
BIOGRAPHICAL SKETCH

NAME: **Anat Mirelman, PhD**

POSITION TITLE: Director Laboratory for the study of Early Markers of Neurodegeneration (LEMON), Neurology department, Tel Aviv Sourasky Medical Center, Associate director of the Center for the study of Movement, Cognition and Mobility (CMCM), Tel Aviv Sourasky Medical Center, Senior lecturer, Sackler School of Medicine, Tel Aviv University, Israel

EDUCATION/TRAINING INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Ben Gurion University, Beer Sheba, Israel	BPT	10/ 1996	Physical Therapy
Long Island University, Brooklyn , NY	MS	05/ 2000	Health Sciences
Rutgers University, Newark , NJ	PhD	10/ 2007	Health Sciences

A. Personal Statement

Since coming to TASMCM after the completion of my PhD, I have had the privilege to combine my main areas of interest: research into motor cognitive interactions, markers of neurodegeneration, and the development of new interventions to improve motor-cognitive deficits. I have managed to show that these seemingly unrelated research areas are actually closely connected in the context of ageing and neurodegeneration. As a direct extension of my PhD, I joined the Center for the study of Movement, Cognition and Mobility (CMCM) in the Neurology Department at TASMCM. My research studies in CMCM focus on gaining new insights into the multi-factorial interactions between motor and cognitive function in ageing and Parkinson's disease. These studies led to new discoveries about successful ageing and regarding the potential of changes in response to motor-cognitive loading to serve as a precursor to functional impairments in populations at risk for neurodegeneration. Work in this area was enabled through my studies in the 'Genetics in Parkinson's disease project'. The exploration of a unique population of non-manifesting relatives of patients who carry genetic mutations associated with Parkinson's disease also enabled us to better understand the natural progression of the disease, genotype-phenotype relationships and to explore clinical, imaging and biological markers of disease. In 2015, I founded the Laboratory for the study of Early Markers of Neurodegeneration (LEMON) at TASMCM. My team includes research assistants, research coordinators and 3 physicians.

B. Positions and Honors

Positions and Employment

1996 - 1998	Staff Physical Therapist, Tel Hashomer Sheba Medical Center, Ramat-Gan, Israel
1998 - 2000	Senior Physical Therapist, Metropolitan Hospital Center, New York, NY, USA
2001 - 2010	Adjunct Professor, Ben-Gurion University, School of Health Related Professions, Beer Sheba, Israel
2000 - 2003	Senior Staff Physical Therapist, Department of Neurological Rehabilitation, Tel Hashomer Sheba Medical Center, Ramat-Gan, Israel
2005	Adjunct Professor, School of Physical Therapy, University of Medicine and Dentistry of New Jersey, Newark, NJ, USA
2005-2007	Research Assistant, Motion Analysis Lab, Spaulding Rehabilitation, Boston, MA USA
2006-2013	Research Associate Harvard Medical School, Cambridge, MA, USA
2007- current	Researcher, Movement Disorder Unit, Tel Aviv Sourasky Medical Center, Israel
2010-2013	Lecturer, Ben-Gurion University, School of Health Professions, Beer Sheba, Israel
2014-current	Associate director Center for the study of Movement, Cognition and Mobility (CMCM), Neurology department, Tel Aviv Sourasky Medical Center, Israel
2014-current	Senior Lecturer, Sackler School of Medicine, Tel Aviv University, Tel Aviv, Israel
2015-current	Director Laboratory for the study of Early Markers of Neurodegeneration (LEMON), Tel Aviv Sourasky Medical Center, Israel

Other Experience and Professional Memberships

2000- 2007 Israeli Physical Therapy Association
2008- Current International Society of Posture and Gait
2010- Current Israeli Neurology association
2014- current Movement Disorders Society

Honors

2003 'Excellence in Teaching Award', BGU, Beer Sheba, Israel
2006 'Best Paper Award' IWVR Conference, Aug 2006 NY, NY
2007 'Best Poster Award' Innovative Technology Conference, Dec 2007 Jerusalem, Israel
2009 'Excellence Award' Director of the Tel Aviv Sourasky Medical Center
2010 'Best paper award' Academy of Geriatric Society, Oct 2010, Washington DC
2012 'Excellence in Teaching Award', BGU, Beer Sheba, Israel
2013 'Best Poster Award' International Society of Posture and Gait Conference, June 2013, Akita Japan
2015 'Excellence in Research Award' Director of the Tel Aviv Sourasky Medical Center
2017 "Susanne Klein-Vogelbach-Prize for the Research of Human Movement"

