stimulates body and mind by the right balance and variation in moving, learning, creating and socializing

# ***Christina Soriano,***

M.A. (Winston-Salem, NC, États-Unis)  
MFA (Winston-Salem, NC, USA)

## ***Mouvement et improvisation pour les populations atteintes de maladies neurodégénératives***

La mobilité peut être décrite tout simplement comme la capacité de se déplacer où l'on veut. Elle peut être profondément affectée par le vieillissement, et davantage encore chez les personnes atteintes de maladies neurologiques relativement courantes liées au vieillissement, comme la maladie de Parkinson ou la maladie d'Alzheimer. Le maintien de la mobilité n'est pas simplement lié au maintien de la masse musculaire ou de la condition physique aérobique ; l'intégration du cerveau et du corps est fondamentale pour le mouvement. De nombreuses formes d'exercice physique utilisent la répétition de mouvements ciblés pour développer la force et les habiletés ou aptitudes, et ces interventions ont donné de bons résultats. Cependant, les défis de la vie quotidienne exigent des réactions souples et adaptées. À l'Université Wake Forest, Christina Soriano (danse) et Christina Hugenschmidt (neurosciences) ont étudié comment l'improvisation et la danse peuvent améliorer la démarche, la mobilité et la cognition chez les personnes âgées atteintes de maladies neurodégénératives comme la maladie de Parkinson et la maladie d'Alzheimer. L'improvisation encourage la capacité à créer de nouveaux gestes, à faire des choix et des mouvements sur l'impulsion du moment. L'improvisation ne veut pas dire qu'une activité manque de structure ou que les gens sont libres de faire ce qu'ils veulent. L'objectif est que le matériel de mouvement planifié ou normatif, ou la copie de mouvements, soit remplacé par la possibilité de réactions physiques multiples. De cette façon, l'improvisation est directement liée à l'idée d'autonomie, à la capacité d'une personne à agir de manière autonome.

Dans mon atelier, j'ai partagé des exercices ayant émergé de IMPROVment®, une intervention de mouvement d'improvisation que j'ai mise au point pour les adultes âgés vivant avec des maladies neurodégénératives et leurs partenaires de soins. À titre d'intervenante dans le cadre d'un essai clin-

## ***Improvisational Movement for Neurodegenerative Disease Populations***

Mobility can be simply described as the ability to get where you want to go. It can be profoundly affected by aging, and even more so in people who have relatively common aging-related neurological diseases such as Parkinson's disease (PD) or Alzheimer's disease (AD). Maintaining mobility is not simply a matter of maintaining muscle strength or aerobic fitness; integration of brain and body is fundamental for moving. Many forms of physical exercise use repetition of targeted movements to build strength and competency, and these interventions have shown good success. However, daily living requires flexible, adaptive responses to real-life challenges. At Wake Forest University, Christina Soriano (dance) and Christina Hugenschmidt (neuroscience) have been working to investigate the ways improvisational movement and dance can improve gait, mobility and cognition in older adults living with neurodegenerative diseases such as PD and AD. Improvisation encourages the ability to create new gestures, choices and movements on the spur of the moment. Improvisation does not imply that an event lacks structure or that people are free to do whatever they want. The objective is that pre-planned or prescriptive movement material, or copying, are replaced by the possibility for multiple physical responses. In this way, improvisation is directly linked with the idea of agency, of a person's ability to act autonomously.

In my workshop, I have shared exercises that have grown out of IMPROVment®: an improvisational movement intervention I developed for older adults living with neurodegenerative diseases and their carepartners. As I am currently an interventionist in a clinical trial funded by the National Institutes of Health to test the effectiveness of this methodology in a community of people living with mild cognitive impairment and their carepartners, I am always eager to share the philosophy and practice behind my class structure and receive feedback from other colleagues. In my workshop for the First National Symposium on

## ATELIERS EXPÉRIENTIELS EXPERIENTIAL WORKSHOPS

ique financé par le National Institutes of Health pour évaluer l'efficacité de cette méthodologie dans une communauté d'individus souffrant de trouble cognitif léger et leurs partenaires de soins, je suis toujours prête à partager le fondement et la pratique sous-jacente à la structure de mon cours et à recevoir la rétroaction de mes collègues. À mon atelier lors du Premier symposium sur la danse et le bien-être, j'ai donné un cours modèle avec des éducateurs et des praticiens en danse à la manière d'une intervention. J'y ai souligné ma philosophie sur la conception du cours et la manière dont les exercices sont étayés afin d'évoluer tandis que les participants continuent de grandir dans le mouvement et l'improvisation.

Dance and Well-being, I taught a model class with dance educators and practitioners in the room as though it were a class modeled from the intervention. I emphasized my philosophy of both how the class is designed and how most exercises are scaffolded to evolve as the class participants continue growing as movers and improvisers.

# ***Judith Sachs, Dianna Daly,***

E-RYT (Philadelphia, PA, États-Unis)  
E-RYT (Philadelphia, PA, USA)

## ***Contact étroit pour les couples***

On enseigne souvent aux couples vivant avec des troubles du mouvement que l'exercice est essentiel pour aider à soulager les symptômes des maladies évolutives, telles que la maladie de Parkinson, la sclérose en plaques, etc. Par conséquent, des thérapies physiques ou des programmes d'exercices sont souvent prescrits aux patients, mais le soignant ou le partenaire soignant est souvent laissé dans le noir. Lorsqu'un soutien physique devient nécessaire, il faut développer des liens affectifs encore plus forts au sein du couple. Le sens du toucher est un moyen efficace de renforcer les liens affectifs et peut même contribuer à développer les aptitudes physiques. Dans cet atelier, des stratégies de communication, telles que celles que les danseurs utilisent lorsqu'ils effectuent des transferts de poids ou des portés, sont enseignées et pratiquées.

