

## PERSONAL INFORMATION

## Letizia Rasica



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Sex Female | Date of birth 26/07/1990 | Nationality Italian

## EDUCATION AND TRAINING

From 09/02/2020 – in progress

## Post-doctoral associate

Human Performance Lab, Faculty of Kinesiology, University of Calgary, Canada

Tutor: Juan Murias, PhD

From 01/12/2018 – to 30/11/2019

## Post-doctoral fellowship

Laboratory of physiopathology of exercise “R. Margaria”, Institute of Molecular Bioimaging and Physiology, National Research Council, Segrate (MI), Italy

Tutor: Simone Porcelli MD, PhD

16/01/2019

## PhD in Integrative Biomedical Research

Department of Biomedical Sciences for Health, University of Milan

- Place of research: Laboratory of physiopathology of exercise “R. Margaria”, Institute of Molecular Bioimaging and Physiology, National Research Council

Tutors: Prof. Antonio La Torre; Simone Porcelli MD, PhD

15/07/2014

## Master of Science in Science, Technique and Teaching of Sport

University of Milan, Faculty of Sport Science

- 110/110 cum laude

- Thesis entitled “Backward running: analysis of energy cost at different slopes”

Speaker: Prof. Antonio La Torre Supervisor: Gaspare Pavei, PhD

From 10/03/2014 – to 10/06/2014

## Internship

Laboratory of physiopathology of exercise “R. Margaria”, Institute of Molecular Bioimaging and Physiology, National Research Council, Segrate (MI), Italy

Topic: Functional evaluation of exercise tolerance and performance in people with different diseases, healthy subjects and athletes.

Supervisor: Simone Porcelli MD, PhD

19/07/2012

## Bachelor degree in Physical education, Sport and Health

University of Milan, Faculty of Sport Science

- 110/110 cum laude

- Thesis entitled “Comparing prescriptive method and heuristic method in motor learning”

Speaker: Prof. Giovanni Michielon

## TEACHING EXPERIENCE

AY 2015-2016

## Teaching assistant

AY 2016-2017

AY 2017-2018

AY 2018-2019

Exam committee member, Teaching course in Exercise physiology, Prof. Mauro Marzorati, Bachelor degree course in Sports science, Università Cattolica del Sacro Cuore di Milano

AY 2015-2016

AY 2016-2017

AY 2017-2018

Tutor activity, Teaching course in Individual sports and athletics: training theory and methodology, Prof. Antonio La Torre, Master degree course in Sports science, Università degli Studi di Milano

## SCHOLARSHIP

**Scholarship**

From 09/02/2020 – to 09/02/2022  
 From 01/12/2018 – to 30/11/2019

“Eyes High” Postdoctoral Scholar position, University of Calgary (110,000 \$CA)  
 Post-doctoral fellowship, Laboratory of physiopathology of exercise “R. Margaria”, Institute of Molecular Bioimaging and Physiology, National Research Council (19,367 €)  
 Topic: Novel Empowering Solutions and Technologies for Older people to Retain Everyday life activities (NESTORE)

From 01/10/2015 – to 30/09/2015  
 From 01/09/2014 – to 31/08/2015

PhD Scholarship, Università degli Studi di Milano (43,200 €)  
 Research Scholarship, Laboratory of physiopathology of exercise “R. Margaria”, Institute of Molecular Bioimaging and Physiology, National Research Council (13,367 €)  
 Topic: ACTIVE AGING - An advanced virtual environment for supporting training of physical and cognitive activities for preventing the occurrence of dementia in normally living elderly with minor cognitive disorders - GOJI

AY 2013 – 2014

Student grant for deserving master student from Provincia di Sondrio (2,000 €)

AY 2011 – 2012

Student grant for deserving student from University of Milan (1,800 €)

AY 2010 - 2011

**RESEARCH EXPERIENCE**

My scientific research experience started with the internship at the Laboratory of Physiopathology of Exercise, Institute of Molecular Bioimaging and Physiology, National Research Council, Segrate (MI), Italy. After the master degree I decided to continue in the academic field completing a PhD in Integrative Biomedical Research. My research works are mainly focused on exercise physiology and energetic metabolisms, in particular, mechanisms of regulation of muscular oxygen delivery and utilization in different conditions. During my PhD I investigated the effects of dietary nitrate supplementation on different populations like obese adolescents and healthy young and elderly participants and in different condition including hypoxic environment.