C. List of Published Work:

- (1) Maidan I, Bernad-Elazari H, Giladi N, Hausdorff JM, **Mirelman A**. When is Higher Level Cognitive Control Needed for Locomotor Tasks Among Patients with Parkinson's Disease? *Brain Topogr* 2017 April 24.
- (2) **Mirelman A**, Maidan I, Bernad-Elazari H, Shustack S, Giladi N, Hausdorff JM. Effects of aging on prefrontal brain activation during challenging walking conditions. *Brain Cogn* 2017 April 20;115:41-6.
- (3) Artzi M, Even-Sapir E, Lerman SH, Thaler A, Urterger AO, Bressman S, Marder K, Hendler T, Giladi N, Ben BD, **Mirelman A**. DaT-SPECT assessment depicts dopamine depletion among asymptomatic G2019S LRRK2 mutation carriers. *PLoS One* 2017;12(4):e0175424.
- (4) Nieuwhof F, Bloem BR, Reelick MF, Aarts E, Maidan I, **Mirelman A**, Hausdorff JM, Toni I, Helmich RC. Impaired dual tasking in Parkinson's disease is associated with reduced focusing of cortico-striatal activity. *Brain* 2017 March 17.
- (5) Brozgol M, Arbiv M, **Mirelman A**, Herman T, Hausdorff JM, Vaisman N. Vertical ground reaction force during standing and walking: Are they related to bone mineral density left-right asymmetries? *Gait Posture* 2017 March 7;54:174-7.
- (6) Tankus A, Strauss I, Gurevich T, **Mirelman A**, Giladi N, Fried I, Hausdorff JM. Subthalamic Neurons Encode Both Single- and Multi-Limb Movements in Parkinson's Disease Patients. *Sci Rep* 2017 February 13;7:42467.
- (7) Thaler A, Gurevich T, Bar SA, Gana WM, Ash E, Shiner T, Orr-Urtreger A, Giladi N, **Mirelman A**. A "dose" effect of mutations in the GBA gene on Parkinson's disease phenotype. *Parkinsonism Relat Disord* 2017 March;36:47-51.
- (8) Dockx K, Bekkers EM, Van dB, V, Ginis P, Rochester L, Hausdorff JM, **Mirelman A**, Nieuwboer A. Virtual reality for rehabilitation in Parkinson's disease. *Cochrane Database Syst Rev* 2016 December 21;12:CD010760.
- (9) Nieuwhof F, Reelick MF, Maidan I, **Mirelman A**, Hausdorff JM, Olde Rikkert MG, Bloem BR, Muthalib M, Claassen JA. Measuring prefrontal cortical activity during dual task walking in patients with Parkinson's disease: feasibility of using a new portable fNIRS device. *Pilot Feasibility Stud* 2016;2:59.
- (10) Peruzzi A, Zarbo IR, Cereatti A, Della CU, **Mirelman A**. An innovative training program based on virtual reality and treadmill: effects on gait of persons with multiple sclerosis. *Disabil Rehabil* 2016 November 3;1-7.

