Title: Energy expenditure of different size of mountain bike rims

Objectives: The goal of this bachelor thesis is to gather and provide information on different energy expenditure (EE) of the organism when riding mountain bikes with different size of rims, while also considering different terrain.

Methods: This thesis contains an experiment based on intra-individual measurements, which involved three participants of a similar age, weight, height and physical fitness. EE rate was determined based on the volume of oxygen consumption (VO2) and the amount of exhaled carbon dioxide (VCO2), i.e. by indirect calorimetry. For the measurement of respiratory gases device, we used Metamax 3B. The testing was performed with two wheel sizes, with diameters of 26 "and 29". The runs were carried out on natural circuit with different types of surface. Research participants completed two laps on both types of wheels. One ride lasted an average of 7:04 minutes.

Results: We did not find a significant difference in energy expenditure (EE) when riding a mountain bike with the rims with a diameter of 26" and while riding on rims with a diameter of 29". The results of the experiment showed a slight difference in favour of the wheel diameter 29" however, regarding the standard error of measurement, this difference seems negligible and inconsequential.