Cet atelier a offert une nouvelle méthode pour enseigner aux non-danseurs souffrant de troubles du mouvement comment échanger entre eux tels des danseurs à l'aide de signaux verbaux et physiques pour s'appuyer mutuellement dans les activités du quotidien (par exemple, se tourner et sortir du lit, monter à bord d'une voiture, prendre une douche ou se relever après une chute). Ce travail a une grande importance auprès de couples qui vivent avec la maladie de Parkinson ou d'autres troubles du mouvement depuis des décennies et qui comprennent les ramifications de ces maladies évolutives. Même si ces couples ont assurément connu des expériences de physiothérapie et d'ergothérapie où on prescrit des mouvements au « patient » et où le « partenaire de soins » s'occupe de l'encourager ou de le guider, ils apprennent rarement à travailler ensemble à résoudre des problèmes de mobilité.

J'enseigne à des danseurs qui découvrent souvent pour la première fois la chorégraphie, l'improvisation, la fluidité et le rythme. Avoir « l'esprit du débutant » leur donne l'occasion d'expérimenter avec des idées qui pourrait avoir un impact considérable sur leur relation. Au lieu que l'aïdant regarde simplement son conjoint peiner dans ses mouvements, les deux partenaires participent à la prise de décision physique, ce qui peut accroître leur confiance en soi et leur donner le sentiment d'être un vrai couple uni.

## ***Close Contact for Couples***

Couples living with movement disorders are often taught that exercise is essential to help with the symptoms of progressive diseases, such as Parkinson's, multiple sclerosis, etc. Consequently, physical therapy and exercise modalities are prescribed for the patient. But the caregiver or care partner is often left in the dark. At the point where real physical assistance is needed, even more emotional connection has to be made within a couple. The sense of touch can create a pathway for stronger partnerships and can lead to more physical aptitude. In this workshop, strategies for communication such as the type dancers use together when preparing weight shifts or lifts, are taught and practiced.

This workshop provided a new method of teaching non-dancers with movement disorders how to relate to one another as dancers do—using verbal and physical cues to help one another with activities of daily living (such as rolling over and getting out of bed, getting into the car or shower, standing up from a fall). This work matters greatly within couples who have been dealing with Parkinson's disease and other movement disorders for decades and understand the ramifications of this progressive disease. Although they are undoubtedly experienced with physical and occupational therapy, where the “patient” is instructed and the “carepartner” acts as a cheerleader or guide, they are rarely taught how to work together to solve movement problems.

The dancers I teach are often coming to choreography, improvisation, flow and rhythm for the first time. Having “beginners’ mind” gives them the opportunity to experiment with ideas that may have a great impact on their relationship. Rather than the caregiver simply watching a beloved partner struggle with movement, both partners can participate in physical decision-making, which can give them self-confidence and a sense that they are truly a united couple.

# ***Sarah-Catherine Magny,***

MSs, T.S., psychothérapeute (Québec, QC, Canada)  
MSs, SW, psychotherapist (Québec, QC, Canada)

## ***L'alliance thérapeutique en mouvement***

Travailleuse sociale, psychothérapeute, certifiée en thérapie par la danse et le mouvement, il n'est pas rare pour Sarah-Catherine Magny d'intégrer des expérimentuels brefs en psychothérapie individuelle avec des patients qui présentent une ouverture pour ce médium thérapeutique. Ces expérimentuels peuvent alors devenir un lieu privilégié pour investir et explorer autrement l'alliance thérapeutique. Cet atelier s'est déroulé en dyades, afin de représenter l'alliance thérapeute/patient. Pour les fins de l'exercice, nous avons imaginé un patient présentant des symptômes d'anxiété au long cours, lequel poursuit une psychothérapie hebdomadaire afin de rencontrer les objectifs suivants explorer les enjeux sous-jacents à son anxiété, dénouer des conflits de nature inconsciente pouvant se cristalliser dans une rigidité somatique, apaiser les symptômes anxieux et retrouver un mieux-être global. L'expérimentiel proposait d'explorer l'alliance thérapeutique comme une matrice permettant d'accéder à de nouvelles perspectives et prises de conscience. Le thérapeute a donc invité le patient à se déplacer d'un point A au point B d'abord, en ligne droite. Ensuite, en jouant sur la forme dans la direction. Enfin, en jouant et modulant les mouvements du corps pour les transformer pendant le déplacement. Cet exercice favorisait ensuite des échanges pouvant porter sur le rapport au corps et à l'espace, à la présence de l'autre, à la consigne donnée et la capacité ou le potentiel à se libérer d'une contrainte apparente. Il est possible de répéter l'exercice au cours d'un processus thérapeutique pour en suivre l'évolution.

## ***The Therapeutic Alliance in Movement***

As a social worker and psychotherapist certified in dance/movement therapy, it isn't rare for Sarah-Catherine Magny to incorporate short personal psychotherapy experiments with patients who are open to this therapeutic approach. Such experiences can become a privileged platform for exploring and furthering the therapeutic alliance. This workshop was conducted in pairs in order to represent the therapist/patient alliance. For the purposes of the exercise, we took the example of a patient who is showing symptoms of long-term anxiety and pursuing weekly psychotherapy sessions to achieve the following objectives: to explore the issues underlying his or her anxiety, to resolve unconscious conflicts that can lead to somatic rigidity, to relieve the symptoms of anxiety and to improve general well-being. This experience explored the therapeutic alliance as a matrix that opens the door to new perspectives and greater awareness. The therapist invited the patient to move from point A to point B, first in a straight line, then playing with form while maintaining the same direction, and finally by playing with and modulating his or her body movements so as to transform them while following the same path. This exercise encouraged discussion that may concern the patient's relationship with his or her body and space, with the presence of others or with the instructions provided, as well as the patient's ability or potential to break free from apparent constraints. This exercise may be repeated during therapy to monitor progress.