- (11) Shiner T, **Mirelman A**, Gana WM, Bar-Shira A, Ash E, Cialic R, Nevler N, Gurevich T, Bregman N, Orr-Urtreger A, Giladi N. High Frequency of GBA Gene Mutations in Dementia With Lewy Bodies Among Ashkenazi Jews. *JAMA Neurol* 2016 December 1;73(12):1448-53.
- (12) Weiss A, **Mirelman A**, Giladi N, Barnes LL, Bennett DA, Buchman AS, Hausdorff JM. Transition Between the Timed up and Go Turn to Sit Subtasks: Is Timing Everything? *J Am Med Dir Assoc* 2016 September 1;17(9):864.
- (13) Wajda DA, **Mirelman A**, Hausdorff JM, Sosnoff JJ. Intervention modalities for targeting cognitive-motor interference in individuals with neurodegenerative disease: a systematic review. *Expert Rev Neurother* 2017 March;17(3):251-61.
- (14) **Mirelman A**, Rochester L, Maidan I, Del DS, Alcock L, Nieuwhof F, Rikkert MO, Bloem BR, Pelosin E, Avanzino L, Abbruzzese G, Dockx K, Bekkers E, Giladi N, Nieuwboer A, Hausdorff JM. Addition of a non-immersive virtual reality component to treadmill training to reduce fall risk in older adults (V-TIME): a randomised controlled trial. *Lancet* 2016 September 17;388(10050):1170-82.
- (15) Rosenberg-Katz K, Maidan I, Jacob Y, Giladi N, **Mirelman A**, Hausdorff JM. Alterations in conflict monitoring are related to functional connectivity in Parkinson's disease. *Cortex* 2016 September;82:277-86.
- (16) **Mirelman A**, Bernad-Elazari H, Thaler A, Giladi-Yacobi E, Gurevich T, Gana-Weisz M, Saunders-Pullman R, Raymond D, Doan N, Bressman SB, Marder KS, Alcalay RN, Rao AK, Berg D, Brockmann K, Aasly J, Waro BJ, Tolosa E, Vilas D, Pont-Sunyer C, Orr-Urtreger A, Hausdorff JM, Giladi N. Arm swing as a potential new prodromal marker of Parkinson's disease. *Mov Disord* 2016 October;31(10):1527-34.
- (17) Bregman N, Thaler A, **Mirelman A**, Helmich RC, Gurevich T, Orr-Urtreger A, Marder K, Bressman S, Bloem BR, Giladi N. A cognitive fMRI study in non-manifesting LRRK2 and GBA carriers. *Brain Struct Funct* 2017 April;222(3):1207-18.
- (18) Giladi N, **Mirelman A**, Thaler A, Orr-Urtreger A. A Personalized Approach to Parkinson's Disease Patients Based on Founder Mutation Analysis. *Front Neurol* 2016;7:71.
- (19) Pelosin E, Ogliaastro C, Lagravinese G, Bonassi G, **Mirelman A**, Hausdorff JM, Abbruzzese G, Avanzino L. Attentional Control of Gait and Falls: Is Cholinergic Dysfunction a Common Substrate in the Elderly and Parkinson's Disease? *Front Aging Neurosci* 2016;8:104.
- (20) Maidan I, Nieuwhof F, Bernad-Elazari H, Reelick MF, Bloem BR, Giladi N, Deutsch JE, Hausdorff JM, Claassen JA, **Mirelman A**. The Role of the Frontal Lobe in Complex Walking Among Patients With Parkinson's Disease and Healthy Older Adults: An fNIRS Study. *Neurorehabil Neural Repair* 2016 November;30(10):963-71.
- (21) Bernad-Elazari H, Herman T, **Mirelman A**, Gazit E, Giladi N, Hausdorff JM. Objective characterization of daily living transitions in patients with Parkinson's disease using a single body-fixed sensor. *J Neurol* 2016 August;263(8):1544-51.
- (22) Rozenkrantz L, Gan-Or Z, Gana-Weisz M, **Mirelman A**, Giladi N, Bar-Shira A, Orr-Urtreger A. SEPT14 Is Associated with a Reduced Risk for Parkinson's Disease and Expressed in Human Brain. *J Mol Neurosci* 2016 July;59(3):343-50.
- (23) Maidan I, Rosenberg-Katz K, Jacob Y, Giladi N, Deutsch JE, Hausdorff JM, **Mirelman A**. Altered brain activation in complex walking conditions in patients with Parkinson's disease. *Parkinsonism Relat Disord* 2016 April;25:91-6.
- (24) Peruzzi A, Cereatti A, Della CU, **Mirelman A**. Effects of a virtual reality and treadmill training on gait of subjects with multiple sclerosis: a pilot study. *Mult Scler Relat Disord* 2016 January;5:91-6.
- (25) Ginis P, Nieuwboer A, Dorfman M, Ferrari A, Gazit E, Canning CG, Rocchi L, Chiari L, Hausdorff JM, **Mirelman A**. Feasibility and effects of home-based smartphone-delivered automated feedback training for gait in people with Parkinson's disease: A pilot randomized controlled trial. *Parkinsonism Relat Disord* 2016 January;22:28-34.
- (26) Thaler A, Helmich RC, Or-Borichev A, van Nuenen BF, Shapira-Lichter I, Gurevich T, Orr-Urtreger A, Marder K, Bressman S, Bloem BR, Giladi N, Hendler T, **Mirelman A**. Intact working memory in non-manifesting LRRK2 carriers--an fMRI study. *Eur J Neurosci* 2016 January;43(1):106-12.

