Resume of
Dr. Hikmat Hadoush
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DOB: May 5th, 1982
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Research Interest

Dr. Hikmat received an MSc degree in locomotor and neurological rehabilitation in March 2010 and a Ph.D. degree in neuro-rehabilitation in March 2013 from Hiroshima University, Japan. He has primary research interests in brain mapping and cortical plasticity associated with various pediatric and neurological diseases. Dr. Hikmat is passionate about clinical teaching, clinical training, and translating the knowledge into hands-on skills focusing on clinical reasoning, evidence-based practice, multidisciplinary teamwork, and patient target therapy. Dr. Hikmat and his team could successfully develop several EEG-based automated diagnostic tools as well as a new bilateral anodal transcranial direct current stimulation montage for different neurological disorders.

Work Experience

* Associate Professor, 2018 – present
  Department of Rehabilitation Sciences, Jordan University of Science & Technology – Jordan
* Guest Lecturer, 2021 – 2022
  Department of Physical Therapy, Al-Quds University & Al-Najah University – Palestine
* Assistant Professor, 2013 – 2018
  Department of Rehabilitation Sciences, Jordan University of Science & Technology – Jordan
* Rehabilitation Consultant & Director, 2015 – Present
  AL-Hussein Society, Jordan Center for Training & Inclusion – Jordan
* Research & Teaching Assistant, 2009 – 2013
  Department of Rehabilitation Sciences, Hiroshima University – Japan
* Teaching Assistant, 2006
  Department of Rehabilitation Sciences, Jordan University of Science & Technology – Jordan
* Physical Therapist, 2004 – 2005
  Philadelphia Hospital, Jordan

Qualification & Education

* Ph.D. in “Neuro-Rehabilitation” - A grade, 2010 – 2013, Hiroshima University, Japan
* Research Fellowship Program, 2011, Lund University, Sweden
* MSc. in "Locomotor & Neurological Rehabilitation" - A grade, 2008 – 2010, Hiroshima University, Japan
* Certified Research Student, 2007 – 2008, Hiroshima University, Japan
* Accreditation Certificate of BSc. in Physical Therapy, 2005, National Recognition on Information Center, UK.
* BSc. in Physical Therapy. Rank: 1st, 2000 – 2004 Jordan University of Science & Technology, Jordan

Projects & Grants

1) Co-Author & Executive member (1,000,000 Euro)
   Erasmus+ project grant for establishing a master degree in clinical Rehabilitation Sciences at Rehabilitation Department of Faculty of Applied Medical Sciences in Jordan University of Science & Technology, 2016-2019.
2) Senior Technical advisor (800,000 USD)
   USAID grant for improving the Physical therapy sectors in the conflict-affected countries Including Jordan, Lebanon, West Bank, and Gaza, 2016 – 2018.
3) Principle investigator (180,000USD)
   The therapeutic effects of non-invasive cortical stimulation in children with Autism Spectrum Disorder, Scientific Research Supporting Fund Ministry of Higher Education – Jordan, 2015-2018.

4) Principle investigator (75,000 USD)
   The therapeutic effect of non-invasive cortical stimulation in Parkinson's disease, Deanship of Research – Jordan University of Science & Technology, 2015 – 2018
5) Principle investigator (15,000 USD)
   Therapeutic effects of transcranial direct current stimulation and Treadmill Training in children with cerebral palsy, Deanship of Research– Jordan University of Science & Technology, 2019-2020.
6) Principle investigator (10,000 USD)
   The reliability and validity of the Canadian Occupational Performance Measure (COPM) in children with a physical disability Deanship of Research– Jordan University of Science & Technology, 2019-2020.

Committee & Membership

A. International & profession

- Hacettepe University - Turkey	Guest Lecturer
- European Academy of Neurology	Associate Member
- Brain & Behavioral Foundation	Member
- Frontier Aging Neuroscience	Reviewer
- BMC Neurology	Reviewer
- Neuro-rehabilitation & Neural Repair	Reviewer
- Medical Science Research Monitor	Reviewer
- European Neuropsychopharmacology	Reviewer
- Brain Conncetivity	Reviewer
- Journal of Pain Research	Reviewer
- Jordanian Society for Spina Bifida	Founder, Member
- Jordanian Physical Therapy Society	Member

B. University & Faculty committee membership

- Postgraduate study – Department committee	2022 – present
- Member in the University Council	2019 – 2020
- University quality assurance & internal auditing committee	2016 – 2020
- Faculty Library & Academic resources committee	2016 – 2018
- Faculty WCPT International Accreditation committee for the PT program	2017 – 2018 2018
- Faculty Scholarship & postgraduate committee for the PT program	2013 – 2014, 2020 - present
- Faculty Curriculum committee	2014 – 2016

C. Public & Community committee membership

- Ethics committee – Al-Hussein Society	2016 – present
- Academic committee – Crown Prince of Jordan	2015-2017
- Legislation committee for the rights of people with disability –	2017-2018
- Jordan Ministry of Health Advisory committee – National strategy for rehabilitation professions	2018

D. Instructor & Trainer

Instructor and trainer for Sensory-re-education course, Gross Motor Ability Estimator II (GMAE-II) course, advance spasticity management course including Whole body vibration approach, shockwave, post-root transcutaneous spinal cord stimulation, and Transcranial direct current stimulation courses.