The main instrument utilized were:

- Metabolic cart
- Near-infrared spectroscopy (NIRS)
- Lactate analyzer
- Transthoracic bioimpedence
- Surface electromyography
- Transcutaneous nerve and muscle stimulator
- Bioimpedentiometry
- Cardiodfrequenzimeter
- Ergometers
- Chemiluminometer (NOx analyser)
- Ultrasound (FMD evaluation)
- CO rebreathing method

**INTERNATIONAL COLLABORATIONS**

11/2019

Visiting Researcher, United Kingdom  
 Visiting researcher at the University of the West of Scotland, Prof. Chris Easton's research group, to evaluate plasma nitrate and nitrite concentration by chemiluminescence in samples obtained during bed rest intervention in young healthy participants and after nitrate supplementation in elderly participants.

08/2019

Researcher, Slovenia  
 Researcher during bed rest campaign for the evaluation of new bio-markers in space medicine.

10/2016

Visiting PhD student, Australia  
 Visiting PhD student at Victoria University (Australia), Prof. Jason Allen's research group, who has a strong experience in evaluating the effects of dietary nitrate supplementation in disease populations. Under the supervision of Dr. Alessandra Ferri I was able to learn the use of surface electromyography and electrical muscle and nerve stimulation to evaluate neuromuscular function. This technique was further applied to investigate the effects of nitrate supplementation on contractile properties in elderly participants. The manuscript reporting these data is in preparation.

10/2015 - 06/2020

Visiting PhD student, United States  
 Visiting PhD student at Auburn University, in Prof. Bruce Gladden's laboratory, to evaluate the effect of nitrite infusion on oxidative metabolism and mitochondrial efficiency in canine isolated skeletal muscle.

## PUBLICATIONS

Co-author of 18 publications ISI, 300 citations, h-index 8 (Scopus)

Colosio A, **Rasica L**, Baldassarre G, Temesi J, Vernillo G, Marzorati M, Porcelli S. Performance fatigability and recovery after dynamic multi-joint maximal exercise in elbow flexors versus knee extensors. *Am J Physiol Regul Integr Comp Physiol* 323(3):R300-R309. doi: 10.1152/ajpregu.00173.2021.

Baldassarre G, Zuccarelli L, Manfredelli G, Manfredini V, Marzorati M, Pilotto A, Porcelli S, **Rasica L**, Simunic B, Pisot R, Narici M, Grassi B. Decrease in work rate in order to keep a constant heart rate: biomarker of exercise intolerance following a 10-day bed rest. *J Appl Physiol* 132(6):1569-1579, 2022 doi: 10.1152/jappphysiol.00052.2022.

**Rasica L** & Zuccarelli L. Fake it until you make it: impostor phenomenon at early stages of the academic career. Commentary on Viewpoint: A (Baker's) Dozen Tips for Enhancing Early-Stage Academic Career Development in Biomedical Research. *J Appl Physiol* 131(5):1516-1519, 2021 doi: 10.1152/jappphysiol.00713.2021.

**Rasica L**, Inglis EC, Iannetta D, Soares RN, Murias JM. Fitness level- and sex-related differences in macro- and micro-vascular responses during reactive hyperemia. *Med Sci Sports Exerc* 1;54(3):497-506,2022 doi: 10.1249/MSS.0000000000002806.

Zuccarelli L, Baldassarre G, Magnesa B, Degano C, Comelli M, Gasparini M, Manfredelli G, Marzorati M, Mavelli I, Pilotto A, Porcelli S, **Rasica L**, Simunic B, Pisot R, Narici M, Grassi B. Peripheral impairments of oxidative metabolism after a 10-day bed rest are upstream of mitochondrial respiration. *J Physiol* 599(21):4813-4829, 2021 doi: 10.1113/JP281800.

**Rasica L**, Porcelli S, Limper U, Mrakic-Sposta S, Mazzolari R, Gelmini F, Beretta G, Marzorati M. Beet on Alps: Time-course changes of plasma nitrate and nitrite concentrations during acclimatization to high-altitude. *Nitric Oxide* 107: 66-72, 2021. doi: 10.1016/j.niox.2020.12.004.

