

BIOGRAPHICAL SKETCH

NAME Simona Bar-Haim		POSITION TITLE Senior Lecturer, Physical Therapy Department	
eRA COMMONS USER NAME (credential, e.g., agency login)		Head – the laboratory for motor control and rehabilitation of walking	
EDUCATION/TRAINING (<i>Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.</i>)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	MM/YY	FIELD OF STUDY
Sackler Faculty of Medicine Tel Aviv University	BPT	1987	Physical Therapy
Sackler Faculty of Medicine Tel Aviv University	M.Sc.	1998	Physiology
Faculty of Health Science, Ben-Gurion University	PH.D.	2006	Neurophysiology

A. Personal Statement

In the last 35 years I have been involved in advanced clinical trials and R&D in the field of neuro-rehabilitation. In our laboratory we develop novel treatment approaches while looking into the motor control of walking as a chaotic system. We develop and study new concepts of intervention to improve the walking of children with cerebral palsy and persons with acquired brain damage . To objectively evaluate the inefficient motor behavior that reflects abnormal motor control I developed and validated test that measures energy efficiency during walking.

The main strength of my research stems from the multi-disciplinary approach I have taken throughout the years. I have dealt with a wide span of rehabilitation topics and conducted studies on applying chaotic perturbations to facilitate motor learning and improve walking of persons following brain damage. I has been the principal investigator for numerous multi-center studies including studies conducted in the Middle East and EU.

I am the founder of Step of Mind Ltd and the initiator of the Translational Neuroscience Institute at Aleh Negev .

B. Positions and Honors

Positions and Employment

- Since 2006** Founder, Step of Mind Ltd , Tel-Aviv
- Since 2010** Senior Lecturer MSc. Program Physical Therapy Department BGU
- Since 2012** Head, The laboratory for Motor Control and Rehabilitation of Walking
- 2015-2017** Chair, The Physical Therapy dep. at Ben-Gurion University

Awards

- 2006** Best Teacher awards Physical Therapy Department.
- 2003** Outstanding Research Award, Israeli Association of Child Developmental Centres
- 1999** British Council Scholarship. ORLAU, Oswestry, Great Britain, Gait analysis laboratory
- 1998** Award of Merit, Al Hussein Society for the Rehabilitation of the Physically Handicapped, for dedicated and outstanding service to disabled persons in the Hashemite Kingdom of Jordan

C. Selected Peer-reviewed Publications

1. Bar-Haim S, Harries N, Belokopytov M, Lahat E, Kaplanski J. Random Perturbation as an Enhancement to Treatment of Children with Cerebral Palsy Disability and Rehabilitation, 2008;30(19):1420-8
2. Bar-Haim S, Netta Harries, Ibtisam Nammourah, Saleh Oraibi, Murray Goldstein, Waddah Malhais, Jack Loeppky, Neil J. Perkins, Mark Belokopytov, Jacob Kaplanski, Eli Lahat on behalf of the MERC project. Effectiveness of Motor Learning Coaching on Motor Function Retention and Mobility Transfer in Children with Cerebral Palsy. Clin Rehabil. 2010 Nov;24(11):1009-20
3. Mawase F, Haizler T, Bar-Haim S, Karniel A (2013) Kinetic adaptation during locomotion on a split-belt treadmill Journal of Neurophysiology Apr;109(8):2216-27
4. S Bar-Haim, N. Harries, I. Nammourah, M.D. Al-Jarrah on behalf of MESF project (2013) Mechanical Efficiency and Balance in Adolescents and Young Adults with Cerebral Palsy Gait & Posture Sep;38(4): 668-73.
5. Mawase F., Shmuelof L., Bar-Haim S., and Karniel A. Savings in Locomotor adaptation explained by changes in learning parameters following initial adaptation J Neurophysiol 2014 Apr;111(7):1444-54
6. A. Shkedy Rabani, N. Harries, I. Namourah, M. Al-Jarrah, A. Karniel, S. Bar-Haim Habitual Physical Activity of Adolescents and Young Adults with Cerebral Palsy in the Middle East DMCN [2014 Feb 10. Epub ahead of print]
7. N. Harries, J. A Loeppky, S. Shaheen, M. Al-Jarrah, F. Molten, Y. Hutzler, S. Bar Haim A Stair-climbing Test for Measuring Mechanical Efficiency of Ambulation in Adults with Chronic Stroke Disability & Rehabilitation, 2014 Aug 12:1-5
8. Mawase F, Bar-Haim S, Shmuelof L. Formation of Long-Term Locomotor Memories Is Associated with Functional Connectivity Changes in the Cerebellar-Thalamic-Cortical Network. J Neurosci. 2017 Jan 11;37(2):349-361. doi: 10.1523/JNEUROSCI.2733-16.2017
9. Nataliya Shishov, Itshak Melzer, Simona Bar-Haim. Parameters and Measures in Assessment of Motor Learning in Neurorehabilitation; A Systematic Review of the Literature Front. Hum. Neurosci., 24 February 2017 <https://doi.org/10.3389/fnhum.2017.00082>
10. N. Harries, J. A Loeppky, S. Shaheen, M. Al-Jarrah, F. Molten, Y. Hutzler, S. Bar Haim A Stair-climbing Test for Measuring Mechanical Efficiency of Ambulation in Adults with Chronic Stroke Disability & Rehabilitation, 2014 August; 12:1-5
11. Aviram R, Harries N, Namourah I, Amro A, Bar-Haim S. Effects of a group circuit progressive resistance training program compared with a treadmill training program for adolescents with cerebral palsy. Dev Neurorehabil. 2016 Aug 18:1-8.
12. Koren, Y., Raanan, Y., Parmet, Y., & Bar-Haim, S. (2018). Treading on the unknown—the feasibility of a novel approach to investigating the motor control of walking. Physiological measurement, 39(4)
13. Tirkel, T., Edan, Y., Khvorostianov, N., & Bar-Haim, S. (2018). SIT LESS: A prototype home-based system for monitoring older adults sedentary behavior. Assistive Technology, 1-13.
14. Aviram, R., Harries, N., Shkedy Rabani, A., Amro, A., Nammourah, I., Al-Jarrah, M., ... & Bar-Haim, S. (2018). Comparison of Habitual Physical Activity and Sedentary Behavior in Adolescents and Young Adults With and Without Cerebral Palsy. Pediatric exercise science, 20(XX), 1-7.

D. Research Support

Research Support

Last 5 years

2014-2015

ABC ROBOTICS BGU KEEP WALKING: Model, Control, Learn, Evaluate and Train elderly to preserve walking in free living conditions, Itzik Melzer PI, Opher Donchin, **Simona Bar-Haim (Researcher)** , Lior Shmuelof , Raziel Riemer

2014-2017

Israeli Insurance Association Research Fund “Re-Step”: a computerized dynamic balance treatment for rehabilitation of walking in ABI victims: a randomized control trial.

Bar-Haim PI (BGU) 1,900,000 ₪

2015-2016

Middle East Go Active Yad Hanadiv Foundation

Go Active aims to improve levels of daily physical activity and to reduce the sedentary life style of Middle East adolescents with cerebral palsy and with disabilities due to traumatic brain injury.

Bar-Haim PI (BGU) with Akram Amro, Al Quts University

470000 ₪

2017-2019

CP GO ACTIVE and SIT LESS Israeli National Insurance Institute

Bar-Haim PI and Ronit Aviram , 183,000 ₪