

PERSONAL INFORMATION

Martina Anna Maggioni

POSITION

Assistant Professor of Physiology, Department of Biomedical Sciences for Health, Università degli Studi di Milano, Italy

Senior Researcher, Institute of Physiology, Center for Space Medicine and Extreme Environments Berlin, Charité Universitätsmedizin Berlin

PERSONAL STATEMENT

Martina A. Maggioni has accumulated years of experience in the development of methods of biosignals analysis. Already as a Ph.D. student, she is working in National Research Projects of the Italian Ministry of Health (1. "Study of body composition and its changes in subjects with neuro-motor disabilities" - 1999-2001; 2. "Study of cardiovascular risk factors in selected patient populations, including young people, the elderly, wheelchair users, and athletes" - 2001-2003), she began her experience in this specific field. She reached high expertise in the interpretation of the response of physiological control mechanisms to different conditions, as postural changes, autonomic diseases (especially those secondary to neuro-muscular disorders and spinal cord injury), aging, or living in extreme environments (high altitude studies), with the processing and analysis of biosignals. As a research fellow at Sports Medicine Centre, she developed great experience in exercise physiology and testing, especially by investigating: the effects of aerobic exercise on the cardio-respiratory and metabolic profile in healthy, athletic and pathological subjects; the metabolic cost of locomotion in healthy, athletic and in subjects with neuromuscular pathologies and by performing studies on heart rate variability as a method to determine training efficacy and avoid overtraining. She has long-time experience in rehabilitation programs, in particular regarding elderly and long-term hospitalized individuals. She also has active collaborations in the design, validation, and realization of advanced miniaturized devices for recording physiological variables interfering as less as possible with the subject activities.

As she joined the Centre of Space Medicine in Berlin, with her background in biosignals analysis and assessment of cardiovascular autonomic control, she was co-investigator in several studies (e.g. "Circadian Rhythm", currently on the International Space Station, ESA long-term bed rest). She also participated as a co-worker in collaborative studies with the "Alfred-Wegener-Institute for Polar- and Marine Research", studies designed to monitor physiological adaptations of small crews overwintering for > 12 months in Antarctic Station, which is suitable for space analogs. She also received a grant from DAAD - German Academic Exchange Service- for a project on an analog of microgravity: "Bed rest and head-out water immersion: acute effects on cardiovascular autonomic control and brain function. - The BRICAB study", where are investigated the effects of short-term simulated microgravity, induced by head-out water immersion and head down bed rest on brain function in humans and its underlying neurophysiologic mechanisms, using a model of cardiovascular-cortical integration. Currently, she is involved as co-investigator in SEVEN ongoing Projects, ESA & NASA Sponsored. Finally, she wrote as Principal Investigator a proposal for the ESA announcement of opportunity for human research using Concordia as human exploration analogue (ao-2017-Concordia), entitled: "Evaluation of circadian rhythm alterations by functional biomarkers during winter over at Concordia (CardiCortEx)", which on October 2018 has been selected with high scientific merit from the ESA review board.

WORK EXPERIENCE

- From 1.11.2018-present** **Senior Researcher, Institute of Physiology, Center for Space Medicine and Extreme Environments Berlin, Charité Universitätsmedizin Berlin**
 CCO Virchowweg 6, Charitéplatz 1, 10117 Berlin
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Coordination of research projects, teaching and tutoring for medical students
- From 1.11.2010-present** **Assistant Professor, Department of Biomedical sciences for Health, University of Milan.**
 Via G. Colombo 71
 20122 Milano Italy
 Email: martina.maggioni@unimi.it
 Taught Human Physiology Course at School of Exercise and Sport Science, and Physiology for Health Course at Master Programme Exercise Science for Healthy Life, University of Milan.
- From 1.11.2006-1.11.2010** **Research Associate, “Institute of Physical Exercise Health and Sports Activity” IEFSAS Faculty of Exercise and Sport Sciences University of Milan.**
 Teaching assistant Exercise Physiology Course at School of Exercise Science, University of Milan
- From 1.02.2004 to 31.08.2004**
& from 1.11.2004 to 31.07.2006 **Research Associate**, Centre of Sports Medicine, Don Carlo Gnocchi Foundation, Milan.
- From 5.01.2001 to 15.12.2004** **Internship** at the “International Centre for the Assessment of Body Composition”, Department of Food, Environmental and Nutritional Sciences, University of Milan as a Ph.D. Student Human Physiology, Nutrition and Body Composition
- From 3.03 to 31.12.2000** **Student** at C.E.L.T. - Centre of English Language Teaching, University of Western Australia (U.W.A.) Perth, WA. Living in Perth (Western Australia- WA) and working as swimming teacher.