- (27) Kobo H, Bar-Shira A, Dahary D, Gan-Or Z, **Mirelman A**, Goldstein O, Giladi N, Orr-Urtreger A. Down-regulation of B cell-related genes in peripheral blood leukocytes of Parkinson's disease patients with and without GBA mutations. *Mol Genet Metab* 2016 February;117(2):179-85.
- (28) Gan-Or Z, **Mirelman A**, Postuma RB, Arnulf I, Bar-Shira A, Dauvilliers Y, Desautels A, Gagnon JF, Leblond CS, Frauscher B, Alcalay RN, Saunders-Pullman R, Bressman SB, Marder K, Monaca C, Hogg B, Orr-Urtreger A, Dion PA, Montplaisir JY, Giladi N, Rouleau GA. GBA mutations are associated with Rapid Eye Movement Sleep Behavior Disorder. *Ann Clin Transl Neurol* 2015 September;2(9):941-5.
- (29) Saunders-Pullman R, Alcalay RN, **Mirelman A**, Wang C, Luciano MS, Ortega RA, Glickman A, Raymond D, Mejia-Santana H, Doan N, Johannes B, Yasinovsky K, Ozelius L, Clark L, Orr-Urtreger A, Marder K, Giladi N, Bressman SB. REM sleep behavior disorder, as assessed by questionnaire, in G2019S LRRK2 mutation PD and carriers. *Mov Disord* 2015 November;30(13):1834-9.
- (30) **Mirelman A**, Giladi N, Hausdorff JM. Body-Fixed Sensors for Parkinson Disease. *JAMA* 2015 September 1;314(9):873-4.
- (31) **Mirelman A**, Bernad-Elazari H, Nobel T, Thaler A, Peruzzi A, Plotnik M, Giladi N, Hausdorff JM. Effects of Aging on Arm Swing during Gait: The Role of Gait Speed and Dual Tasking. *PLoS One* 2015;10(8):e0136043.
- (32) Mazilu S, Calatroni A, Gazit E, **Mirelman A**, Hausdorff JM, Troster G. Prediction of Freezing of Gait in Parkinson's From Physiological Wearables: An Exploratory Study. *IEEE J Biomed Health Inform* 2015 November;19(6):1843-54.
- (33) Gan-Or Z, Amshalom I, Bar-Shira A, Gana-Weisz M, **Mirelman A**, Marder K, Bressman S, Giladi N, Orr-Urtreger A. The Alzheimer disease BIN1 locus as a modifier of GBA-associated Parkinson disease. *J Neurol* 2015 November;262(11):2443-7.
- (34) Rosenberg-Katz K, Herman T, Jacob Y, **Mirelman A**, Giladi N, Hendler T, Hausdorff JM. Fall risk is associated with amplified functional connectivity of the central executive network in patients with Parkinson's disease. *J Neurol* 2015 November;262(11):2448-56.
- (35) Marder K, Wang Y, Alcalay RN, Mejia-Santana H, Tang MX, Lee A, Raymond D, **Mirelman A**, Saunders-Pullman R, Clark L, Ozelius L, Orr-Urtreger A, Giladi N, Bressman S. Age-specific penetrance of LRRK2 G2019S in the Michael J. Fox Ashkenazi Jewish LRRK2 Consortium. *Neurology* 2015 July 7;85(1):89-95.
- (36) Iluz T, Weiss A, Gazit E, Tankus A, Brozgot M, Dorfman M, **Mirelman A**, Giladi N, Hausdorff JM. Can a Body-Fixed Sensor Reduce Heisenberg's Uncertainty When It Comes to the Evaluation of Mobility? Effects of Aging and Fall Risk on Transitions in Daily Living. *J Gerontol A Biol Sci Med Sci* 2016 November;71(11):1459-65.
- (37) Gan-Or Z, Alcalay RN, Bar-Shira A, Leblond CS, Postuma RB, Ben-Shachar S, Waters C, Johnson A, Levy O, **Mirelman A**, Gana-Weisz M, Dupre N, Montplaisir J, Giladi N, Fahn S, Xiong L, Dion PA, Orr-Urtreger A, Rouleau GA. Genetic markers of Restless Legs Syndrome in Parkinson disease. *Parkinsonism Relat Disord* 2015 June;21(6):582-5.
- (38) **Mirelman A**, Alcalay RN, Saunders-Pullman R, Yasinovsky K, Thaler A, Gurevich T, Mejia-Santana H, Raymond D, Gana-Weisz M, Bar-Shira A, Ozelius L, Clark L, Orr-Urtreger A, Bressman S, Marder K, Giladi N. Nonmotor symptoms in healthy Ashkenazi Jewish carriers of the G2019S mutation in the LRRK2 gene. *Mov Disord* 2015 June;30(7):981-6.
- (39) Ben AE, Shenhar-Tsarfaty S, Korczyn AD, Kliper E, Hallevi H, Shopin L, Auriel E, Giladi N, Mike A, Halevy A, Weiss A, **Mirelman A**, Bornstein NM, Hausdorff JM. Gait measures as predictors of poststroke cognitive function: evidence from the TABASCO study. *Stroke* 2015 April;46(4):1077-83.
- (40) Gan-Or Z, Amshalom I, Kilarski LL, Bar-Shira A, Gana-Weisz M, **Mirelman A**, Marder K, Bressman S, Giladi N, Orr-Urtreger A. Differential effects of severe vs mild GBA mutations on Parkinson disease. *Neurology* 2015 March 3;84(9):880-7.
- (41) Maidan I, Bernad-Elazari H, Gazit E, Giladi N, Hausdorff JM, **Mirelman A**. Changes in oxygenated hemoglobin link freezing of gait to frontal activation in patients with Parkinson disease: an fNIRS study of transient motor-cognitive failures. *J Neurol* 2015;262(4):899-908.

