Martina Putzolu
Researcher (RTD-A)
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EDUCATION

1. <u>PhD</u>: PhD in Neuroscience – Curriculum Science of Motor and Sport Activities (XXXIII cycle). Obtained at University of Genoa (address: via Balbi 5, 16126 Genova) in 2021 (29/10/2021) – 3 years. PhD thesis: "Features and neural correlates of gait in Parkinson's Disease".

2. <u>Master's degree</u>: Master's degree in health professions of rehabilitation sciences (LM/SNT2 - d.m. 270/2004). Obtained at University of Genoa (address: via Balbi 5, 16126 Genova) in 2017 (19/07/2017) – 2 years – 110/110 cum laude. Thesis: " Action observation therapy: a chance for patients with Parkinson's disease to improve mobility through home-based rehabilitation".

3. <u>Degree in physiotherapy:</u> (Qualifying to practise as a physiotherapist) L/SNT2,
   Obtained at University of Genoa (address: via Balbi 5, 16126 Genova) the 26/11/2015,
   – 3 years – 110/110 cum laude. Thesis: "Evaluation of voluntary stepping in response to emotions-inducing pictures in patients with Parkinson's disease".

RESEARCH ACTIVITY

1. 01/03/2023 (ongoing). RTD-A (Mnesys project – Spoke 4) at Department of Experimental Medicine (DIMES) of the University of Genoa.

2. 01/05/2022 – 28/02/2023 Research fellow at U.O. Neurologia of IRCCS Ospedale Policlinico San Martino (Genova) for the project "Fresco Parkinson Institute Italy Network"

3. 01/04/2021 – 31/03/2022   Research fellow at Department of Neuroscience (DiNOGMI) - University of Genoa. Title: "Evaluation of Motor Imagery of gait under dual-task conditions with high density electroencephalography".

4. 01/04/2016 – 31/03/2017 Research scholarship holder at Department of Neuroscience (DiNOGMI) - University of Genoa. Title: '"Evaluating the effectiveness of experimental rehabilitation protocols to improve balance and walk in patients with Parkinson's disease".

ABROAD EXPERIENCES

During my PhD I took part to the following abroad experiences:

From 06/01/2020 to 17/03/2020
   Visiting International Scholar at Katholieke Universiteit Leuven (Leuven, Belgium)
   Tutor: Prof. Alice Nieuwboer

Faculty of Movement and Rehabilitation Sciences
Project on motor learning prediction in Parkinson's Disease via resting state functional magnetic resonance imaging.

From 01/06/2018 to 31/10/2018
Visiting Scholar at Katholieke Universiteit Leuven (Leuven, Belgium)
Tutor: Prof. Dante Mantini
Faculty of Movement and Rehabilitation Sciences
Training on the analysis of data acquired through Magnetic Resonance and Electroencephalography

SPEAKER AT CONGRESSES AND DISSEMINATION EVENTS

1. "Parkinson: Beyond Diagnosis" – Ligurian Board of Physiotherapists, 23/05/25. Talk titled: "Rehabilitation in Parkinson's Disease". **SPEAKER**

2. "Liguria Parkinson 2025" Congress, 14/04/25. Talk titled: "New evidence for physiotherapy for gait disorders". **SPEAKER**

3. Practical Course of GIS Neuroscienze e Fisioterapia Neurologica (AIFI), 22/03/25. The evaluation and treatment of balance in neurological disorders. Talk titled: "Balance training in patients with Parkinson's Disease: from literature to clinical practice". **SPEAKER**

4. First Interdisciplinary Theoretical-Practical Course on Physical Activity and Sport in Parkinson's Disease LIMPE-SISMES, 10/05/2024. Role of Physical Exercise and Sport Activity on Motor and Non-Motor Symptoms in Parkinson's Disease: Scientific Evidence. Talk titled: "Walking." **SPEAKER**

5. 9th International Conference on Spatial Cognition – Rome, 09/10/2024. As part of the symposium titled: "Spatial Cognition, Neuroscience, and Interior Design: A Conversation about the Impact of Built Environments on Cognition and Emotion." Talk titled: "Exploring Emotional and Neurophysiological Responses to Architectural Atmospheres." **SPEAKER**

