

Giacomo Valli



PhD

Creator of *openhdemg*. Postdoc at UNIBS (IT). Currently Investigating the electrophysiological modifications happening during disuse, disease and aging and linking this information to the molecular alterations of the muscle. #coding #python #hdemg #neurophysiology



Contacts

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University of Brescia. Viale
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Coding

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| Python | ★ ★ ★ ★ ☆ |
| MATLAB | ★ ★ ★ ☆ ☆ |
| Git/GitHub | ★ ★ ★ ☆ ☆ |

Languages

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| English | ★ ★ ★ ★ ☆ |
| Italian | ★ ★ ★ ★ ★ |

Education

PhD

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| October 2020 – October 2023 | Neuromuscular Physiology. University of Padova – Italy |
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Course

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| April 2023 – April 2023 | Skeletal Muscle Performance in Basic and Applied Exercise Studies. University of Copenhagen – Denmark |
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Research Scholarship

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| September 2018 – September 2019 | Molecular Biology of Exercise. University of Urbino – Italy |
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Summer School

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| July 2018 – July 2018 | Research Methods in Sports Science. University of Urbino – Italy |
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Master Degree

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| October 2016 July 2019 | Sports Science. 110/110 cum laude |
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Erasmus

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| September 2018 – December 2018 | Study and research. University College Dublin – Ireland |
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Bachelor Degree

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| 2016 | Sports science. 110/110 cum laude |
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Work experience

- 2023 -
Current *Postdoc position:* Developing methods to assess how the utilization of exoskeletons influences motor strategies and motor learning.
Location: University of Brescia UNIBS (IT).
Supervisor: Prof. Francesco Negro.
- 2024 -
Current *Advisor:* for a private sport clinic (DE) focused on maximising neuromuscular rehabilitation and return to competition in athletes.



Software development

- 2023 -
Current *openhdemg*: a free and open-source framework for the automated analysis of motor unit properties.
-  Role: creator and maintainer of the project and developer of the library.
Website: <https://www.giacomovalli.com/openhdemg/>



Featured publications

- 2024 - Can non-invasive motor unit analysis reveal distinct neural strategies of force production in young with uncomplicated type 1 diabetes?
Valli G, Wu R, Minnock D, et al.
Doi:10.1007/s00421-024-05595-z
- 2023 - Tutorial: Analysis of central and peripheral motor unit properties from decomposed High-Density surface EMG signals with openhdemg.
Valli G, Ritsche P, Casolo, A, Negro F, De Vito G.
Doi: 10.1016/j.jelekin.2023.102850
- 2023 - Lower limb suspension induces threshold-specific alterations of motor units' properties that are reversed by active recovery.
Valli G, Sarto F, Casolo, A, et al.
Doi: 10.1016/j.jshs.2023.06.004.
- 2021 - Delayed effect of different exercise modalities on glycaemic control in type 1 diabetes mellitus: A systematic review and meta-analysis.
Valli G, Minnock D, Tarantino G, Neville RD.
Doi: 10.1016/j.numecd.2020.12.006.



Awards & Grants

- 2022 - Award: 500 € - Young Investigators Award
 Awarded from the European College of Sports Science (ECSS)
 Presentation: *Ten days of unilateral lower limb suspension induce threshold-specific alterations of motor units' properties that are restored by 21-days active recovery*
- 2020 - Award: 14.000 € - Support for research
 Awarded from Fondazione CARIPARO to the best PhD applications (University of Padova - UNIPD)



Published research

All my published work is available on:

- [Google Scholar](#)
- [ResearchGate](#)
- [ORCID](#)