EDUCATION AND TRAINING

- March 2017 **German T.E.L.C. C1 Hochschule (language certificate), Berlin, GER**
- Jan. 2001- Dec. 2004 **PhD Human Physiology, Nutrition and Body Composition** (Full Marks)
 University of Roma 2 “Tor Vergata”, Italy
- December 2001 **Degree Exercise Sciences (Human movement)** (110 cum Laude)
 Faculty of Medicine, University of Milan, Italy
- December 2000 **English Certificate of C.E.L.T. - Centre of English Language Teaching** (A+)
 University of Western Australia (U.W.A.) Perth, WA
- March 2000 **Bachelor’s Degree in Human Movement Sciences** (110 cum Laude)
 Italian Superior Institute of Physical Education, I.S.E.F. of Lombardia, Milano Italy

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
English Certificate Perth University (C.E.L.T.) UWA, Western Australia					
German	C1	C1	C1	C1	C1
TELC C1 Hochschule, Berlin					

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user
[Common European Framework of Reference for Languages](#)

Communication skills good communication skills gained through my experience as a lecturer, teacher and coordinator as of international scientific projects

Job-related skills

Fitness level assessment
 Athletes and sedentary people of different ages exercise testing procedures, for able-bodied and disabled people, with disability-specific ergometers.
Cardiopulmonary test for maximal oxygen consumption:

- Open-circuit method (Douglas Bags)
- Breath-by-breath portable metabolimeter (Cosmed K4 b2) and laboratory devices (Vmax29 Sensormedics / Quark B2 Cosmed)
- Resting and exercise electrocardiogram
- Finometer PRO (non-invasive beat-to-beat blood pressure monitoring)
- Polar (beat-to-beat heart rate monitoring and recording)

Body composition assessment:

- Skinfold thicknesses
- Bio impedance analysis
- DXA
- BOD POD

Nutritional status assessment:

- 7-days diary
- Food frequency questionnaire
- Sports diet prescription

Chronobiology, circadian rhythms assessment cosinor analysis

Digital skills Operating systems: MacOS, Windows 2007-2010;
 Word processing (Microsoft Word);
 Spreadsheets (Microsoft Excel);
 Statistical analysis (Statistica: Sigmaplot);
 Presentations (Microsoft Power Point);
 R programming
 MATLAB
 Software analysis for Heart Rate Variability (Kubios 2.0, Nevrokard 1.5)

 ADDITIONAL INFORMATION

Metrics & Citations
Publications
 (selection 2015- present)