- (42) Helmich RC, Thaler A, van Nuenen BF, Gurevich T, **Mirelman A**, Marder KS, Bressman S, Orr-Urtreger A, Giladi N, Bloem BR, Toni I. Reorganization of corticostriatal circuits in healthy G2019S LRRK2 carriers. *Neurology* 2015 January 27;84(4):399-406.
- (43) Bekkers EM, Dockx K, Heremans E, Vercruysse S, Verschueren SM, **Mirelman A**, Nieuwboer A. The contribution of proprioceptive information to postural control in elderly and patients with Parkinson's disease with a history of falls. *Front Hum Neurosci* 2014;8:939.
- (44) Saunders-Pullman R, **Mirelman A**, Wang C, Alcalay RN, San LM, Ortega R, Raymond D, Mejia-Santana H, Ozelius L, Clark L, Orr-Urtreger A, Marder K, Giladi N, Bressman SB. Olfactory identification in LRRK2 G2019S mutation carriers: a relevant marker? *Ann Clin Transl Neurol* 2014 September;1(9):670-8.
- (45) Alcalay RN, Mejia-Santana H, **Mirelman A**, Saunders-Pullman R, Raymond D, Palmese C, Caccappolo E, Ozelius L, Orr-Urtreger A, Clark L, Giladi N, Bressman S, Marder K. Neuropsychological performance in LRRK2 G2019S carriers with Parkinson's disease. *Parkinsonism Relat Disord* 2015 February;21(2):106-10.
- (46) Agalliu I, San LM, **Mirelman A**, Giladi N, Waro B, Aasly J, Inzelberg R, Hassin-Baer S, Friedman E, Ruiz-Martinez J, Marti-Masso JF, Orr-Urtreger A, Bressman S, Saunders-Pullman R. Higher frequency of certain cancers in LRRK2 G2019S mutation carriers with Parkinson disease: a pooled analysis. *JAMA Neurol* 2015 January;72(1):58-65.
- (47) Trojaniello D, Cereatti A, Pelosin E, Avanzino L, **Mirelman A**, Hausdorff JM, Della CU. Estimation of step-by-step spatio-temporal parameters of normal and impaired gait using shank-mounted magneto-inertial sensors: application to elderly, hemiparetic, parkinsonian and choreic gait. *J Neuroeng Rehabil* 2014 November 11;11:152.
- (48) Dorfman M, Herman T, Brozgol M, Shema S, Weiss A, Hausdorff JM, **Mirelman A**. Dual-task training on a treadmill to improve gait and cognitive function in elderly idiopathic fallers. *J Neurol Phys Ther* 2014 October;38(4):246-53.
- (49) Gupte M, Alcalay RN, Mejia-Santana H, Raymond D, Saunders-Pullman R, Roos E, Orbe-Reily M, Tang MX, **Mirelman A**, Ozelius L, Orr-Urtreger A, Clark L, Giladi N, Bressman S, Marder K. Interest in genetic testing in Ashkenazi Jewish Parkinson's disease patients and their unaffected relatives. *J Genet Couns* 2015 April;24(2):238-46.
- (50) Alcalay RN, Aasly J, Berg D, Bressman S, Brice A, Brockmann K, Chan P, Clark L, Cormier F, Corvol JC, Durr A, Facheris M, Farrer M, Foroud TM, Gasser T, Giladi N, Halter C, Lang A, Langston JW, Marras C, Marti-Masso JF, Ruiz MJ, Mejia-Santana H, **Mirelman A**, Pont-Sunyer C, Orr-Urtreger A, Raymond D, Saunders-Pullman R, Schule B, Tanner C, Tolosa E, Urkowitz A, Vilas D, Wise A, Marder K. Michael J. Fox Foundation LRRK2 Consortium: geographical differences in returning genetic research data to study participants. *Genet Med* 2014 August;16(8):644-5.
- (51) **Mirelman A**, Maidan I, Bernad-Elazari H, Nieuwhof F, Reelick M, Giladi N, Hausdorff JM. Increased frontal brain activation during walking while dual tasking: an fNIRS study in healthy young adults. *J Neuroeng Rehabil* 2014 May 12;11:85.
- (52) Vacic V, Ozelius LJ, Clark LN, Bar-Shira A, Gana-Weisz M, Gurevich T, Gusev A, Kedmi M, Kenny EE, Liu X, Mejia-Santana H, **Mirelman A**, Raymond D, Saunders-Pullman R, Desnick RJ, Atzmon G, Burns ER, Ostrer H, Hakonarson H, Bergman A, Barzilai N, Darvasi A, Peter I, Guha S, Lencz T, Giladi N, Marder K, Pe'er I, Bressman SB, Orr-Urtreger A. Genome-wide mapping of IBD segments in an Ashkenazi PD cohort identifies associated haplotypes. *Hum Mol Genet* 2014 September 1;23(17):4693-702.
- (53) Shema SR, Brozgol M, Dorfman M, Maidan I, Sharaby-Yeshayahu L, Malik-Kozuch H, Wachslar YO, Giladi N, Hausdorff JM, **Mirelman A**. Clinical experience using a 5-week treadmill training program with virtual reality to enhance gait in an ambulatory physical therapy service. *Phys Ther* 2014 September;94(9):1319-26.
- (54) Iluz T, Gazit E, Herman T, Sprecher E, Brozgol M, Giladi N, **Mirelman A**, Hausdorff JM. Automated detection of missteps during community ambulation in patients with Parkinson's disease: a new approach for quantifying fall risk in the community setting. *J Neuroeng Rehabil* 2014 April 3;11:48.
- (55) **Mirelman A**, Weiss A, Buchman AS, Bennett DA, Giladi N, Hausdorff JM. Association between performance on Timed Up and Go subtasks and mild cognitive impairment: further insights into the links between cognitive and motor function. *J Am Geriatr Soc* 2014 April;62(4):673-8.