6. National Congress GIS Neuroscienze e Fisioterapia Neurologica (AIFI): "Neurorehabilitation: from neurophysiology to therapeutic exercise". Talk titled: "Motor imagery of usual and complex gait in early-stage Parkinson's disease: an electroencephalographic study". **ORAL COMMUNICATION**

7. International Scientific Congress AIFI 2023 (Bologna), 10/11/2023. Talk titled: "Gender Gap in Physiotherapy: from education to scientific research". **SPEAKER**

8. National Congress GIS Neuroscienze e Fisioterapia Neurologica (AIFI): "Fatigue in neurological disorder - from clinical practice to physiopathological basis" - Milan, 27/05/2023. Talk titled: "Are motor imagery ability scores related to cortical activity during gait imagery?". **SPEAKER**

9. 3° National Congress S.I.ME.GE.N. Differences in sex, age and gender in neuroscience - Rome, 10/05/2023. Talk titled: "Differences in rehabilitative approach in men and women in the early stage of Parkinson's disease". **SPEAKER**

10. Congress Gender Medicine in Physiotherapy Science – IRCCS Ospedale Galeazzi Sant'Ambrogio – Milano, 25/03/2023. Talk titled: "Useful data to understand how gender has an impact in Physiotherapy". **SPEAKER**

11. International Scientific Congress AIFI 2022 (Palermo), 29/10/2022. Talk titled: "Apps and continuity of care in Parkinson's disease". **SPEAKER**

12. Webinar for patients with Parkinson's disease - Accademia LIMPE-DISMOV, 06/04/2022. Talk titled: "Telerehabilitation and apps: new perspectives". **SPEAKER**

13. Webinar for patients with Parkinson's disease - Accademia LIMPE-DISMOV, 06/05/2021. Talk titled: "Tips & tricks to stay active at home". **MODERATOR**

14. AIFI Channel - Associazione Italiana di Fisioterapia, 2020. Talk titled: "Aids in Parkinson's disease". **MODERATOR**

15. Webinar for patients with Parkinson's disease - Accademia LIMPE-DISMOV, 25/05/2020. Talk titled: "1 hour together with physical and occupational therapists". **MODERATOR**

16. Webinar for patients with Parkinson's disease - Accademia LIMPE-DISMOV, 20/04/2020. Talk titled: "1 hour together with physical and occupational therapists". **MODERATOR**

17. Webinar for patients with Parkinson's disease - Accademia LIMPE-DISMOV, 14/04/2020. Talk titled: "1 hour together with physical and occupational therapists". **SPEAKER**

18. Webinar for patients with Parkinson's disease - Accademia LIMPE-DISMOV, 06/04/2020. Talk titled: "1 hour together with physical and occupational therapists". **MODERATOR**

19. Workshop "Innovation in rehabilitation technologies" (Genova), 05/03/2019. Talk title: "Investigating the effects of transcranial direct current stimulation on obstacle crossing in Parkinson's disease". **ORAL COMMUNICATION**

OTHER ROLES IN CONFERENCES AND CONGRESSES

From 29/04/2022 to 30/04/2022
Member of the Scientific Committee at the National Congress of GIS Neurological Physiotherapy and Neurosciences
Organizing Entity: AIFI

TEACHING ACTIVITY

1. A.Y. 2024-2025. Master's in Neuroscience and Neurological Physiotherapy, University of Genoa. 4 hours of teaching activity on Virtual Reality.

2. A.Y. 2024-2025. Bachelor's Degree in Physiotherapy, University of Genoa. 10 hours of

teaching activity in the Neurophysiology course (2nd semester).

3. A.Y. 2024-2025. Bachelor's Degree in Physiotherapy, University of Genoa. 10 hours of teaching activity in the Neuroanatomy course (1st semester).

4. A.Y. 2024-2025. Bachelor's Degree in Motor Sciences, Sport, and Health, University of Genoa. 8 hours of teaching activity in the Physiology I course (1st semester).

5. A.Y. 2024-2025. Bachelor's Degree in Motor Sciences, Sport, and Health, University of Genoa. 4 hours of teaching activity in the Physiology II course (2nd semester).