 30 original articles, *h* index: 9, Citations 300

- **Maggioni MA**, Bonato M, Stahn AC, La Torre A, Agnello L, Vernillo G, Carlo Castagna C, Giampiero Merati G. Effects of ball-drills and repeated sprint ability training in basketball players. *Int J Sports Physiol Perform*. 2018 Dec 20:1-24. [Epub ahead of print]
- **Maggioni MA**, Castiglioni P, Merati G, Brauns K, Gunga H-C, Mendt S, Opatz O, Rundfeldt LC, Steinach M, Werner A, Stahn AC. High-intensity exercise mitigates cardiovascular deconditioning during long-duration bed rest. *Front Physiol*. 2018 Nov 19;9:155
- Opatz O, Nordine M, Habazettl H, Ganse B, Petricek J, Dosel P, Stahn A, Steinach M, Gunga H-C, **Maggioni MA**. Limb Skin Temperature as a Tool to Predict Orthostatic Instability. *Front Physiol*. 2018; 9: 1241.
- Zeynep Masatli Z, Nordine M, **Maggioni MA**, Mendt S, Hilmer B, Brauns K, Anika Werner, Schwarz A, Habazettl H, Gunga H-C, Opatz OS. Gender-Specific Cardiovascular Reactions to +Gz Interval Training on a Short Arm Human Centrifuge. *Front Physiol*. 2018; 9: 1028
- Rundfeldt LC* and **Maggioni MA***, Coker RH, Gunga HC, Riveros-Rivera A, Schalt A, Steinach M. Cardiac Autonomic Modulations and Psychological Correlates in the Yukon Arctic Ultra: The Longest and the Coldest Ultramarathon. *Frontiers in Physiology* 9, February 2018 *These Authors contributed equally to the paper
- Stahn AC, Werner A, Opatz O, **Maggioni MA**, Steinach M, von Ahlefeldt VW, Moore A, Crucian BE, Smith SM, Zwart SR, Schlabs T, Mendt S, Trippel T, Koralewski E, Koch J, Choukèr A, Reitz G, Shang P, Röcker L, Kirsch KA, Gunga HC. Increased core body temperature in astronauts during long-duration space missions. *Scientific Reports* 7, December 2017.
- Mendt S, **Maggioni MA**, Nordine M, Steinach M, Opatz O, Belavý D, Felsenberg D, Koch J, Shang P, Gunga HC, Stahn A. Circadian rhythms in bed rest: Monitoring core body temperature via heat-flux approach is superior to skin surface temperature. *Chronobiol Int*. 2017;34(5):666-676.
- Steinach M, Kohlberg E, **Maggioni MA**, Mendt S, Opatz O, Stahn A, Tiedemann J, Gunga HC. Changes of 25-OH-Vitamin D during Overwintering at the German Antarctic Stations Neumayer II and III. *PLoS One*. 2015 Dec 7;10(12):e0144130.
- Steinach M, Kohlberg E, **Maggioni MA**, Mendt S, Opatz O, Stahn A, Gunga HC. Sleep Quality Changes during Overwintering at the German Antarctic Stations Neumayer II and III: The Gender Factor. *PLoS One*. 2016 Feb 26;11(2):e0150099.

- Villa F, Magnani A, **Maggioni MA**, Stahn A, Rampichini S, Merati G, Castiglioni P. Wearable Multi-Frequency and Multi-Segment Bioelectrical Impedance Spectroscopy for Unobtrusively Tracking Body Fluid Shifts during Physical Activity in Real-Field Applications: A Preliminary Study. *Sensors (Basel)*. 2016 May 11;16(5).
- Nordine M, **Maggioni MA**, Stahn A, Mendt S, Brauns K, Gunga HC, Habazettl H, Nitsche A, Opatz O. Form influences function: Anthropometry and orthostatic stability during sustained acceleration in a short arm human centrifuge. *Acta Astronautica* 05/2015; 115C:138-146.
- Merati G, **Maggioni MA**, Invernizzi PL, Ciapparelli C, Agnello L, Veicsteinas A, Cè E. Autonomic modulations of heart rate variability and performances in short-distance swimmers. *Eur J Appl Physiol*. 2015 Apr;115(4):825-35.
- Pugliese L, Porcelli S, Bonato M, Pavei G, La Torre A, **Maggioni MA**, Bellistri G, Marzorati M. Effects of Manipulating Volume and Intensity Training in Masters Swimmers. *Int J Sports Physiol Perform*. 2015 Feb 24.
- Cè E, **Maggioni MA**, Boniello S, Veicsteinas A, Merati G. Anthropometric and physiologic profiles of female professional yoga practitioners and energy expenditure during asanas execution. *J Sports Med Phys Fitness*. 2015 Jan-Feb;55(1-2):51-7.

Grants
2018-2024

Principal Investigator and study coordinator in the project “Evaluation of circadian rhythm alterations by functional biomarkers during winter over at Concordia (CardiCortEx)”, AO-2017 Selected Proposal, European Space Agency (ESA)

Co- Investigator in the project “Human Sexual Wellbeing and Security in Isolation and Confinement” AO-2017 selected proposal European Space Agency (ESA)

2013-2022

Co- Investigator in several sponsored studies:

- European Space Agency (ESA) sponsored ILSRA Spaceflight Study (Circadian Rhythms);
- ESA sponsored Bed Rest Studies (MEDES Cocktail B.R.);
- National Aeronautics and Space Administration (NASA) sponsored study in the Human Exploration Research Analog (HERA C4);
- NASA selected Bed Rest Study (Hyper.Campus);
- Several following campaigns of “Long-term isolation studies in Antarctica” (Neumayer Station III).