- (56) Thaler A, Artzi M, **Mirelman A**, Jacob Y, Helmich RC, van Nuenen BF, Gurevich T, Orr-Urtreger A, Marder K, Bressman S, Bloem BR, Hendler T, Giladi N, Ben BD. A voxel-based morphometry and diffusion tensor imaging analysis of asymptomatic Parkinson's disease-related G2019S LRRK2 mutation carriers. *Mov Disord* 2014 May;29(6):823-7.
- (57) Buchman AS, Leurgans SE, Weiss A, Vanderhorst V, **Mirelman A**, Dawe R, Barnes LL, Wilson RS, Hausdorff JM, Bennett DA. Associations between quantitative mobility measures derived from components of conventional mobility testing and Parkinsonian gait in older adults. *PLoS One* 2014;9(1):e86262.
- (58) Milman U, Atias H, Weiss A, **Mirelman A**, Hausdorff JM. Can cognitive remediation improve mobility in patients with Parkinson's disease? Findings from a 12 week pilot study. *J Parkinsons Dis* 2014;4(1):37-44.
- (59) Alcalay RN, **Mirelman A**, Saunders-Pullman R, Tang MX, Mejia SH, Raymond D, Roos E, Orbe-Reilly M, Gurevich T, Bar SA, Gana WM, Yasinovsky K, Zalis M, Thaler A, Deik A, Barrett MJ, Cabassa J, Groves M, Hunt AL, Lubarr N, San LM, Miravite J, Palmese C, Sachdev R, Sarva H, Severt L, Shanker V, Swan MC, Soto-Valencia J, Johannes B, Ortega R, Fahn S, Cote L, Waters C, Mazzoni P, Ford B, Louis E, Levy O, Rosado L, Ruiz D, Dorovski T, Pauciulo M, Nichols W, Orr-Urtreger A, Ozelius L, Clark L, Giladi N, Bressman S, Marder KS. Parkinson disease phenotype in Ashkenazi Jews with and without LRRK2 G2019S mutations. *Mov Disord* 2013 December;28(14):1966-71.
- (60) **Mirelman A**, Maidan I, Deutsch JE. Virtual reality and motor imagery: promising tools for assessment and therapy in Parkinson's disease. *Mov Disord* 2013 September 15;28(11):1597-608.
- (61) **Mirelman A**, Heman T, Yasinovsky K, Thaler A, Gurevich T, Marder K, Bressman S, Bar-Shira A, Orr-Urtreger A, Giladi N, Hausdorff JM. Fall risk and gait in Parkinson's disease: the role of the LRRK2 G2019S mutation. *Mov Disord* 2013 October;28(12):1683-90.
- (62) Paolini G, Peruzzi A, **Mirelman A**, Cereatti A, Gaukrodger S, Hausdorff JM, Della CU. Validation of a method for real time foot position and orientation tracking with Microsoft Kinect technology for use in virtual reality and treadmill based gait training programs. *IEEE Trans Neural Syst Rehabil Eng* 2014 September;22(5):997-1002.
- (63) Maidan I, Freedman T, Tzemah R, Giladi N, **Mirelman A**, Hausdorff JM. Introducing a new definition of a near fall: intra-rater and inter-rater reliability. *Gait Posture* 2014;39(1):645-7.
- (64) Weiss A, **Mirelman A**, Buchman AS, Bennett DA, Hausdorff JM. Using a body-fixed sensor to identify subclinical gait difficulties in older adults with IADL disability: maximizing the output of the timed up and go. *PLoS One* 2013;8(7):e68885.
- (65) Gan-Or Z, Ozelius LJ, Bar-Shira A, Saunders-Pullman R, **Mirelman A**, Kornreich R, Gana-Weisz M, Raymond D, Rozenkrantz L, Deik A, Gurevich T, Gross SJ, Schreiber-Agus N, Giladi N, Bressman SB, Orr-Urtreger A. The p.L302P mutation in the lysosomal enzyme gene SMPD1 is a risk factor for Parkinson disease. *Neurology* 2013 April 23;80(17):1606-10.
- (66) **Mirelman A**, Rochester L, Reelick M, Nieuwhof F, Pelosin E, Abbruzzese G, Dockx K, Nieuwboer A, Hausdorff JM. V-TIME: a treadmill training program augmented by virtual reality to decrease fall risk in older adults: study design of a randomized controlled trial. *BMC Neurol* 2013 February 6;13:15.
- (67) Thaler A, **Mirelman A**, Helmich RC, van Nuenen BF, Rosenberg-Katz K, Gurevich T, Orr-Urtreger A, Marder K, Bressman S, Bloem BR, Giladi N, Hendler T. Neural correlates of executive functions in healthy G2019S LRRK2 mutation carriers. *Cortex* 2013 October;49(9):2501-11.
- (68) van Nuenen BF, Helmich RC, Ferraye M, Thaler A, Hendler T, Orr-Urtreger A, **Mirelman A**, Bressman S, Marder KS, Giladi N, van de Warrenburg BP, Bloem BR, Toni I. Cerebral pathological and compensatory mechanisms in the premotor phase of leucine-rich repeat kinase 2 parkinsonism. *Brain* 2012 December;135(Pt 12):3687-98.
- (69) Barrett MJ, Hagenah J, Dhawan V, Peng S, Stanley K, Raymond D, Deik A, Gross SJ, Schreiber-Agus N, **Mirelman A**, Marder K, Ozelius LJ, Eidelberg D, Bressman SB, Saunders-Pullman R. Transcranial sonography and functional imaging in glucocerebrosidase mutation Parkinson disease. *Parkinsonism Relat Disord* 2013 February;19(2):186-91.
- (70) Thaler A, **Mirelman A**, Gurevich T, Simon E, Orr-Urtreger A, Marder K, Bressman S, Giladi N. Lower cognitive performance in healthy G2019S LRRK2 mutation carriers. *Neurology* 2012 September 4;79(10):1027-32.