# ***Lisa Sandlos<sup>1</sup>, Rennie Tang<sup>2</sup>, Svetlana Lavrentie<sup>3</sup>,***

<sup>1</sup>Candidate au doctorat, M.A., CMA, <sup>2</sup>BArch, MSAUD, <sup>3</sup>B. Éd. (Georgetown, ON, Canada)

<sup>1</sup>PhD candidate, MA, CMA, <sup>2</sup>BArch, MSAUD, <sup>3</sup>BEd (Georgetown, ON, Canada)

## ***Constructions chorégraphiques dans l'espace urbain: bien-être et santé par la danse et le design***

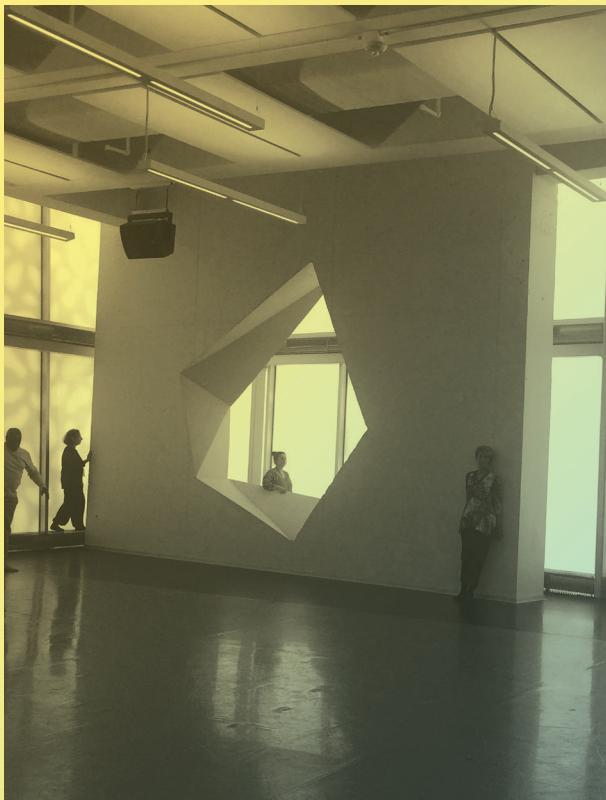
Dans cet atelier, nous avons exploré le potentiel d'améliorer la santé et le bien-être en combinant des approches des domaines de la danse, du design et de l'architecture. Nous nous sommes inspirés de photographies de corps en mouvement dans des environnements urbains bâtis, ainsi que de la théorie et la pratique de Space Harmony du pionnier du mouvement Rudolf von Laban, pour tâter les possibilités de se mouvoir en harmonie avec les éléments architecturaux du Studio A de l'Édifice Wilder : Espace Danse et avec les corps en mouvement d'autres participants; nous avons ensuite réfléchi à l'influence de ces expériences sur notre sentiment de santé et de bien-être. Notre travail est important puisque les villes peuvent aliéner les individus de leurs corps et décourager l'activité qui est entièrement incarnée. Comme les citadins sont de plus en plus branchés sur leurs appareils technologiques personnels, nous désirons les encourager à profiter des bienfaits sur la santé d'échanger et d'établir des liens avec leur environnement par l'entremise de mouvement spontané et d'exploration chorégraphique.

Notre recherche invite la collaboration interdisciplinaire, l'occasion de vaincre les tabous culturels au sujet de la danse et du mouvement dans les espaces publics, de même qu'un goût de l'exploration ludique et incarnée au sein des environnements urbains. Les impacts positifs du fait de bouger plus souvent et intensément sont documentés par les écrits sur la condition physique et la santé, mais nous suggérons que les bienfaits du mouvement sur la santé physique, mentale, émotive et sociale peuvent résider à l'extérieur d'un gymnase, qu'il est facile d'y accéder et d'être inspiré par des environnements architecturaux.

## ***Choreographic Constructions in Urban Space: Well-Being and Health Through Dance and Design***

In this workshop, we explored the potential for enhancing health and well-being by combining approaches from dance, design, and architecture. Drawing on photographic images of bodies moving in built urban environments and on movement pioneer Rudolf von Laban's theory and practice of Space Harmony, we probed the possibilities of moving in harmony with designed elements found within Studio A at Édifice Wilder: Espace Danse and with the moving bodies of the other participants; we then reflected on how these experiences affected our sense of health and well-being. Our work matters because cities can alienate people from their bodies and discourage activity that is fully embodied. As people in cities are increasingly plugged into their personal technological devices, we wish to encourage them reap the health benefits of engaging and connecting with their surroundings through spontaneous movement and choreographic exploration.

Our work invites cross-disciplinary collaboration, the opportunity to overcome cultural taboos about dancing and moving in public spaces, and a sense of embodied, playful exploration within urban environments. The positive impacts of moving more often and more fully are well documented in fitness and health literature but we suggest that the physical, mental, emotional and social health benefits of movement can be found outside of the gym and can be easily accessed and inspired by taking advantage of designed environments.



### Choreographic Constructions

Photo: Svetlana Lavrentie



### Choreographic Constructions

Photo: Svetlana Lavrentie

## Jennifer M. Bolt,

Ph. D. (Toronto, ON, Canada)  
PhD (Toronto, ON, Canada)

***PRIMED for Life: favoriser la persévérance, la résilience, la motivation et l'excellence pour la transition, la santé et le bien-être des danseurs grâce à une approche conscientisée de la formation en danse contemporaine***

Dans cet atelier interactif, les participants ont eu l'occasion d'expérimenter cinq concepts fondamentaux d'un nouveau modèle pédagogique fondé sur des données probantes appelé PRIMED for Life. Ce modèle, issu d'une étude de cas collective à l'échelle pancanadienne sur la transition en danse entre l'école secondaire et l'université, vise à promouvoir les compétences transférables que sont la persévérance, la résilience, la motivation et l'excellence : les quatre caractéristiques clés soutenant la transition, la santé et le mieux-être des danseurs.