6. Distance Learning Synergy and Development. Community Healthcare: chronic diseases and the role of the physiotherapist. "Physiotherapeutic care of a person with Parkinson's disease." **SPEAKER**

7. A.Y. 2022-2023. Bachelor's Degree in Physiotherapy, University of Genoa.
10 h Teaching in the course of Neurophysiology (I semester).

8. A.Y. 2022-2023. Bachelor's Degree in Physiotherapy, University of Genoa.
10 h Teaching in the course of Neuroanatomy (II semester).

9. A.Y. 2022-2023 Tutor activity for the internships of the students of the Master in Neuroscience and Neurological Physiotherapy – University of Genoa - (10 hours): practical use and data analysis of a sensorized mat for obtaining gait parameters (GAITRite), and a non-invasive brain stimulation technique (tDCS).

10. A.Y. 2020-2021 Tutor activity for the internships of the students of the Master in Neuroscience and Neurological Physiotherapy – University of Genoa - (20 hours): practical use and data analysis of a stereophotogrammetry system (Vicon Nexus), a sensorized mat for obtaining gait parameters (GAITRite), and a non-invasive brain stimulation technique (tDCS).

11. 16/07/2020 2-hours lesson on Action Observation, Motor Imagery and Electroencephalography - Master in Health Professions of Rehabilitation Sciences, University of Genoa

12. 30/11/2018, Bachelor in Physical Therapy, University of Genoa.
Course on "Alternative learning methods and neuromodulation techniques" (6 h total). During this course, I presented both in a theorical and a practical way innovative rehabilitative strategies, such as Action Observation and Motor Imagery and neuromodulation techniques, with a particular focus on transcranial direct current stimulation

THESIS CO-ADVISOR

Activity of thesis Co-Advisor for the Bachelor Degree in Physiotherapy, Bachelor Degree in Sport Sciences, Bachelor Degree in Biomedical Engineering, and Master in Neuroscience and Neurological Physiotherapy of the University of Genoa.

THIRD MISSION ACTIVITIES

1. Pint of Science event, May 20, 2025: public outreach talk titled "A Journey Through Innovation Against Parkinson's Disease".

2. Festival della Scienza, Genoa, October 24-26, 2024. Laboratory on experiences in architecture and neuroscience. In collaboration with Dr. Canepa, we presented a workshop for high school students involving virtual reality experiences and measurements of skin conductance and heart rate.

3. Project "Pedalando", Palazzo Tursi Genoa 2024: During the event of 31/07/2024 of "Pedalando" project, organized by Lorenzo Sacchetto I presented a talk titled: "Technology to improve quality of life in patients with Parkinson's disease"

4. Teacher Training Course (SOFIA): In the 2023/2024 academic year, as part of the course "Mind and Body in Motion: Advanced Strategies for Enhancing and Evaluating Sports Performance," I conducted a lesson titled "Cognitive Training Techniques."

5. National Parkinson's Day 2023: On the occasion of the event organized by the IRCCS Ospedale Policlinico San Martino for National Parkinson's Day, I presented a talk titled "New Technologies for Exercise in Parkinson's Disease."

6. National Parkinson's Day 2019: On the occasion of the event organized by the IRCCS Ospedale Policlinico San Martino for National Parkinson's Day, I presented a talk titled "The Parkinson Rehab Application."

REVIEWER ACTIVITY

Reviewer for *Scientific Reports*
Reviewer for *BMC Neurology*
Reviewer for *Somatosensory & Motor Research*
Reviewer for *Frontiers in Neuroscience*
Reviewer for *npj Parkinson's Disease*

AWARDS

1. Best Poster: Sarasso E., Putzolu M., Canu E., Gardoni A., Ravizzotti E., Zenere L., Mezzarobba S., Basaia S., Agosta F., Avanzino L., Filippi M., Pelosin E. *"The language of gait: interpreting emotional states through gait characteristics."* IV International Scientific Congress of the Italian Physiotherapy Association (AIFI), Florence 2024.