Journal articles

- 2024 [Valli G](#), Wu R, Minnock D. et al. Can non-invasive motor unit analysis reveal distinct neural strategies of force production in young with uncomplicated type 1 diabetes?. *Eur J Appl Physiol* (2024). doi:10.1007/s00421-024-05595-z
- Martino G, [Valli G](#), Sarto F, Franchi M V, Narici M V & De Vito G (2024). Neuromodulatory Contribution to Muscle Force Production after Short-Term Unloading and Active Recovery. *Med Sci Sports Exerc*; doi:10.1249/MSS.0000000000003473.
- 2023 [Valli G](#), Ritsche P, Casolo, et al. Tutorial: Analysis of central and peripheral motor unit properties from decomposed High-Density surface EMG signals with *openhdemg*. *J Electromyogr Kinesiol*. 2023. doi: 10.1016/j.jelekin.2023.102850.
- [Valli G](#), Sarto F, Casolo A, et al. Lower limb suspension induces threshold-specific alterations of motor units' properties that are reversed by active recovery. *J Sport Heal Sci*. 2023. doi:10.1016/j.jshs.2023.06.004
- 2022 de Marco Castro E, [Valli G](#), Buffière C, et al. Peripheral Amino Acid Appearance Is Lower Following Plant Protein Fibre Products, Compared to Whey Protein and Fibre Ingestion, in Healthy Older Adults despite Optimised Amino Acid Profile. *Nutrients*. 2023. doi:10.3390/nu15010035
- Sarto F, [Valli G](#), Monti E. Motor unit alterations with muscle disuse: what's new? *J Physiol*. 2022. doi:10.1113/JP283868
- Sarto F, Stashuk DW, Franchi M V., et al. Effects of short-term unloading and active recovery on human motor unit properties, neuromuscular junction transmission and transcriptomic profile. *J Physiol*. 2022. doi:10.1113/JP283381
- Minnock D, Annibalini G, [Valli G](#), et al. Altered muscle mitochondrial, inflammatory and trophic markers, and reduced exercise training adaptations in type 1 diabetes. *J Physiol*. 2022. doi:10.1113/JP282433
- 2021 Gervasi M, Barbieri E, Capparucci I, et al. Treatment of achilles tendinopathy in recreational runners with peritendinous hyaluronic acid injections: A viscoelastometric, functional, and biochemical pilot study. *J Clin Med*. 2021. doi:10.3390/jcm10071397
- [Valli G](#), Minnock D, Tarantino G, Neville RD. Delayed effect of different exercise modalities on glycaemic control in type 1 diabetes mellitus: A systematic review and meta-analysis. *Nutr Metab Cardiovasc Dis*. 2021. doi:10.1016/j.numecd.2020.12.006

Natalucci V, Virgili E, Calcagnoli F, et al. Cancer related anemia: An integrated multitarget approach and lifestyle interventions. *Nutrients*. 2021. doi:10.3390/nu13020482

- 2020 Minnock D, Annibalini G, Le Roux CW, et al. Effects of acute aerobic, resistance and combined exercises on 24-h glucose variability and skeletal muscle signalling responses in type 1 diabetics. *Eur J Appl Physiol*. 2020. doi:10.1007/s00421-020-04491-6



Contribution at conferences

Symposia:

- 2022 ISEK, International Society of Electrophysiology and Kinesiology. Is Type 1 diabetes really causing a sort of accelerated neuromuscular aging?

Workshops:

- 2024 (Organiser) ISEK, International Society of Electrophysiology and Kinesiology. Simplified analysis of motor unit properties with *openhdemg*.

Orals:

- 2024 ISEK, International Society of Electrophysiology and Kinesiology. Recovery of muscle endurance and muscle fibres conduction velocity after intensive care unit discharge.
- 2024 ISEK, International Society of Electrophysiology and Kinesiology. Effects of 10 days of unilateral lower limb suspension followed by 21 days of retraining on motor unit conduction velocity.
- 2023 PDM, Padua Days on Muscle and Mobility Medicine. Motor unit conduction velocity is reduced after 10 days of unilateral limb suspension.
- 2022 ECSS, European College of Sport Science. Degeneration of neuromuscular control in humans is detectable after 10 days of limb suspension and is completely recovered after a 21 days training intervention.
- 2021 SISMES, Società Italiana delle Scienze Motorie e Sportive. Alterations in the control of motor units studied with high-density EMG after 10 days of unilateral suspension of the lower limb in humans.

Posters:

- 2021 IIM: Interuniversity Institute of Myology. Impact of type 1 diabetes and exercise intervention on molecular markers of skeletal muscle remodelling.