- (71) **Mirelman A**, Herman T, Brozgol M, Dorfman M, Sprecher E, Schweiger A, Giladi N, Hausdorff JM. Executive function and falls in older adults: new findings from a five-year prospective study link fall risk to cognition. *PLoS One* 2012;7(6):e40297.
- (72) Gan-Or Z, Bar-Shira A, Dahary D, **Mirelman A**, Kedmi M, Gurevich T, Giladi N, Orr-Urtreger A. Association of sequence alterations in the putative promoter of RAB7L1 with a reduced parkinson disease risk. *Arch Neurol* 2012 January;69(1):105-10.
- (73) Thaler A, Posen J, Giladi N, Manor Y, Mayanz C, **Mirelman A**, Gurevich T. Appreciation of humor is decreased among patients with Parkinson's disease. *Parkinsonism Relat Disord* 2012 February;18(2):144-8.
- (74) Gan-Or Z, Bar-Shira A, **Mirelman A**, Gurevich T, Giladi N, Orr-Urtreger A. The age at motor symptoms onset in LRRK2-associated Parkinson's disease is affected by a variation in the MAPT locus: a possible interaction. *J Mol Neurosci* 2012 March;46(3):541-4.
- (75) Segev-Jacobovski O, Herman T, Yogev-Seligmann G, **Mirelman A**, Giladi N, Hausdorff JM. The interplay between gait, falls and cognition: can cognitive therapy reduce fall risk? *Expert Rev Neurother* 2011 July;11(7):1057-75.
- (76) Giladi N, **Mirelman A**, Thaler A, Bar-Shira A, Gurevich T, Orr-Urtreger A. Fighting the risk of developing Parkinson's disease; clinical counseling for first degree relatives of patients with Parkinson's disease. *J Neurol Sci* 2011 November 15;310(1-2):17-20.
- (77) **Mirelman A**, Herman T, Nicolai S, Zijlstra A, Zijlstra W, Becker C, Chiari L, Hausdorff JM. Audio-biofeedback training for posture and balance in patients with Parkinson's disease. *J Neuroeng Rehabil* 2011 June 21;8:35.
- (78) Deutsch JE, **Mirelman A**, Hausdorff JM. Invited commentary. *Phys Ther* 2011 June;91(6):875-7.
- (79) **Mirelman A**, Gurevich T, Giladi N, Bar-Shira A, Orr-Urtreger A, Hausdorff JM. Gait alterations in healthy carriers of the LRRK2 G2019S mutation. *Ann Neurol* 2011 January;69(1):193-7.
- (80) **Mirelman A**, Maidan I, Herman T, Deutsch JE, Giladi N, Hausdorff JM. Virtual reality for gait training: can it induce motor learning to enhance complex walking and reduce fall risk in patients with Parkinson's disease? *J Gerontol A Biol Sci Med Sci* 2011 February;66(2):234-40.
- (81) Nicolai S, **Mirelman A**, Herman T, Zijlstra A, Mancini M, Becker C, Lindemann U, Berg D, Maetzler W. Improvement of balance after audio-biofeedback. A 6-week intervention study in patients with progressive supranuclear palsy. *Z Gerontol Geriatr* 2010 August;43(4):224-8.