2. 15/06/2024. Second Best Oral Communication at National Congress GIS Neuroscienze e Fisioterapia Neurologica (AIFI) "Neurorehabilitation: from neurophysiology to therapeutic exercise". Talk title: "Motor imagery of usual and complex gait in early-stage Parkinson's disease: an electroencephalographic study".

3. 16/11/2019. Best Poster at National Congress of GIS Neuroscienze (AIFI): "Therapeutic exercises and brain. Emerging applications and potential mechanism for motor recovery", Trieste. Poster title: " Evaluating motor imagery of gait under normal and dual task conditions through high density EEG: a feasibility study".

4. A.Y. 2012-2013, Bachelor Degree in Physiotherapy. Study award "Roberto Frugone"

PUBLICATIONS

Attività di ricerca condotta in materia di:
- Riabilitazione neurologica, con particolare focus sulla malattia di Parkinson e i disordini del movimento.
- Neurofisiologia del movimento, della pianificazione del movimento e dell'integrazione sensorimotoria.
- Neurofisiopatologia della malattia di Parkinson e della distonia attraverso metodiche di stimolazione magnetica transcranica, stimolazione elettrica a corrente diretta, elettroencefalografia di superficie, risonanza magnetica e realtà virtuale a fini traslazionali clinici.

<u>Bibliometrics indicators</u>
Scopus: Total citations: 222; H-index: 8

1. Salvalaggio S, Valè N, Bowman T, Cattaneo D, Longo CA, Bocini S, Bonci V, Gennuso M, Marazzini F, Materazzi FG, Pelosin E, Putzolu M, Turolla A, Mezzarobba S, Mestanza Mattos FG, Gambazza S. Association of physiotherapy dose with motor recovery in early subacute phase after stroke: results from a multicenter Italian study. Arch Physiother. 2025 May 13;15:110-117. doi: 10.33393/aop.2025.3457. PMID: 40370358; PMCID: PMC12076077. **Q1: Rehabilitation**

2. Putzolu M, Botta A, Cosentino C, Mezzarobba S, Bonassi G, Ravizzotti E, Terranova S, Lagravinese G, Pelosin E, Avanzino L. Recent advances of transcranial electrical stimulation in healthy aging and Parkinson's disease: Effects on dual tasking. J Parkinsons Dis. 2025 Apr 17:1877718X251327758. doi: 10.1177/1877718X251327758. Epub ahead of print. PMID: 40241492. **Q2: Neurosciences**

3. Terranova S, Botta A, Putzolu M, Bonassi G, Cosentino C, Mezzarobba S, Ravizzotti E, Lagravinese G, Pelosin E, Avanzino L. The impact of emotion on temporal prediction ability in different timing contexts. Sci Rep. 2025 Mar 22;15(1):9884. doi: 10.1038/s41598-025-87887-8. PMID: 40121260; PMCID: PMC11929816. **Q1: Multidisciplinary Sciences**

4. Mestanza Mattos FG, Bowman T, Allera Longo C, Bocini S, Gennuso M, Marazzini F, Materazzi FG, Pelosin E, **Putzolu M**, Salvalaggio S, Turolla A, Mezzarobba S, Cattaneo D. Establishing minimal clinically important difference of modified dynamic gait index in people with subacute stroke. Top Stroke Rehabil. 2025 Jan 7:1-5. doi: 10.1080/10749357.2024.2437326. Epub ahead of print. PMID: 39773201. **Q1: Rehabilitation**

5. Lencioni T, Meloni M, Bowman T, Carpinella I, Gower V, Mezzarobba S, Cosentino C, Bonassi G, **Putzolu M**, Ferrarin M, Avanzino L, Pelosin E. Emotional auditory stimuli influence step initiation in Parkinson's disease with freezing of gait. Sci Rep. 2024 Nov 25;14(1):29176. doi: 10.1038/s41598-024-80251-2. PMID: 39587184; PMCID: PMC11589677. **Q1: Multidisciplinary Sciences**

