

Lucrezia Zuccarelli, PhD



CURRICULUM VITAE

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EDUCATION AND ACADEMIC CAREER

2010 High School Diploma, Liceo Scientifico "G. Peano", Tortona (AL), Italy.
2014 Bachelor Degree in Physical Education, Cattolica University, Milano (MI), Italy.
2016 Master Degree in Physical Education and sports, University of Milano, Milano (MI), Italy.
2016 Internship at the *Institute of Bioimaging and Molecular Physiology, Nation Research Council*, Segrate (MI), Italy (Supervisor Prof. Mauro Marzorati).
2017 Fellowship at the *Institute of Bioimaging and Molecular Physiology, Nation Research Council*, Segrate (MI), Italy (Supervisors Prof. Mauro Marzorati and Dr. Simone Porcelli).
2020 PhD in Human Physiology, University of Udine, Udine (UD), Italy (Supervisor Prof. Bruno Grassi).
2020-2022 Assistant professor at Cattolica University, Milano (MI), Italy (Course: "Theory, Technique and Didactics of individual sports" [teaching: 40 hours/year])
2020-Current Research Fellow at the University of Udine, Udine (UD), Italy (Supervisor Prof. Bruno Grassi).

PERIODS OF RESEARCH ABROAD

2016 Internship at the European Space Agency, Cologne, Germany (Supervisors Dr. Loredana Bessone and Dr. Giacomo Strappazon).
2021 Visiting researcher at the Swedish Olympic Center, Bostom Stockholm, Sweden (Dr. Daniele Cardinale).
2022 Visiting researcher at the University of Cambridge, Cambridge, United Kingdom (Prof. Andrew Murray).

RESEARCH ACTIVITY

General and specific fields of interest:

Exercise and environmental physiology, skeletal muscle bioenergetics.

- Skeletal muscle oxidative metabolism during exercise; mechanisms of regulation; effects of training, inactivity, hypoxia, aging, pathological conditions.
- Functional evaluation of oxidative metabolism during exercise in humans, with specific reference to skeletal muscle: oxygen uptake kinetics, near-infrared spectroscopy, high-resolution respirometry in permeabilized skeletal muscle fibers; peripheral and microvascular function.
- Physiological adjustments to exercise and functional evaluation of skeletal muscle oxidative metabolism in elderly, patients with metabolic myopathies, obese patients. Effects of training and other interventions.
- Effects of simulated microgravity and inactivity (bed rest) on skeletal muscle oxidative metabolism; effects of microgravity associated with hypoxia.

MAIN PUBLICATIONS

- Baldassarre G, Azzini V, **Zuccarelli L**, Degano C, Graniero F, Plett G, Floreani M, Lazzer S, Mos L, Grassi B (2023). In Cardiac Patients Beta-Blockers Attenuate the Decrease in Work Rate during Exercise at a Constant Submaximal Heart Rate. *Med Sci Sports Exerc.* Nov 1;55(11):1995-2001.
- Pilotto AM, Adami A, Mazzolari R, Brocca L, Crea E, **Zuccarelli L**, Pellegrino MA, Bottinelli R, Grassi B, Rossiter HB, Porcelli S (2022). Near-infrared spectroscopy estimation of combined skeletal muscle oxidative capacity and O₂diffusion capacity in humans. *J Physiol.* Sep;600(18):4153-4168.
- Zuccarelli L**, Baldassarre G, Magnesa B, Degano C, Comelli M, Gasparini M, Manferdelli G, Marzorati M, Mavelli I, Pilotto A, Porcelli S, Rasica L, Šimunič B, Pišot R, Narici M, Grassi B (2021). Peripheral impairments of oxidative metabolism after a 10-day bed rest are upstream of mitochondrial respiration. *J Physiol.* Nov;599(21):4813-4829.
- Narici M, Vito G, Franchi M, Paoli A, Moro T, Marcolin G, Grassi B, Baldassarre G, **Zuccarelli L**, Biolo G, di Girolamo FG, Fiotti N, Dela F, Greenhaff P, Maganaris C (2021). Impact of sedentarism due to the COVID-19 home confinement on neuromuscular, cardiovascular and metabolic health: Physiological and pathophysiological implications and recommendations for physical and nutritional countermeasures. *Eur J Sport Sci.* Apr;21(4):614-635.
- Sechi A, Zuccarelli L**, Grassi B, Frangiamore R, De Amicis R, Marzorati M, Porcelli S, Tullio A, Bacco A, Bertoli S, Dardis A, Biasutti L, Pasanisi MB, Devigili G, Bembi B (2020). Exercise training alone or in combination with high-protein diet in patients with late onset Pompe disease: results of a cross over study. *Orphanet J Rare Dis.* Jun 6;15(1):143.
- Zuccarelli L**, do Nascimento Salvador PC, Del Torto A, Fiorentino R, Grassi B (2020). Skeletal muscle V_{O2} kinetics by the NIRS repeated occlusions method during the recovery from cycle ergometer exercise. *J Appl Physiol* (1985). Mar 1;128(3):534-544.
- Zuccarelli L**, Porcelli S, Rasica L, Marzorati M, Grassi B (2018). Comparison between Slow Components of HR and V'O₂ Kinetics: Functional Significance. *Med Sci Sports Exerc.* Aug;50(8):1649-1657.