E. **External examiner** for CBM – Germany to audit and evaluate project title "Contribute to the Empowerment, Health and Inclusion of Refugees with Disabilities in Jordan through Community Based Rehabilitation and Outreach programs" Project No. 3707-MYP implemented in Jordan from Jan 2018 to June 2019.

F. **External Employment evaluator** for UNRWA from 2018 to 2020

Teaching courses & topics

A. Undergraduate:

Gross Anatomy & Histology, Introduction to Clinical Medicine, Musculoskeletal Anatomy, Disease of Muscle & Bone, Medical Imaging, Neuroscience (1) & (2), Neuroscience for Rehabilitation, PT in Neurology, PT in Pediatrics, Clinical Practice in Pediatrics (1) & (2), Scientific Research Methods, Prosthetic & Orthotics

B. Graduate courses

Advance theoretical models of practice in rehabilitation sciences, Advance neuro-pathophysiology, Advance theories and practice in neurological rehabilitation (1), Independent studies in physical therapy.

Publications (34)

QS Global Education News (QS-GEN) selected our research as one of the innovative and highly impact research "Hadoush H, Alafeef M, Abdulhay E. Automated identification for autism severity level: EEG analysis using empirical mode decomposition and second-order difference plot. Behavioral brain research. 2019, 19;362:240-8" https://qs-gen.com/a-team-of-just-researchers-proposed-a-new-method-for-automated-identification-for-autism-severity-level/

Original article

1. Almasri NA, Dunst CJ, **Hadoush H**, et al. Impact of the COVID-19 Pandemic and Governmental Policies on Rehabilitation Services and Physical Medicine in Jordan: A Retrospective Study. International Journal of Environmental Research and Public Health. 2023; 20(3):1972
2. Al-Wardat M, Schirinzi T, **Hadoush H**, et al. Home-Based Exercise to Improve Motor Functions, Cognitive Functions, and Quality of Life in People with Huntington's Disease: A Systematic Review and Meta-Analysis. Int J Environ Res Public Health. 2022 Nov 12;19(22):14915.
3. **Hadoush H, Hadoush A.** Modulation of Resting-State Brain Complexity After Bilateral Cerebellar Anodal Transcranial Direct Current Stimulation in Children with Autism Spectrum Disorders: a Randomized Controlled Trial Study. Cerebellum. 2022 Sep 26. doi: 10.1007/s12311-022-01481-6.
4. Aldajah S, Etoom M, Mysore SB, Alawneh A, **Hadoush H**, et al. Evidence- based physiotherapy practice in Jordan: Evaluation and identification of implementation factors. Physiother Theory Pract. 2022 Jul 14:1-17.
5. Abdulhay E, Alafeef M, **Hadoush H**, et al. EMD-based analysis of complexity with dissociated EEG amplitude and frequency information: a data-driven robust tool -for Autism diagnosis- compared to multi-scale entropy approach. Math Biosci Eng. 2022 Mar 16;19(5):5031-5054.
6. Kassab M, Shdiefat D, **Hadoush H**, et al. Therapeutics effects of inhaled magnesium sulfate combined with adrenergic beta-2 agonist on children with acute asthma: Systematic review and meta-analysis. J Pediatr Nurs. 2022 May-Jun;64:e40-e51. Epub 2022 Feb 16. PMID: 35181174.
7. **Hadoush H**, Alawneh A, Kassab M, Al-Wardat M, Al-Jarrah M. Effectiveness of non-pharmacological rehabilitation interventions in pain management in patients with multiple sclerosis: Systematic review and meta-analysis. NeuroRehabilitation. 2022;50(4):347-365. doi: 10.3233/NRE-210328.
8. **Hadoush H**, Alruz S, Kassab M, Roy A. Non-pharmacological Management of Burn-related Pain and Distress in Children: A Systematic Review and Meta-Analysis Study. SRP. 2021; 12(3): 376-392. doi:10.31838/srp.2021.3.57
9. **Hadoush H**, Almasri NA, Alnuman N. The Effect of Bilateral Anodal Transcranial Direct Current Stimulation versus Treadmill Training on Brain Activities, Gait Functions, Level of Participation and Enjoyment of Children with Cerebral Palsy: A Randomized Controlled Trial Protocol. Developmental Neurorehabilitation. 2021 Mar 27:1-7.
10. **Hadoush H,** Alqudah A, Banihani SA, Al-Jarrah M, Amro A, Aldajah S. Melatonin serum level, sleep functions, and depression level after bilateral anodal transcranial direct current stimulation in patients with Parkinson's disease: a feasibility study. Sleep Sci. 2021 Jan-Mar;14(Spec 1):25-30. doi: 10.5935/1984-0063.20200083. PMID: 34917270; PMCID: PMC8663735.
11. **Hadoush H**, Lababneh T, Banihani SA, Al-Jarrah M, Jamous M. Melatonin and dopamine serum level associations with motor, cognitive, and sleep dysfunctions in patients with Parkinson's disease: A cross-sectional research study. NeuroRehabilitation. 2020;46 (4):539-549.
12. **Hadoush H,** Nazzal M, Almasri NA, Khalil H, Alafeef M. Therapeutic Effects of Bilateral Anodal Transcranial Direct Current Stimulation on Prefrontal and Motor Cortical Areas in Children with Autism Spectrum Disorders: A Pilot Study. Autism Res. 2020 May;13 (5):828-836.