6. Bowman T, Mestanza Mattos FG, Allera Longo C, Bocini S, Gennuso M, Marazzini F, Giuseppe Materazzi F, Pelosin E, **Putzolu M**, Salvalaggio S, Turolla A, Mezzarobba S, Cattaneo D. The minimally clinically important difference in the 2-minute walk test for people in the subacute phase after a stroke. Top Stroke Rehabil. 2024 Nov 11:1-9. doi: 10.1080/10749357.2024.2417643. Epub ahead of print. PMID: 39527092. **Q1: Rehabilitation**

7. Mezzarobba S, Ravizzotti E, Bernardis P, **Putzolu M**, Cosentino C, Botta A, Bonassi G, Marchese R, Terranova S, Lagravinese G, Avanzino L, Pelosin E. Boostering motor imagery processing to improve gait in patients with Parkinson disease and freezing of gait: A pilot study. Parkinsonism Relat Disord. 2024 Dec;129:107173. doi: 10.1016/j.parkreldis.2024.107173. Epub 2024 Oct 15. PMID: 39432961. **Q2: Clinical Neurology**

8. Mestanza Mattos FG, Bowman T, Marazzini F, Salvalaggio S, Allera Longo C, Bocini S, Bonci V, Materazzi FG, Pelosin E, **Putzolu M**, Turolla A, Mezzarobba S, Cattaneo D. Factors influencing physiotherapy decisions between restorative and compensatory gait rehabilitation: an Italian multicenter study. Front Neurol. 2024 May 24;15:1368973. doi: 10.3389/fneur.2024.1368973. PMID: 38854968; PMCID: PMC11157038. **Q2: Clinical Neurology, Q3: Neurosciences**

9. Botta A, Pelosin E, Lagravinese G, Marchese R, Di Biasio F, Bonassi G, Terranova S, Ravizzotti E, **Putzolu M**, Mezzarobba S, Cosentino C, Avenanti A, Avanzino L. Modulation of response times in early-stage Parkinson's disease during emotional processing of embodied and non-embodied stimuli. Sci Rep. 2024 Jun 6;14(1):13031. doi: 10.1038/s41598-024-63701-9. PMID: 38844758; PMCID: PMC11156934. **Q1: Multidisciplinary Sciences**

10. Bonassi G, Zhao M, Samogin J, Mantini D, Marchese R, Contrino L, Tognetti P, **Putzolu M,** Botta A, Pelosin E, Avanzino L. Brain Networks Modulation during Simple and Complex Gait: A "Mobile Brain/Body Imaging" Study. Sensors (Basel). 2024 Apr 30;24(9):2875. doi: 10.3390/s24092875. PMID: 38732980; PMCID: PMC11086305. **Q2: Chemistry, Analitical/Engineering, Electrical & Electronic**

11. D'Cruz N, De Vleeschhauwer J, **Putzolu M**, Nackaerts E, Gilat M, Nieuwboer A. Sensorimotor Network Segregation Predicts Long-Term Learning of Writing Skills in Parkinson's Disease. Brain Sci. 2024 Apr 12;14(4):376. doi: 10.3390/brainsci14040376. PMID: 38672025; PMCID: PMC11047850. **Q3 Neurosciences**

12. **Putzolu M**, Samogin J, Bonassi G, Cosentino C, Mezzarobba S, Botta A, Avanzino L, Mantini D, Vato A, Pelosin E. Motor imagery ability scores are related to cortical activation during gait imagery. Sci Rep. 2024 Mar 3;14(1):5207. doi: 10.1038/s41598-024-54966-1. PMID: 38433230; PMCID: PMC10909887. **Q1: Multidisciplinary Sciences**

13. Terranova S, Botta A, **Putzolu M**, Bonassi G, Cosentino C, Mezzarobba S, Ravizzotti E, Pelosin E, Avanzino L. Cerebellar Direct Current Stimulation Reveals the Causal Role of the Cerebellum in Temporal Prediction. Cerebellum. 2023 Dec 26. doi: 10.1007/s12311-023-01649-8. Epub ahead of print. PMID: 38147293. **Q3: Neurosciences**