- (82) Maidan I, Plotnik M, **Mirelman A**, Weiss A, Giladi N, Hausdorff JM. Heart rate changes during freezing of gait in patients with Parkinson's disease. *Mov Disord* 2010 October 30;25(14):2346-54.
- (83) Herman T, **Mirelman A**, Giladi N, Schweiger A, Hausdorff JM. Executive control deficits as a prodrome to falls in healthy older adults: a prospective study linking thinking, walking, and falling. *J Gerontol A Biol Sci Med Sci* 2010 October;65(10):1086-92.
- (84) **Mirelman A**, Patriitti BL, Bonato P, Deutsch JE. Effects of virtual reality training on gait biomechanics of individuals post-stroke. *Gait Posture* 2010 April;31(4):433-7.
- (85) Yogev-Seligmann G, Rotem-Galili Y, **Mirelman A**, Dickstein R, Giladi N, Hausdorff JM. How does explicit prioritization alter walking during dual-task performance? Effects of age and sex on gait speed and variability. *Phys Ther* 2010 February;90(2):177-86.
- (86) Sidransky E, Nalls MA, Aasly JO, Aharon-Peretz J, Annesi G, Barbosa ER, Bar-Shira A, Berg D, Bras J, Brice A, Chen CM, Clark LN, Condroyer C, De Marco EV, Durr A, Eblan MJ, Fahn S, Farrer MJ, Fung HC, Gan-Or Z, Gasser T, Gershoni-Baruch R, Giladi N, Griffith A, Gurevich T, Januario C, Kropp P, Lang AE, Lee-Chen GJ, Lesage S, Marder K, Mata IF, **Mirelman A**, Mitsui J, Mizuta I, Nicoletti G, Oliveira C, Ottman R, Orr-Urtreger A, Pereira LV, Quattrone A, Rogaeva E, Rolfs A, Rosenbaum H, Rozenberg R, Samii A, Samadpour T, Schulte C, Sharma M, Singleton A, Spitz M, Tan EK, Tayebi N, Toda T, Troiano AR, Tsuji S, Wittstock M, Wolfsberg TG, Wu YR, Zabetian CP, Zhao Y, Ziegler SG. Multicenter analysis of glucocerebrosidase mutations in Parkinson's disease. *N Engl J Med* 2009 October 22;361(17):1651-61.

- (87) Gan-Or Z, Bar-Shira A, **Mirelman A**, Gurevich T, Kedmi M, Giladi N, Orr-Urtreger A. LRRK2 and GBA mutations differentially affect the initial presentation of Parkinson disease. *Neurogenetics* 2010 February;11(1):121-5.
- (88) Aerts MB, Synhaeve NE, **Mirelman A**, Bloem BR, Giladi N, Hausdorff JM. Is heart rate variability related to gait impairment in patients with Parkinson's disease? A pilot study. *Parkinsonism Relat Disord* 2009 November;15(9):712-5.
- (89) Srygley JM, **Mirelman A**, Herman T, Giladi N, Hausdorff JM. When does walking alter thinking? Age and task associated findings. *Brain Res* 2009 February 9;1253:92-9.
- (90) **Mirelman A**, Bonato P, Deutsch JE. Effects of training with a robot-virtual reality system compared with a robot alone on the gait of individuals after stroke. *Stroke* 2009 January;40(1):169-74.
- (91) Deutsch JE, **Mirelman A**. Virtual reality-based approaches to enable walking for people poststroke. *Top Stroke Rehabil* 2007 November;14(6):45-53.