Mrakic-Sposta S, Gussoni M, Dellanoce C, Marzorati M, Montorsi M, **Rasica L**, Pratali L, D'Angelo G, Martinelli M, Bastiani L, Di Natale L, Vezzoli A. Effects of acute and sub-acute hypobaric hypoxia on oxidative stress: a field study in the Alps. *Eur J Appl Physiol* 121(1): 297-306, 2021. doi: 10.1007/s00421-020-04527-x.

**Rasica L**, Porcelli S, Minetti AE, Pavei G. Biomechanical and metabolic aspects of backward (and forward) running on uphill gradients: another clue towards an almost inelastic rebound. *Eur J Appl Physiol* 120(11):2507-2515, 2020. doi: 10.1007/s00421-020-04474-7.

Porcelli S, **Rasica L**, Ferguson BS, Kavazis AN, McDonald J, Hogan MC, Grassi B, Gladden LB. Effect of Acute Nitrite Infusion on Contractile Economy and Metabolism in Isolated Skeletal Muscle in Situ During Hypoxia. *J Physiol* 598(12):2371-2384, 2020. doi: 10.1113/JP279789.

Trecroci A, Porcelli S, Perri E, Pedrali M, **Rasica L**, Alberti G, Longo S, Iaia FM. Effects of Different Training Interventions on the Recovery of Physical and Neuromuscular Performance After a Soccer Match. *J Strength Cond Res* 34(8):2189-2196, 2020. doi: 10.1519/JSC.0000000000003269.

Pilotto AM, **Rasica L**, Scalise G, Annoni S, La Torre A, Marzorati M, Porcelli S. New On-Water Test for the Assessment of Blood Lactate Response to Exercise in Elite Kayakers. *Med Sci Sports Exerc* 51(12):2595-2602, 2019. doi: 10.1249/MSS.0000000000002077.

**Rasica L**, Porcelli S, Marzorati M, Salvadego D, Vezzoli A, Agosti F, De Col A, Tringali G, Jones AM, Sartorio A, Grassi B. Ergogenic effects of beetroot juice supplementation during severe-intensity exercise in obese adolescents. *Am J Physiol Regul Integr Comp Physiol* 315(3):R453-R460, 2018. doi: 10.1152/ajpregu.00017.

Mastropietro M, Porcelli S, Cadioli M, **Rasica L**, Scalco E, Gerevini S, Marzorati M, Rizzo G. Triggered Intravoxel Incoherent Motion MRI for the Assessment of Calf Muscles Perfusion during Isometric Exercise. *NMR Biomed* 31(6):e3922, 2018. doi: 10.1002/nbm.3922.

Zuccarelli L, Porcelli S, **Rasica L**, Marzorati M, Grassi B. Comparison between slow components of HR and  $\dot{V}O_2$  kinetics: functional significance. *Med Sci Sports Exerc* 50(8):1649-1657, 2018. doi: 10.1249/MSS.0000000000001612.

Porcelli S, **Rasica L**, Marzorati M. Commentary on viewpoint: Principles, insights and potential pitfalls of the non-invasive determination of muscle oxidative capacity by near-infrared spectroscopy. *J Appl Physiol* 124(1):249-255, 2018. doi: 10.1152/jappphysiol.00857.2017.

Porcelli S, Pugliese L, Reich E, Pavei G, Bonato M, Montorsi M, LaTorre A, **Rasica L**, Marzorati M. Effects of a Short-Term high-Nitrate Diet on Exercise Performance. *Nutrients* 8:E534, 2016. doi: 10.3390/nu8090534.

Porcelli S, Bellistri G, Pugliese L, **Rasica L**, Marzorati M, Pavei G. Commentaries on Viewpoint: Can elite athletes benefit from dietary nitrate supplementation? *J Appl Physiol* 119(6):762-769, 2015. doi: 10.1152/jappphysiol.00640.2015.