14. Bowman T, Mestanza Mattos FG, Salvalaggio S, Marazzini F, Allera Longo C, Bocini S, Gennuso M, Materazzi FG, Pelosin E, **Putzolu M**, Russo R, Turolla A, Mezzarobba S, Cattaneo D. Classification and Quantification of Physical Therapy Interventions across Multiple Neurological Disorders: An Italian Multicenter Network. J Clin Med. 2023 Oct 12;12(20):6483. doi: 10.3390/jcm12206483. PMID: 37892621; PMCID: PMC10607918. **Q1: Medicine, General & Internal**

15. **Putzolu M**, Manzini V, Gambaro M, Cosentino C, Bonassi G, Botta A, Ravizzotti E, Avanzino L, Pelosin E, Mezzarobba S. Home-based exercise training by using a smartphone app in patients with Parkinson's disease: a feasibility study. Front Neurol. 2023 Jun 28;14:1205386. doi: 10.3389/fneur.2023.1205386. PMID: 37448748; PMCID: PMC10338039. **Q2: Clinical Neurology, Q3: Neurosciences**

16. Bonassi G, Lagravinese G, Bove M, Bisio A, Botta A, **Putzolu M**, Cosentino C, Mezzarobba S, Pelosin E, Avanzino L. How Music Moves Us: Music-induced Emotion Influences Motor Learning. Neuroscience. 2023 Jul 10;526:246-255. doi: 10.1016/j.neuroscience.2023.06.023. Epub ahead of print. PMID: 37437801. **Q2: Neurosciences**

17. Cosentino C, **Putzolu M**, Mezzarobba S, Cecchella M, Innocenti T, Bonassi G, Botta A, Lagravinese G, Avanzino L, Pelosin E. One cue does not fit all: a systematic review with meta-analysis of the effectiveness of cueing on freezing of gait in Parkinson's disease. Neurosci Biobehav Rev. 2023 Apr 20:105189. doi: 10.1016/j.neubiorev.2023.105189. Epub ahead of print. PMID: 37086934. **Q1: Behavioral Science/Neurosciences**

18. Mezzarobba S, Cosentino C, **Putzolu M**, Panuccio F, Fabbrini G, Valente D, Costi S, Galeoto G, Pelosin E. Assessment of the psychometric properties of the Italian version of the New Freezing of Gait Questionnaire (NFOG-Q-IT) in people with Parkinson disease: a validity and reliability study. Neurol Sci. 2023 Apr 18:1–8. doi: 10.1007/s10072-023-06800-1. Epub ahead of print. PMID: 37072581; PMCID: PMC10112304. **Q2: Clinical Neurology, Q3: Neurosciences**

19. Corrini C, Gervasoni E, Perini G, Cosentino C, **Putzolu M**, Montesano A, Pelosin E, Prosperini L, Cattaneo D. Mobility and balance rehabilitation in multiple sclerosis: a systematic review and dose-response meta-analysis. Multiple Sclerosis and Related Disorders (2022). doi: https://doi.org/10.1016/j.msard.2022.104424. **Q2: Clinical Neurology**

20. Bonassi G, Lagravinese G, **Putzolu M**, Botta A, Bove M, Pelosin E and Avanzino L (2022) Transcranial direct current stimulation alters sensorimotor modulation during cognitive representation of movement. Front. Hum. Neurosci. 16:862013. doi: 10.3389/fnhum.2022.862013. **Q3: Neurosciences, Q2: Psychology**

21. **Putzolu M**, Samogin J, Cosentino C, Mezzarobba S, Bonassi G, Lagravinese G, Vato A, Mantini D, Avanzino L, Pelosin E. Neural oscillations during motor imagery of complex gait: an HdEEG study. Sci Rep. 2022 Mar 12;12(1):4314. doi: 10.1038/s41598-022-07511-x. PMID: 35279682; PMCID: PMC8918338. **Q1: Multidisciplinary Sciences**

22. Pelosin E, Ponte C, **Putzolu M**, Lagravinese G, Hausdorff JM, Nieuwboer A, Ginis P, Rochester L, Alcock L, Bloem BR, Nieuwhof F, Cereatti A, Della Croce U, Mirelman A, Avanzino L. Motor-Cognitive Treadmill Training With Virtual Reality in Parkinson's Disease: The Effect of Training Duration. Front Aging Neurosci. 2022 Jan 5;13:753381. doi: 10.3389/fnagi.2021.753381. PMID: 35069171; PMCID: PMC8767105. **Q2: Geriatrics & Gerontology/Neurosciences**