13. Abdulhay, E., Alafeef, M., **Hadoush, H.**, et al. Resting state EEG-based diagnosis of Autism via elliptic area of continuous wavelet transform complex plot. Journal of Intelligent & Fuzzy Systems, (2020, Preprint), 1-9.
14. **Hadoush H,** Alafeef M, Abdulhay E. Automated identification for autism severity level: EEG analysis using empirical mode decomposition and second-order difference plot. Behavioral brain research. 2019 Apr 19;362:240-8.
15. **Hadoush H**, Nazzal M, Almasri NA, Khalil H, Alafeef M. A new developed non-invasive cortical stimulation on mirror neurons in children with autism spectrum disorders Journal of Neurological. Volume 405, Supplement, Page 94.
16. **Hadoush H**, Alafeef M, Abdulhay E. Brain Complexity in Children with Mild and Severe Autism Spectrum Disorders: Analysis of Multiscale Entropy in EEG. Brain Topography. 2019 Apr 21:1-8.
17. **Hadoush H**, Alafeef M, Almasri N, Abdulhay E. Resting-state EEG changes after bilateral anodal transcranial direct current stimulation over mirror neurons in children with autism spectrum disorders: A pilot study. Brain Stimulation. 2019 Mar 1;12(2):537.
18. **Hadoush H**, Al-Sharman A, Khalil H, Banihani SA, Al-Jarrah M. Sleep quality, depression, and quality of life after bilateral anodal transcranial direct current stimulation in patients with Parkinson's disease. Med Sci Monit Basic Res. 2018 Nov 19;24:198-205
19. **Hadoush H**, Banihani SA, Khalil H, Al-Qaisi Y, Al-Sharman A, Al-Jarrah M. Dopamine, BDNF, and motor function post bilateral anodal transcranial direct current stimulation in Parkinson's disease. Neurodegenerative disease management. 2018 Jun 11: 8: 171-178.
20. **Hadoush H**, Al-Jarrah M, Khalil H, Al-Sharman A, Al-Ghazawi S. Bilateral anodal transcranial direct current stimulation effect on balance and fearing of fall in patients with Parkinson's disease. NeuroRehabilitation. 2018 Jan 1;42(1):63-8.
21. **Hadoush H**, Sunagawa T, Nakanishi K, Ochi M. Asymmetry of somatosensory cortical plasticity in patients with bilateral carpal tunnel syndrome. International Journal of Physiotherapy. 2017 Jan 1;4(1):1-5.
22. Abdulhay E, Alafeef M, **Hadoush H**, Alomari N. Frequency 3D mapping and inter-channel stability of EEG intrinsic function pulsation: Indicators towards autism spectrum diagnosis. In Electrical and Electronics Engineering Conference (JIEEEC), 2017 10th Jordanian International 2017 May 16 (pp. 1-6). IEEE.
23. Nakanishi K, Inoue K, **Hadoush H**, Sunagawa T, Ochi M. Dipole orientation of receptive fields in the somatosensory cortex after stimulation of the posterior tibial nerve in humans. Journal of Clinical Neurophysiology. 2014 Jun 1;31(3):236-40.
24. Ujigo S, Kamei N, **Hadoush H**, Fujioka Y, Miyaki S, Nakasa T, Tanaka N, Nakanishi K, Eguchi A, Sunagawa T, Ochi M. Administration of microRNA-210 promotes spinal cord regeneration in mice. Spine. 2014 Jun 15;39(14):1099-107.
25. Inoue K, Nakanishi K, **Hadoush H**, Kurumadani H, Hashizume A, Sunagawa T, Ochi M. Somatosensory mechanical response and digit somatotopy within cortical areas of the postcentral gyrus in humans: a MEG study. Human brain mapping. 2013 Jul;34(7):1559-67.
26. **Hadoush H**, Mano H, Sunagawa T, Nakanishi K, Ochi M. Optimization of mirror therapy to excite ipsilateral primary motor cortex. NeuroRehabilitation. 2013 Jan 1;32(3):617-24.
27. Yoshida A, Fukushima T, Sunagawa T, **Hadoush H**, Yoshioka A, Tsuji Y, Endo K. Development of a clinical model for upper extremity motion analysis—comparison with manual measurement. Journal of Physical Therapy Science. 2012;24 (11):1149-52.
28. **Hadoush H**, Sunagawa T, Nakanishi K, Ochi M. Somatosensory cortical plasticity after toe-to-index transfer. NeuroReport. 2012 Dec 5;23 (17):1000-5.
29. **Hadoush H**, Sunagawa T, Nakanishi K, Endo K, Ochi M. Motor somatotopy of extensor indicis proprius and extensor pollicis longus. Neuroreport. 2011 Aug 3;22(11):559-64.
30. **Hadoush H**, Tobimatsu Y, Nagatomi A, Kimura H, Ito Y, Maejima H. Monopolar surface electromyography: a better tool to assess motoneuron excitability upon passive muscle stretching. The Journal of Physiological Sciences. 2009 May 1;59(3):243-7.