COMMUNICATIONS TO CONGRESSES

- Oral presentation at an international conference Congress: 21st European College of Sport Science (ECSS), Vienna, Austria (2016). Zuccarelli, L., Rasica, L., Marzorati, M., Porcelli, S., Grassi, B. Importance of slow component of HR and V'O₂ kinetics during submaximal cycling on exercise intensity prescription. From 06-07-2016 to 09-07-2016
- Oral presentation at an international conference Congress: 22nd European College of Sport Science (ECSS), MetropolisRuhr, Germany (2017). Zuccarelli, L., Rasica, L., Marzorati, M., Porcelli, S. Non-invasive evaluation of cardiovascular and metabolic responses to arm and leg exercise in elite kayakers. From 05-07-2017 to 08-07-2017
- Poster presentation at an international conference Congress: 65th American College of Sports Medicine (ACSM), Minneapolis, Minnesota, USA (2018). Zuccarelli, L., Rasica, L., Marzorati, M., Porcelli, S., Grassi, B. Comparison between slow component of HR and V'O₂: functional significance. From 29-05-2018 to 02-06-2018
- Poster presentation at an international conference Congress: 66th American College of Sports Medicine (ACSM), Orlando, Florida, USA (2019). Zuccarelli, L., Do Nascimento Salvador, P.C., Del Torto, A., Fiorentino, R., Grassi, B. Skeletal muscle V'O₂ kinetics by NIRS "repeated arterial occlusion method" during recovery from cycle ergometer exercise. From 28-05-2019 to 01-06-2019
- Poster presentation at an international conference Congress: 67th American College of Sports Medicine (ACSM), San Francisco, California, USA (2020), live virtual format. Zuccarelli, L., Magnesa B., Degano, C., Comelli, M., Gasparini, M., Manferdelli, G., Marzorati, M., Mavelli, I., Pilotto, A., Porcelli, S., Rasica, L., Šimunič, B., Pišot, R., Narici, M., Grassi B. The impairments of oxidative metabolism after 10-day bed rest are upstream of mitochondrial respiration. From 26-05-2020 to 30-05-2020
- Poster presentation at an international conference Congress: 68th American College of Sports Medicine (ACSM), live virtual format (2021). Zuccarelli, L., Magnesa B., Degano, C., Comelli, M., Gasparini, M., Manferdelli, G., Marzorati, M., Mavelli, I., Pilotto, A., Porcelli, S., Rasica, L., Šimunič, B., Pišot, R., Narici, M., Grassi, B. Short-term bed rest exposure impairs peripheral vascular and endothelial functions whereas mitochondrial respiration is unaffected. From 01-06-2021 to 05-06-2021
- Poster presentation at an international conference Congress: 69th American College of sports medicine (ACSM), San Diego, California, USA (2022). Zuccarelli, L., De Martino, M., Baldassarre, G., Monti, E., Narici, M., Isola, M., Lippe, G., Grassi, B. Mitochondrial sensitivity to submaximal ADP concentration following bed rest: a double-exponential model analysis. From 31-05-2022 to 04-06-2022

November 8th, 2023
Luzia Zuccarelli