23. Droby A, Pelosin E, **Putzolu M**, Bommarito G, Marchese R, Mazzella L, Avanzino L, Inglese M. A Multimodal Imaging Approach Demonstrates Reduced Midbrain Functional Network Connectivity Is Associated With Freezing of Gait in Parkinson's Disease. Front Neurol. 2021 Apr 30;12:583593. doi: 10.3389/fneur.2021.583593. PMID: 33995237; PMCID: PMC8120105. **Q2: Clinical Neurology, Q3: Neurosciences**

24. Bommarito G*, **Putzolu M***, Avanzino L, Cosentino C, Botta A, Marchese R, Inglese M, Pelosin E. Functional Correlates of Action Observation of Gait in Patients with Parkinson's Disease. Neural Plast. 2020 Dec 29;2020:8869201. doi: 10.1155/2020/8869201. PMID: 33456457; PMCID: PMC7787806. ***Authors equally contributed to this work. Q2: Neurosciences**

25. Cosentino C, Baccini M, **Putzolu M**, Ristori D, Avanzino L, Pelosin E. Effectiveness of Physiotherapy on Freezing of Gait in Parkinson's Disease: A Systematic Review and Meta-Analyses. Mov Disord. 2020 Apr;35(4):523-536. doi: 10.1002/mds.27936. Epub 2019 Dec 4. PMID: 31799734. **Q1: Clinical Neurology**

26. **Putzolu M**, Ogliastro C, Lagravinese G, Bonassi G, Trompetto C, Marchese R, Avanzino L, Pelosin E. Investigating the effects of transcranial direct current stimulation on obstacle negotiation performance in Parkinson disease with freezing of gait: A pilot study. Brain Stimul. 2019 Nov - Dec;12(6):1583-1585. doi: 10.1016/j.brs.2019.07.006. Epub 2019 Jul 12. PubMed PMID: 31326366. **Q1: Clinica Neurology/Neurosciences**

27. Mori L, **Putzolu M**, Bonassi G, Galeoto G, Mezzarobba S, Trompetto C, Avanzino L, Marchese R, Abbruzzese G, Pelosin E. Haptic perception of verticality correlates with postural and balance deficits in patients with Parkinson's disease. Parkinsonism Relat Disord. 2019 Sep;66:45-50. doi:10.1016/j.parkreldis.2019.06.026. Epub 2019 Jul 2. PubMed PMID: 31279636. **Q2: Clinical Neurology**

28. **Putzolu M**, Pelosin E, Ogliastro C, Lagravinese G, Bonassi G, Ravaschio A, Abbruzzese G, Avanzino L. Anodal tDCS over prefrontal cortex improves dual-task walking in Parkinsonian patients with freezing. Mov Disord. 2018 Dec;33(12):1972-1973. doi: 10.1002/mds.27533. Epub 2018 Nov 13. PubMed PMID: 30423199. **Q1: Clinical Neurology**

29. Pelosin E, Barella R, Bet C, Magioncalda E, **Putzolu M**, Di Biasio F, Cerulli C, Casaleggio M, Abbruzzese G, Avanzino L. Effect of Group-Based Rehabilitation Combining Action Observation with Physiotherapy on Freezing of Gait in Parkinson's Disease. Neural Plast. 2018 May 27;2018:4897276. doi: 10.1155/2018/4897276. PMID: 29977280; PMCID: PMC5994277. **Q2: Neurosciences**

Conference abstracts

C. Ponte, M. Bertoli, C. Cosentino, **M. Putzolu**, A. Cereatti, L. Avanzino, A. Mirelman, U. Della Croce, L. Mori, E. Pelosin. Changes in gait parameters after a virtual reality protocol (V-Time) in patients with Parkinson's disease. Gait & Posture, Volume 74, Supplement, 2019, pages 30-31, ISSN 0966-6362. https://doi.org/10.1016/ j.gaitpost. 2019.07.488.