Dans cette recherche, la transition se définit comme étant un processus social, psychosocial et cognitif de socialisation alors que le danseur passe d'un ancien à un nouveau contexte d'apprentissage qui exige de nouvelles responsabilités personnelles, scolaires ou professionnelles. Les participants ont suivi un cheminement théorique dans le processus de changement en quatre étapes (séparation, transition, intégration et transformation). Une description de chacune des étapes de cette expérience était accompagnée de stratégies concrètes conçues pour répondre aux besoins sociaux, cognitifs et psychosociaux des danseurs. À l'étape de la séparation, nous avons proposé des stratégies concrètes pour faciliter le développement du sentiment de communauté, de lien et un code de respect. À l'étape de la transition, nous avons exploré comment outiller les danseurs de la résilience mentale et physique nécessaire pour faciliter le passage vers la croissance. De plus, à l'étape de la transition, nous avons discuté de l'intégration de « l'état d'esprit de croissance » de Dweck (2008) avec les stratégies de Gallwey (1974), abordées dans The Inner Game of Tennis, pour calmer le bavardage mental négatif et briser le perfectionnisme narcissique ou tourné vers l'autre et imposé socialement afin d'orienter les danseurs vers des normes d'excellence atteignable. En dernier lieu, à l'étape d'intégration puis celle de la transformation, nous avons proposé aux élèves des stratégies visant à encourager l'établissement

***PRIMED for Life: Facilitating Persistence, Resilience, Internal Motivation and Excellence for Dancers' Transition, Health and Well-Being Through a Mindful Approach to Contemporary Dance Training***

In this interactive workshop, participants had the opportunity to experience a new, evidence-based pedagogical model called PRIMED for Life pedagogy. This educational model, which evolved from a Canada-wide collective case study on the fine arts dance majors' transition from high school to university, seeks to offer concrete, in-studio strategies to facilitate the transferable skills of persistence, resilience, internal motivation and excellence—the four key characteristics found to support dancers' transition, health and well-being.

Transition in this research is defined as a social, psychosocial and cognitive process of socialization as the dancer moves from one learning context into a new learning context requiring new personal, academic or professional responsibilities. Participants took a theoretical journey through a four-stage process of change (separation, transition, incorporation and transformation). A description of each stage of this experience was coupled with concrete strategies tailored to meet dancers' social, cognitive and psychosocial transitional needs. At the separation stage, concrete strategies were offered to facilitate the development of a community, connection and a code of respect. How to equip dancers with the mental and physical resiliency to move through the transitional challenge cycle was explored in the transition stage. Furthermore, the integration of Dweck's (2008) "growth mindset" coupled with the work of Gallwey's (1974) Inner Game of Tennis strategies was discussed at the transition stage to calm negative mental chatter, breakdown self-oriented, other-oriented and socially prescribed perfectionism and move students towards attainable standards of excellence. Lastly, at the incorporation and transformation stage, strategies that promote goal setting and mentorship were offered to help students maintain high levels of internal motivation

## ATELIERS EXPÉRIENTIELS EXPERIENTIAL WORKSHOPS

d'objectifs et du mentorat pour les aider à atteindre des niveaux élevés de motivation interne et de persévérance. Le cadre de ce modèle et les stratégies pédagogiques correspondantes sont actuellement considérés à titre de « pratique émergente » prometteuse pour la nouvelle Norme sur la santé et la sécurité psychologique pour les étudiants du Canada. Ce travail a également attiré l'intérêt de la communauté du sport d'élite, de la communauté des anciens combattants, ainsi que des éducateurs des niveaux secondaires et postsecondaires de par sa transférabilité et son applicabilité à d'autres contextes d'apprentissage.

and persistence. The model's framework and corresponding pedagogical strategies are currently being considered as a promising “emerging practice” for Canada’s new National Commission on the Mental Health and Safety Standards of Post-Secondary Students. The work has also garnered interest from the elite sporting community, the veteran community as well as high school and post-secondary educators for its transferability and applicability to other learning contexts.

## **Tina Erfer,**

BC-DMT, LCAT, NCC (Denville, NJ, États-Unis)  
BC-DMT, LCAT, NCC (Denville, NJ, USA)

### ***Mouvement authentique - découvrir la sagesse du corps et l'épanouissement personnel***

Cet atelier a fourni aux participants une introduction à la discipline du mouvement authentique, une forme de mouvement simple où le participant se déplace les yeux fermés, en présence d'un témoin qui ne porte pas de jugement. Les participants ont exploré des gestes spontanés, le mouvement et l'immobilité, selon leurs impulsions intérieures du moment. La discipline du mouvement authentique permet d'accéder à un espace de calme et de connaissance intuitive. Elle encourage l'autonomie, la santé, la créativité et les relations, tout en créant de l'espace dans une vie trépidante régie par la technologie, pour être tranquillement à l'écoute de ses besoins, de ses désirs et de ses connaissances. Le mouvement authentique utilise le mouvement comme moyen de découvrir et d'exprimer tout son être. Il ne s'agit pas de performance. «Authentique» fait référence à ce qui est vrai pour soi dans le moment présent. Nous avons tenté d'apprendre à écouter profondément la sagesse de notre corps, à développer de la compassion envers nous-mêmes et envers les autres, à acquérir des connaissances personnelles et à accéder à notre potentiel de créativité et de pleine conscience. Suivre sa propre impulsion pour bouger ou rester immobile peut être le début d'un voyage mystérieux et gratifiant. La discipline du mouvement authentique offre un riche éventail de possibilités, notamment la pratique méditative ou spirituelle, la psychothérapie, un moyen de soutenir la créativité et l'expression créative, et un lieu d'échange permettant de renforcer les liens communautaires. Il peut être pratiqué individuellement ou en groupe. Dans cet atelier, les participants ont été invités à explorer la différence entre se mouvoir et s'émouvoir. Grâce à ce processus de découverte de soi, nous pouvons nous éléver à travers le corps en mouvement, où réside notre vrai soi.

### ***Authentic Movement - Discovering the Wisdom of the Body, Nurturing the Self***

This workshop provided participants with an introduction to the discipline of Authentic Movement, a simple movement form in which the mover moves with eyes closed, in the presence of a non-judgmental witness. Movers have explored spontaneous gestures, movement, and stillness, following inner impulses in the present moment. Authentic Movement is a discipline where one can descend into a place of quiet, stillness and intuitive knowing. It supports self-care, health, creativity and relationships, while also creating space in a busy, technology-driven life for quiet listening to what one needs, desires and knows. Authentic Movement uses movement as a medium to discover and express one's whole self. It is not about performing. "Authentic" refers to connecting to what is true for you in the present moment. We learn to listen deeply to our body's wisdom, develop compassion for ourselves and others, gain personal insights, and access our potential for creativity and mindfulness. Following one's own internal impulse to move or be still, can be the beginning of a mysterious, and rewarding journey. The discipline of Authentic Movement offers a rich array of possibilities, including meditative or spiritual practice, psychotherapy, a way to support creativity and creative expression, and a forum for building community. It can be done with individuals or groups. In this workshop, participants were invited to explore the difference between "I move" and "I am moved". Through this process of self-discovery, we can nurture ourselves through the moving body—where our true self resides.