Porcelli S, Ramaglia M, Bellistri G, Pavei G, Pugliese L, Montorsi M, **Rasica L**, Marzorati M. Aerobic fitness affects the exercise performance responses to nitrate supplementation. *Med Sci Sports Exerc* 7(8):1643-51, 2015. doi: 10.1249/MSS.0000000000000577

## CONGRESS COMMUNICATIONS

**Rasica L**, Inglis EC, Iannetta D, Murias JM.

"Methodological considerations for the assessment of near-infrared spectroscopy derived skeletal muscle oxidative capacity"

Oral presentation Canadian Society for Exercise Physiology (CSEP) Fredericton 05/11/2022

**Rasica L**, Inglis EC, Iannetta D, Murias JM.

"Near-infrared spectroscopy assessment of skeletal muscle oxidative capacity: methodological considerations"

Oral presentation 27<sup>th</sup> annual Congress of the European College Sport Science (ECSS) Sevilla 01/09/2022

**Rasica L**, Inglis EC, Iannetta D, Soares RN, Murias JM.

"Fitness level- and sex-related differences in FMD responses"

Poster presentation Canadian Society for Exercise Physiology (CSEP) Online congress 14/10/2021

**Rasica L**

"BEETer AGING" Effects of dietary nitrate supplementation on exercise efficiency and muscle contractile properties in elderly people"

Invited presentation 25<sup>th</sup> annual Congress of the European College Sport Science (ECSS) Online congress 30/10/2020

**Rasica L**

"Enhanced nitric oxide bioavailability & exercise tolerance at high altitude"

Webinar Hypoxia Physiology Virtual Environmental Ergonomics (ICEE2021) 11/06/2020

**Rasica L**, Marzorati M, Gelmini F, Beretta G, Porcelli S.

"Effects of dietary nitrate supplementation on skeletal muscle fractional O<sub>2</sub> extraction in hypobaric hypoxia"

Oral presentation 24<sup>th</sup> annual Congress of the European College Sport Science (ECSS) Prague 06/07/2019

**Rasica L**, Porcelli S, Salvadego D, Mrakic-Sposta S, Gelmini F, Beretta G, Marzorati M.

"BEet On Alps": ergogenic effects of dietary nitrate supplementation on cycling and arm-cranking during a prolonged exposure to high altitude"

Oral presentation 10<sup>th</sup> International Conference on the Biology, Chemistry and Therapeutic Applications of Nitric Oxide Oxford 19/09/2018 \* NO Society Travel grant awarded

**Rasica L**, Porcelli S, Salvadego D, Mrakic-Sposta S, Gelmini F, Beretta G, Marzorati M.

"BEet On Alps": ergogenic effects of dietary nitrate supplementation on cycling and arm-cranking during a prolonged exposure to high altitude"

Oral presentation 23<sup>rd</sup> annual Congress of the European College Sport Science (ECSS) Dublin 03/07/2018

**Rasica L**, Porcelli S, Salvadego D, Mrakic-Sposta S, Gelmini F, Beretta G, Marzorati M.

"BEet On Alps": ergogenic effects of dietary nitrate supplementation at high altitude"

Invited speaker 7<sup>th</sup> international congress Mountain, Sport & Health (MSH) Rovereto 09/11/2017

**Rasica L**, Porcelli S, Ferguson BS, Kavazis AN, McDonald JR, Mowry F, Sun Y, Hogan MC, Grassi B, Gladden B.

"Nitrate infusion does not alter isolated in situ canine muscle oxidative metabolism during hypoxia with normal convective O<sub>2</sub> delivery"

Oral presentation VIII Congresso Nazionale Società Italiana delle Scienze Motorie e Sportive (SISMES) Roma 7/10/2016

**Rasica L**, Salvadego D, Porcelli S, Marzorati M, Montorsi M, Sartorio A, Grassi B.

"Dietary nitrate supplementation and exercise tolerance in obese adolescents"

Mini-oral presentation 21<sup>st</sup> annual Congress of the European College Sport Science (ECSS) Vienna 06/07/2016

**Rasica L**, Salvadego D, Porcelli S, Marzorati M, Montorsi M, Sartorio A, Grassi B.

"Effects of dietary nitrate supplementation on exercise tolerance in obese adolescents"

Poster presentation VII Congresso Nazionale Società Italiana delle Scienze Motorie e Sportive (SISMES) Padova 4/10/2015 \* SISMES best poster award winner

## REVIEWER ACTIVITY

Reviewing activity for Medicine and Science in Sports and Exercise, Frontiers in Physiology, Nutrients, Sports Sciences for Health, European Journal of Sport Science

## PERSONAL SKILLS

Mother tongue

Italian

Other language

English

Computer skills

- good knowledge of Microsoft Windows operating system and key applications (Office, Powerpoint, Excel, etc.)
- good knowledge of Mac OS X operating systems and major applications (Keynote, Pages, etc.)
- good knowledge of data analysis software GraphPad Prism 8

Driving licence

Class 5