Abstract

1. **Hadoush H**, Sunagawa T, Nakanishi K, Ochi M. 7. Sensory neural plasticity after toe-to-thumb transfer. Clinical Neurophysiology. 2012 Sep 1;123(9):e88-9.
2. **Hadoush H**, Inoue K, Nakanishi K, Kurumadani H, Sunagawa T, Ochi M. 84. Human cerebral somatosensory cortex response to mechanical stimulation using a new non-magnetic device. Clinical Neurophysiology. 2009 May 1;120(5):e166.

3. Inoue K, Nakanishi K, **Hadoush H**, Kurumadani H, Hashizume A, Sunagawa T, Ochi M. 72. The response in the human cerebral somatosensory cortex to the mechanical stimulation. Clinical Neurophysiology. 2009 May 1;120(5):e163.

Under Review & In press (3)

1. Neuro-rehabilitation (under review)
   Non-pharmacological neuro-rehabilitation interventions for pain and fatigue management in patient with cancer: A systematic review and meta-analysis study

Conferences

1. MDS train the trainer meeting – Abu Dhabi 2022
2. 1st International rehabilitation and wellbeing congress – Egypt 2022, Speaker
3. International webinar conference of Al-Hussein Society – Jordan 2020, Speaker
4. International conference in "Mental Health & Rehabilitation" – Jordan 2019. Speaker
5. 24th World Congress of Neurology – Dubai, UAE 2019, Speaker
1. *3rd* Madinah *International Conference* for Medical *Rehabilitation* – Saudi Arabia 2019, Speaker
2. 1st International Early Intervention Congress – Turkey 2018, Speaker
3. 3rd congress of European Academy of Neurology – Netherland 2017, E-poster
4. Rehabilitation Updates in Parkinson's Disease – Jordan 2016, Speaker
5. International congress in early intervention – Jordan 2016, Speaker
6. *2nd* Madinah *International Conference* for Medical *Rehabilitation* – Saudi Arabia 2015, Speaker
7. 1st Jordanian University Conferences for Rehabilitation Sciences – Jordan 2015, Speaker
8. 3rd International Physical Medicine& Rehabilitation Conference – USA 2015, Speaker
9. 41st Annual Meeting of Japan Clinical Neurophysiology Association – Japan 2011, Speaker
10. 26th annual meeting of Japan Orthopedic Association – Japan 2011, Poster
11. 54th annual meeting of Japanese Society for Surgery of Hand – Japan 2011, Poster
12. 29th International Congress of Clinical Neurophysiology – Japan 2010, Poster
13. 39th Annual meeting of Japan Clinical Neurophysiology Association – Japan 2009, Speaker
14. 38th Annual meeting of Society for Neuroscience – USA 2008, Poster
15. 38th Annual meeting of Japan Clinical Neurophysiology Association – Japan 2008, Poster

Language

العربية (Arabic): Native English: Excellent 日本語 (Japanese): Good