# GROUPES DE DISCUSSION

## GROUP DISCUSSIONS



Conçus comme des lieux d'échange et de partage académique et expérientiel, les groupes de discussion ont été modérés par des personnes triées sur le volet et conseillées par les membres de notre comité organisateur. Ces modérateurs ont soulevé ou se sont fait proposer des questions sur des enjeux propres au secteur de la danse et du mieux-être, tant dans les volets de la recherche, de la pratique, que de la politique.

Certains modérateurs nous ont offert des retours sur les discussions et commentaires ayant animé leurs groupes, que vous trouverez dans cette section.

Designed as a forum for exchanges and for academic and experiential sharing, the discussion groups were moderated by people hand-picked and advised by the members of our organizing committee. These moderators raised or had proposed to them questions about issues related to the realm of dance and well-being, in the research and practice areas as well as in policy.

Some moderators offered us feedback on the discussions and comments that enlivened their groups, which you will find in this section.

***Vers des méthodes efficaces pour évaluer les interventions en danse : défis qualitatifs et quantitatifs et possibilités d'intégration méthodologiques***

La recherche sur les interventions en danse peut être entravée par l'absence de techniques capables de distinguer ou de démontrer efficacement l'impact réel de cette approche multimodale. Destiné aux chercheurs qui ont de l'expérience dans l'évaluation de la danse ou qui s'y intéressent, ce groupe de discussion a examiné en deux temps les outils, l'éthique, l'accessibilité et autres défis de la recherche touchant plusieurs domaines. Les commentaires des discussions ont engendré une liste de souhaits quant aux études et approches futures.

Les deux séances étaient organisées en tant que discussions ouvertes, alimentées par des questions et articles distribués aux participants à l'avance. On avait remis aux participants des séances des documents exhaustifs sur la recherche en cours (de la dernière décennie) et on les avait invités à se joindre aux groupes de travail déterminés à poursuivre cette conversation à l'avenir. Une des conclusions majeures a été que les participants canadiens avaient à cœur de trouver des rôles d'interventionnistes au sein de la recherche scientifique, mais qu'ils manquaient selon eux de connaissances, d'accès et de liens avec les universités et partenaires de ce milieu. Même si les animateurs et les participants des deux séances ont suggéré des manières de former des partenariats de recherche, ceci demeure un problème complexe, les préoccupations et le contexte de chaque participant étant unique. Par conséquent, une recommandation clé serait que le Centre national de danse-thérapie des Grands Ballets envisage d'accueillir une infrastructure afin d'appuyer les artistes/éducateurs canadiens qui se lancent dans la recherche. Ces options pourraient inclure :

- a) Communiquer avec des programmes de recherche universitaire canadienne qui constitueraient des partenaires logiques — par exemple, en danse et (neuro)science ou en danse avec physio/ergothérapie.
- b) Établir un lien avec des programmes/centres universitaires pour offrir formation et appui aux artistes/enseignants indépendants dans le milieu de la danse;
- c) Cibler l'idée de rendre la recherche accessible/faisable à la conférence de l'an prochain, en incorporant des partenaires universitaires

***Towards Meaningful Methods for Assessing Dance Interventions: Qualitative and Quantitative Challenges and possibilities for methodological integration***

Research on dance interventions can be impeded by a lack of methods that meaningfully distinguish and demonstrate the real impact of dance as a multimodal approach to creative movement. Aimed at researchers with experience or an interest in measuring dance, the two-phase discussion group addressed questions around tools, ethics, accessibility and other challenges to research that crosses domains. Feedback from the discussions generated a wish list for future studies and approaches.

Both sessions were structured as open forums for discussion, prompted by questions/articles shared with participants in advance. Participants in both sessions were given an extensive handout on current research (last decade) and were invited to join working groups committed to continuing this conversation into the future. One main finding was that Canadian participants longed to find interventionist roles within scientific research but felt they lacked knowledge, access, and relationships with universities and community partners. Although facilitators and participants in both sessions offered suggestions for forming research partnerships, this remains a complex problem, and each participant's concern and context is unique. Therefore, a key recommendation is for Les Grands Ballets' National Centre for Dance Therapy to consider fostering an infrastructure that supports Canadian dance artist/educators entering research. Options might include:

- a) Connecting with Canadian academic research programs that might be logical partners—for example, dance and (neuro)science or dance with physical/occupational therapy.
- b) Linking with academic programs/centres to provide training and support for independent dance artist/educators;
- c) Focusing on the topic of making research accessible/doable in next year's conference, incorporating the academic partners

# **Évaluation 1: vers des méthodes d'évaluation efficaces pour évaluer les interventions en danse: améliorations qualitatives**

*Assessment 1: Towards Meaningful Methods for Assessing Dance Interventions: Qualitative Improvements*

Christina Soriano, M.A., Glenna Batson, P.T., ScD, M.A., mAm SAT, et David Leventhal, directeur, Dance for PD® (États-Unis)

Christina Soriano, MFA, Glenna Batson, PT, ScD, MA, mAm SAT and David Leventhal, Director, Dance for PD® (USA)

Analyser la danse avec les outils existants ne permet pas toujours de saisir les changements que nous constatons au cours d'une séance. Les technologies portables, la neuroimagerie et les notations utilisées en physiothérapie, ergothérapie et autres rendent de nouvelles données accessibles, mais il faut les approfondir pour obtenir des mesures significatives qui reflètent l'éventail des changements et des défis qui surviennent régulièrement en danse.