2013- 2015

DAAD - German Academic Exchange Service - scholarship for the project: “Bed rest and head-out water immersion: acute effects on cardiovascular autonomic control and brain function. - The BRICAB study”

Conferences & Seminars
(Selection)

AO-2017-Concordia Investigator Working Group Meeting, 16 November 2018 European Space Research and Technology Centre, Noordwijk, The Netherlands

69th International Astronautical Congress, IAC2018, 2- 5 October 2018 Bremen (GER)

International Society for Gravitational Physiology (ISGP) and European Space Agency (ESA) Life Sciences Meeting 2018 (which combines the 39th Annual International Gravitational Physiology Meeting and the ESA Space meets Health initiative), Noordwijk, the Netherland 18-22 June 2018

European Space Agency (ESA) AO-2017-Concordia Proposal Workshop Einstein meeting room ESTEC, ESA 19-20 February 2018, Noordwijk, (The Netherlands)

Invited Lecturer - Physiology Seminars, Faculty of Medicine, Pontificia Universidad Javeriana, Bogotá-Colombia:

- a) Cardiac autonomic modulation. Heart rate variability in clinic and in research
- b) Cardiac Autonomic Modulation in Extreme Environments: from Earth to Space Bogotá 22-27 November 2017 (COL)

20th IAA Human in Space Symposium (HIS) June 29- July 07 2015 Prague, (CZECH REP)
Nationales Symposium „Forschung unter Weltraumbedingungen

Landesmuseum Bonn 28 -30 Oktober 2015, Boon, (GER)

52. Jahrestagung der Deutsche Gesellschaft fuer Luft-und Raumfahrtmedizin (DGLRM) - 52th Annual Meeting of the German Association of Aviation and Space Medicine (DGRLM) - 23-25 October 2014 Heidelberg, (GER)

6th International Congress of Medicine in Space and Extreme Environments (ICMS) September 16-19 2014, Berlin, (GER)

19th IAA Symposium Humans in Space -Linking the challenges of space exploration with medicine on Earth July 7-12 2013, Cologne, (GER)

American College of Sports Medicine - ACSM- ANNUAL MEETING
May 29- June 2, 2012, San Francisco, California (US).

SISMES (SISMES: Italian Society of Sports and Movements Sciences) Congress, Verona (ITA) 2011

62th SIF (SIF: Italian Physiological Society) National Congress, Sorrento (ITA) 2011

Invited Lecturer - Congress and Educational Course Exercise Therapy for Spinal cord injury people: from research to application in Spinal Unit. Niguarda “Ca’ Granda” Hospital, Milano (ITA) 2005.

