



## ENERGETIC, CARDIOPULMONARY AND NEUROMUSCULAR CHARACTERISTICS OF ECCENTRIC EXERCISE AND THE EFFECTS OF TRAINING IN HEALTHY YOUNG SUBJECTS, IN THE PERSPECTIVE OF DEFINING ACCURATE TRAINING PRINCIPLES FOR THE PREVENTION OF CHRONIC DISEASES AND AGEING DETERIORATION

*PhD Candidate:* **Beatrice Maspes**

*Email:* [beatrice.maspes@unibs.it](mailto:beatrice.maspes@unibs.it)

**XL Cycle**

*Tutor:* Professor Guido Ferretti



### Background

03/10/2022 bachelor degree in Sports Science – University of Brescia

10/10/2024 master degree in Sciences and Techniques of Preventive and Adapted Physical Activities – University of Brescia

Since 01/11/2024 PhD in Technology for Health – Laboratory of Integrative Physiology, University of Brescia

This PhD project focuses on the association of technological developments facilitating the management of chronic diseases in an ageing society and assisting the quality of life of frail people in urban environments. The project aims to develop new therapeutic approaches, especially in terms of exercise therapy and lifestyles.

### Objectives

The first aim of this project is to acquire a better knowledge of the physiological and energetic responses to eccentric exercise, allowing the definition of more precise and targeted guidelines for the prescription of eccentric exercise training. The second aim is to elucidate some mechanisms of the beneficial effects of eccentric exercise training.

### Methodologies

Different tests and protocols both for concentric and eccentric exercise. using a novel type of specific ergometer for eccentric muscle contraction that we test and validate. [Fig. 1]

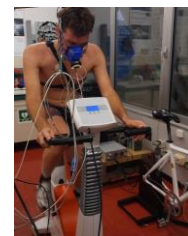


FIGURE 1. YOUNG MAN CYCLING DURING A TEST.

### Expected Results and Impact

Eccentric exercise training may provide a strong training stimulus for contracting muscles, so that it may be used for obtaining simultaneous cardiovascular and muscular training effects. Eccentric exercise can be used for rehabilitation of people with chronic diseases.