Questions préliminaires posées :

1. Quels tests utilisez-vous dans vos études scientifiques ou dans vos évaluations? Comment ces mesures vous soutiennent-elles? Quelles sont leurs limites?
2. Qu'est-ce que vous aimeriez mesurer, mais êtes incapable de le faire?
3. Lorsque vous tentez de faire des études contrôlées basées sur vos classes, comment abordez-vous les enjeux fondamentaux tels que la personnalité de l'instructeur et la dynamique interpersonnelle, notamment dans une situation où vous comparez une expérience de groupe avec une intervention qui se fait habituellement en solo?
4. Comment aborder la question de l'effet placebo considérable sur la maladie de Parkinson lorsqu'on planifie des études de recherche sur le mouvement au sein de cette population?

Measuring dance with existing tools sometimes fails to capture the changes we witness in class sessions. Technologies including wearables, neuroimaging, and standard scoring from PT, OT, and other fields are making new data accessible, but refinement is needed to achieve meaningful measurements that reflect the range of changes, and challenges, that occur regularly in dance.

Preliminary questions posed:

1. What tests are you using in your scientific studies or in class assessment? How do these assessment measures support you? Where do they fall short?
2. What do you want to measure but can't?
3. When attempting to do controlled studies based on classes, how have you handled critical issues like instructor personality and interpersonal dynamics, particularly in situations when you are comparing a group experience (dance intervention) with an intervention that is usually done solo (physical therapy session)?
4. How do we address the significant placebo effect in Parkinson's when planning research studies based on movement interventions for that population?

## GROUPES DE DISCUSSION GROUP DISCUSSIONS

5. Travaillez-vous avec des technologies portables ?  
Si oui, quels problèmes avez-vous rencontrés ? Dans un cadre idéal, que souhaiteriez-vous qu'elles puissent mesurer ? De plus, comment l'utilisation des technologies portables et autres nouvelles technologies intervient-elle avec la validation des résultats ?
6. Avez-vous intégré des études, des données ou des découvertes en neuroimagerie dans vos plans de recherche ? Quel rôle joue cette information dans l'écosystème global de gestion des données ? Comment la comparer à d'autres mesures et attribuer une valeur ou un poids relatif aux résultats ?

Au cours de la séance, chaque animateur s'est présenté en abordant une ou plusieurs des questions préliminaires en plus de s'interroger sur d'autres préoccupations reflétant les défis de la recherche qui intègre la pratique scientifique et artistique. Les animateurs ont mis en relief ces sujets dans un rapport pour en discuter avec l'ensemble du groupe :

**Éthique** : comment tous les partis de la recherche sont-ils représentés ? Qu'est-ce qui prime pour chacun des participants (chercheurs académiques, artistes enseignants, participants et familles) ? À qui sert la recherche ?

**Domaine** : quelles sont les restrictions imposées en intervention par la danse afin d'évoluer avec une recherche collaborative qui est à la fois axée sur la pratique et la science ?

**Inventaires de tests** : quelle est l'importance de ce qui est capté (ou pas) ? (p. ex. la confiance, la vitesse, les caractéristiques du mouvement)

**Collaborateurs utiles** : les chercheurs qui aiment la danse, les familles, les physio/ergothérapeutes, les organisations (Les Grands Ballets, Dance for PD)

**L'avenir** : comment se diriger vers une méthodologie quantitative/qualitative axée sur l'intégration ? « Miser sur des méthodes et moyens de joindre des collaborateurs utiles, avec besoin subséquent de formation en méthodologies de recherche » a été un résultat précieux de la discussion.

5. Do you work with wearable technologies? If so, what issues have you encountered? What do you wish they could measure, in an ideal setting? Also, how does the use of wearables and other new technologies intersect with validation?
6. Do you or have you incorporated neuroimaging studies, data, or findings in your research designs? What role does this information play in the overall data ecosystem? How do you align it with other measures and assign value or weight to findings?

In the actual session, each facilitator introduced him or herself by addressing one or more of the preliminary questions in addition to posing other issues that reflect the challenges of research that integrates science and artistic practice. Facilitators outlined these topics on newsprint and discussed with the group as a whole:

**Ethics**: How are all parties in the research represented? What matters to each of the participants most (academic researchers, teaching artists, participants and families)? Who is the research for?

**Domain**: What are the limitations placed on dance intervention in order to move forward with collaborative research that is both practice and scientifically driven?

**Test inventories**: The importance of what's (not) being captured? (e.g. confidence, speed, movement characteristics)

**Helpful collaborators**: researchers who love dance, families, PTs/OTs, organizations (Les Grands Ballets, Dance for PD)

**In the future**: How to move towards integrative quantitative/qualitative methodology? Focusing on ways and means of contacting helpful collaborators, with subsequent need for training in research methodologies, was a valuable outcome of the discussion.

## ***Évaluation 2 : vers des méthodes efficaces pour évaluer les interventions en danse : améliorations qualitatives***

***Assessment 2: Towards Meaningful Methods for Assessing Dance Interventions: Qualitative Improvements***

Ce panel combinait deux séances du Bloc 2:

### ***Mécanismes de la danse dans la réadaptation des troubles neurodégénératifs***

Rebecca Barnstaple, candidate au doctorat, Joseph X. DeSouza, Ph. D., Dr Madeleine E. Hackney et Ciltali Lopez-Ortiz, Ph. D., M.A. (Toronto, ON, Canada)

### ***Vers des méthodes efficaces pour évaluer les interventions en danse : améliorations qualitatives***

Christina Soriano, M.A., Glenna Batson, P.T., ScD, M.A., mAm SAT, et David Leventhal, directeur, Dance for PD® (États-Unis)

Comment décrire les gains obtenus par les participants qui distinguent les interventions en danse des autres formes d'exercice? (Peut-on utiliser des facteurs qualitatifs plus précis que le temps et la distance?) Ces formulations apparaissent rarement dans la documentation scientifique et elles sont souvent absentes des évaluations actuelles du rendement fonctionnel. Même s'il est facile de voir ces gains sur la vidéo de capture du mouvement, il est impossible de fournir des valeurs numériques et/ou des descriptions normalisées des expressions de mouvement plus subtiles, mais significatives. De plus, des inventaires psycho/cognitifs aideraient-ils à capter les capacités des personnes qui ne peuvent pas parler ou articuler, ni même exécuter les mouvements physiques de base (victimes d'un AVC)? Cela nous renvoie à une question plus large : comment la créativité, la spontanéité, l'autonomie et autres éléments ontologiques — tels qu'ils existent à travers la danse — peuvent-ils être descriptibles ou mesurables en tant que gains fonctionnels tout en apportant des changements positifs sur la qualité de vie?