**Presentations
(Selection)**

- Maggioni MA, Gunga H-C, Porcelli S, Castiglioni P, Merati G, Stahn AC. “Evaluation of circadian rhythm alterations by functional biomarkers during winter over at Concordia (CardiCortEx)”, AO-2017 Concordia Investigator Working Group Meeting, 16 November 2018 ESA- ESTEC, Noordwijk, The Netherlands
- Maggioni MA, Castiglioni P, Merati G, Brauns K, Werner A, Stefan Mendt S, Opatz O, Gunga H-C, Stahn AC. High-Intensity Exercise to Counteract Cardiovascular Deconditioning during Simulated Weightlessness. 69th International Astronautical Congress (IAC), Bremen, Germany, 1-5.10. 2018, Oral
- Maggioni MA, Castiglioni P, Merati G, Brauns K, Werner A, Stefan Mendt S, Steinach M, Gunga H-C, Stahn AC. Reduced Parasympathetic Outflow during Overwintering in Antarctica
- 69th International Astronautical Congress (IAC), Bremen, Germany, 1-5.10. 2018, Oral
- Maggioni MA, Castiglioni P, Merati G, Brauns K, Werner A, Stefan Mendt S, Gunga H-C, Stahn AC. High-intensity training as cardiovascular countermeasure day bed rest. 18-22.06.2018 ESA - ESTEC, Noordwijk The Netherlands, Oral
- Maggioni MA, Castiglioni P, Merati G, Brauns K, Werner A, Stefan Mendt S, Gunga H-C, Stahn AC. Cardiac autonomic modulation during 14-month Overwintering at the Antarctic Station Neumayer III. 18-22.06.2018 ESA -ESTEC, Noordwijk The Netherlands, Oral
- Maggioni MA, Castiglioni P, Merati G, Stefan Mendt S, Stahn AC, Porcelli S, Gunga H-C, Evaluation of circadian rhythm alterations by functional biomarkers during winter over at Concordia - (CardiCorTEEx). AO-2017-Concordia Proposal Workshop, ESA-ESTEC Noordwijk, The Netherlands February 2018, Oral
- Stahn A, Brauns K, von Meer D, Lieu V, Gunga HC, Opatz O, Castiglioni P, Merati G, Maggioni MA Changes in Electro-Cortical Activity During Head Out Water Immersion. IAA Human in Space Symposium (HIS) Prague (CZECH REP) 2015, Oral
- and Space Medicine (DGRLM) Heidelberg (GER) 2014. Poster
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- Stahn A, Maggioni MA, Villa F, Laing C, Mulder E., Rittweger J, Petrat G, Merati G, Opatz O, Gunga HC, Castiglioni P. Application of a new mobile segmental bioimpedance spectroscopy device for tracking fluid shifts during different g-levels. IAA Human in Space Symposium (HIS) Prague (CZECH REP) 2015 Oral
- Maggioni MA, Merati G, Veicsteinas A, Rampichini S, Agnello L, Gunga HC, Stahn A. Long-term haematological adaptation in native populations across different level of altitude. 52. Jahrestagung der Deutsche Gesellschaft fuer Luft-und Raumfahrtmedizin (DGLRM) - 52th Annual Meeting of the German Association of Aviation
- Maggioni MA, Merati G, Castiglioni, P von Meer D, Brauns K, Lieu V, Pottinger E, Opatz O, Gunga HC, Stahn A. Autonomic cardiovascular control during head-out water immersion and head-down bed rest. 6th International Congress of Medicine in Space and Extreme Environments (ICMS) Berlin (GER) 2014. Oral
- Nordine, M Brauns K, Maggioni MA, Gunga HC, Opatz O. Cardiovascular adaptations during sustained acceleration in a short-arm human centrifuge Increases in heart rate, and total peripheral resistance are the main counter-measures during consecutive +g-force exposure. 65th International Astronautical Congress (IAC) Toronto (CAN) 2014, Oral
- Mendt S, Opatz O, Maggioni MA, Gunga HC, Stahn A. Comparison of double sensor, skin, and rectal temperature recording for determining circadian rhytm. 52. Jahrestagung der Deutsche Gesellschaft fuer Luft-und Raumfahrtmedizin (DGLRM) - 52th Annual Meeting of the German Association of Aviation and Space Medicine (DGLRM) Heidelberg (GER) 2014- POSTER PRIZE AWARD
- Opatz O, Maggioni MA, Stahn A, Steinach M Can skin temperature recordings predict GLOC? 65th International Astronautical Congress (IAC) Toronto (CAN) 2014. Poster
- Stahn A, Mendt S, Werner A, Opatz O, Maggioni MA, M. Steinach M, Gunga HC. Phase shifts of circadian core body temperature profiles during Mars500. 65th International Astronautical Congress (IAC) Toronto (CAN) 2014. Oral

Personal information

I authorize the handling of personal information in this curriculum, according to D.Lgs n. 196/03 and following modifications and Regulations EU 679/2016 (General Regulations concerning Data Protection or GRDP) and art. 7 of University Regulations concerning protection of personal information.

I authorize, according to D.lgs 14/03/2013 n. 33 concerning transparency, in case of conferment of the position and of the fellowship, the publication of this curriculum in the web site of Università degli Studi di Milano in the section "Amministrazione trasparente", "Consulenti e collaboratori".

Date, 14.01.2019

Signature

A handwritten signature in black ink, reading "Martina Maggioni", is displayed on a light gray rectangular background.