Questions préliminaires posées :

The panel combined two sessions from Block 2:

### ***Mechanisms of Dance in the Rehabilitation of Neurodegenerative Conditions –***

Rebecca Barnstaple, PhD Candidate, Joseph X. DeSouza, PhD, Dr. Madeleine E. Hackney, and Ciltali Lopez-Ortiz, PhD, MA (Toronto, ON, Canada)

### ***Towards Meaningful Methods for Assessing Dance Interventions: Qualitative Improvements***

Christina Soriano, MFA, Glenna Batson, PT, ScD, MA, mAm SAT and David Leventhal, Director, Dance for PD® (USA)

How can we describe participant gains that distinguish dance interventions from other forms of exercise? (i.e. descriptors that capture qualitative factors that are more specific than time and distance). These descriptors are rarely reported in the literature and are often not captured in current functional performance assessments. While it might be easy to see these gains on motion capture video, it is nearly impossible to provide numerical values or standardized descriptions for subtler, yet significant movement expression. Thus, while our studies might show functional gains, these are either indistinguishable from, or do not correlate with, those focusing on exercise. Additionally, are there psychological or cognitive inventories that help capture the abilities of persons who cannot speak or articulate, nor even demonstrate basic physical movements (e.g. persons with stroke)? Relatedly, this points to a larger, underlying question - how are creativity, spontaneity, agency and other ontological qualities as evolved through dance, describable and measurable as positive movement gains - not only functional gains, but also positive shifts in terms of quality of life?

## GROUPES DE DISCUSSION GROUP DISCUSSIONS

1. Pouvons-nous utiliser les évaluations fonctionnelles actuelles pour développer un vocabulaire qui fera progresser l'analyse du mouvement selon Laban? Ces évaluations doivent être adaptées en fonction de l'âge des personnes et des déficiences constatées, tout en évitant les effets plafond et plancher.
2. Comment les questions ontologiques telles que la propriété intellectuelle et l'agencement peuvent-elles être mesurées?
3. Pouvons-nous évaluer le rôle de la spontanéité et de la créativité, à court ou à long terme, dans la résolution quotidienne des problèmes?
4. Comment améliorer les mesures autodéclarées tout en donnant aux participants les moyens d'apprécier leur expérience thérapeutique dans son ensemble?

Au moins 50 personnes ont assisté à la séance. D'abord, chaque animateur brossé un bref portrait de l'axe de sa recherche et ses défis. Citlali Lopez-Ortiz a donné à l'aide d'une présentation PowerPoint un aperçu de sa recherche sur la danse et la paralysie cérébrale. D'autres animateurs ont décrit leurs travaux de façon plus informelle. Chaque membre du groupe élargi a alors choisi un animateur qui pourrait le mieux examiner et soutenir ses problèmes et questions. Chacun des animateurs a passé 40 minutes avec 5-6 participants. En répondant aux interrogations, les animateurs ont tâché de diriger les participants vers des domaines potentiels pour poursuivre des connaissances et des expériences de recherche.

### Preliminary questions posed:

1. Can we draw from current functional assessments and improve on building a vocabulary that advances Laban analysis? These assessments should be appropriate for the ages and impairments we see and yet avoid ceiling and floor effects.
2. How are ontological issues like ownership and agency measured?
3. Can we measure short- or long-term spontaneity and creativity in daily problem-solving?
4. How can we improve on self-reported measures, empowering the participant to capture the fullness of their experience?

At least 50 people attended. Initially, each of the facilitators provided a brief overview of their current research focus and its challenges. Dr. Citlali Lopez-Ortiz presented a PowerPoint overview of her research on dance and cerebral palsy. Other facilitators described their work more informally. Each person from the large group then self-selected one of the facilitators whom he or she felt could best address and support individual problems and questions. Each facilitator spent 40 minutes with 5-6 participants. In answering the questions, each facilitator sought to refer participants to possible areas for further research knowledge and experience.

# **Désambiguïsation des terminologies en danse-thérapie, interventions en danse et neurobiologie**

*Disambiguation of Terms in Dance Therapy, Dance Interventions, and Neurobiology*

Dr. Madeleine E. Hackney, PhD, BFA (Atlanta, GA, USA)

Certains termes et concepts tels, qu'« incarnation », « neurones miroirs » ou « empathie kinesthésique », sont utilisés (parfois à mauvais escient) dans le domaine de la danse et du mieux-être, ce qui suscite des malentendus qui peuvent entraver la recherche et les échanges. Il s'agit de savoir quand et comment nous utilisons des termes « biologiques » ; quelle est leur place dans différentes disciplines et que signifient-ils du point de vue de la recherche, de l'application et de la pratique.

On a distribué aux participants un projet de rapport d'examen qui donne un aperçu de la recherche originale et l'étude initiale ainsi que du débat actuel à propos du terme « neurones miroirs » de la danse-thérapie à titre d'exemple à ce sujet (voir page 28).

Terms and concepts such as “embodiment”, “mirror neurons” and “kinesthetic empathy” are often used (and misused) in the growing field of dance and well-being, leading to misunderstandings that may impede research and collaboration. This conversation addressed when and how we use biologically-based terms, what their histories are in different disciplines, and what they mean from research, application and practice standpoints.

A draft review paper was distributed to participants outlining original research and current debate around the term “mirror neurons” in DMT as an example of this issue (see page 28).

# ***Faisabilité et pertinence de l'utilisation des modèles d'excellence de la recherche scientifique pour l'étude des interventions en danse et en mouvement***

***Using Gold Standards of Scientific Research to Study Dance and Movement Interventions: A Discussion of Feasibility and Appropriateness***

Sarah Berry, Ph. D., ABD (Montréal, QC, Canada)  
Sarah Berry, PhD, ABD (Montreal, QC, Canada)

Qu'est-ce qui rend scientifique un plan de recherche et quelles méthodes devraient être utilisées pour produire des résultats fiables, valides et reproductibles ? Ce groupe intégrait les commentaires des participants à un groupe de discussion similaire lors du Symposium national de 2016, de même que les découvertes récentes permettant d'évaluer la faisabilité et la pertinence des modèles de recherche conformes aux « modèles d'excellence ». Nous avons discuté des stratégies spécifiques qui ont été proposées pour répondre aux questions portant sur l'efficacité et la qualité des interventions thérapeutiques en danse et en mouvement.

What makes a research design scientific, and which research methods should be used to produce reliable, valid, and replicable research findings? This discussion group integrated participant feedback from a similar discussion group at the 2016 Symposium and recent findings from scholarly literature to further explore the feasibility and appropriateness of using “gold standard” research designs. We discussed specific strategies that have been proposed to address persistent questions about the efficacy and quality of dance and movement interventions.

# ***Politiques et financement des projets d'interventions en danse***

*Policy and Funding of Dance Intervention Projects*

Louise Poissant, Directrice scientifique du Fonds de recherche du Québec – Société et culture (FRQSC),  
Christian Sénécha, Directeur du CNDT (Montréal, QC, Canada)

Louise Poissant, Scientific Director of the Fonds de recherche du Québec — Société et culture (FRQSC),  
Christian Sénécha, Director of the NCDT (Montreal, QC, Canada)

Lorsqu'on pense aux programme et politiques de financement des projets «arts et santé», on se retrouve souvent face à deux réalités : celle des organisations qui réfléchissent à ces projets innovants et hors-norme, dont l'accès au financement est limité, et celle des organismes subventionnaires qui perçoivent le potentiel de ces projets, mais qui disposent de peu de marge de manœuvre pour faire évoluer leurs programmes. Comment concilier ces deux perspectives ?

When we look at funding programs and policies for “arts and health” projects, we are often confronted with two distinct realities: that of the organizations that develop these innovative, non-standard projects, which have limited access to funding, and that of the funding agencies that see these projects’ potential but have little leeway to help shape and improve their programs. How can we reconcile these two perspectives?

# ***Enquête sur l'analyse du mouvement selon Laban***

***An Inquiry Into Laban Movement Analysis***

Karen K. Bradley, M.A., CMA et Cecilia Fontanesi, CMA, M. Phil., doctorante (États-Unis)  
Karen K. Bradley, MA, CMA and Cecilia Fontanesi, CMA, MPhil, PhD candidate (USA)

L'analyse du mouvement selon Laban (LMA) est parfois controversée. Certains professionnels considèrent qu'elle est trop formelle et structurée, limitant les observations à des catégories trop restreintes. D'autres pensent qu'il s'agit d'un parti pris culturel et d'autres encore que cette approche est superficielle et non significative. Certains voient dans la cinétographie un langage universel dont nous avons besoin pour partager nos connaissances et brosser un portrait complet d'un individu ou d'un groupe.

Ce groupe de discussion commence par un bref aperçu des méthodes et des valeurs inhérentes aux processus d'analyse, d'interprétation et de synthèse du mouvement. La discussion qui suit abordera certaines des questions suivantes : Comment peut-on tenir compte des préjugés, autant personnels que culturels ? Comment éviter de s'enfermer dans les détails ou devenir trop analytique ? Comment utiliser judicieusement l'empathie kinesthésique avec les clients ?

Un article inédit sur le sujet est disponible en page 18.

***An Inquiry Into Laban Movement Analysis***

Laban Movement Analysis (LMA) can be controversial. Some movement professionals think of it as too formalized and structured, forcing observations into narrow categories. Some think of it as culturally biased. Some others see it as superficial and not meaningful. Some see it as the language we all need to share analyses and give a full picture of a client or group.

This discussion group began with a short overview of the methods and values inherent in the movement analysis, interpretation and synthesis processes. The following discussion included some of the following anticipated questions: How does one account for bias, both personal and cultural? How does one avoid becoming embroiled in details or becoming too analytic? How does one use kinesthetic empathy appropriately with clients?

A preprint paper on the subject is available on page 18.

# **Danse, mouvement et santé mentale : défis et possibilités pour la recherche et la pratique**

*Dance, Movement, and Mental Health: Challenges and Opportunities for Research and Practice*

Sarah Berry, Ph. D., ABD et Debora Rabinovich, Doctorante (Montréal, QC, Canada)  
Sarah Berry, PhD, ABD and Debora Rabinovich, PhD candidate (Montreal, QC, Canada)

Au cours de cette séance, nous avons partagé notre expérience d'un projet de recherche à méthodologies mixtes en danse et santé mentale afin de discuter des enjeux en matière de diagnostic, des obstacles au recrutement et à la rétention, des expériences individuelles de performance et de contact dans le cadre de séances de groupe, ainsi que du fardeau potentiel que constitue la collecte des données sur les participants. Des stratégies pour relever ces défis ont été proposées et discutées. Les participants du groupe étaient invités à partager leurs expériences dans des études ou des interventions en santé mentale similaires et à apprendre les uns des autres en échangeant sur les défis et les stratégies à privilégier.

In this session, experiences of coordinating a mixed-methods study of a dance intervention for mental health were shared, in order to discuss challenges in terms of the complexities and ambiguities of diagnosis, barriers to study recruitment and retention, individual experiences of performance and contact in group settings, and the potential burden of data collection on study participants. Strategies for addressing these challenges were discussed and proposed. Group participants were invited to share their experiences in similar studies or interventions for mental health, and to learn from each other through sharing of challenges and strategies.



LES  
GRANDS  
BALLET

---

CENTRE NATIONAL DE  
DANSE-THÉRAPIE

ISBN 978-1-9995690-1-3



9 781999 569013