

INTRODUCTION

The active urban mobility and its relation to the health of the population have encouraged the study of non-motorized means of transportation. Therefore, we have proposed a study on the use of bicycles in the mountainous city of Belo Horizonte, located in Brazil, in the State of Minas Gerais. People in this city have not developed the habit of commuting by bicycle on a daily basis probably because, in the past, these vehicles were heavier and did not have the technology that is available today.

OBJETIVE

The aim of this study was to evaluate the changes in the participants' clinical parameters during a predefined journey, using the bicycle as the means of transportation. People over 35 years old and with different functional capacities were studied, one group being formed by sedentary individuals and the other one by physically active individuals, according to criteria used by the World Health Organization (WHO). WHO defines physical activity as any bodily movement produced by skeletal muscles that requires energy expenditure – including activities undertaken while working, playing, carrying out household chores, travelling, and engaging in recreational pursuits. Physically active individuals should do at least 150 minutes of moderate-intensity physical activity throughout the week.

METHOD

22 volunteers: 11 subjects physically active and 11 sedentary subjects. The groups had similar characteristics.

Table 1 – Participant group features

Anthropometric measurements	All subjects			Physically active subjects (> 150min per week)			Sedentary (< 150 min per week)		
	average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum
Age (years)	43,2	59	30	43,5	56	31	42,8	59	30
Weight (kg)	74,2	92	53	73	92	53	75,5	83	60
Height (meters)	1,71	1,82	1,58	1,71	1,81	1,58	1,71	1,82	1,61
Body Mass Index (BMI) = W/H ²	25,3	30,7	21,2	24,7	28,1	21,2	26,0	30,9	21,3
Time spent per week in physical activity (minutes per week)	153	360	0	253	360	150	51	120	0

Athletes and people who suffer from any severe cardiovascular disease were excluded. The total length of the journey was 5.2 km, 3.8 km of which taking place on a bicycle path. The volunteer participants made the same journey accompanied by a cyclist doctor and each of them carried a backpack of 3 kg to simulate the weight of a baggage of everyday use. It was performed a comparison of the physiological impact (heart rate, blood pressure, presented symptoms) and of the modified Borg's scale of subjective perception. The participants filled in a questionnaire form before and after the completion of the course.

Figure 1 – Route Plan (5,2 km)

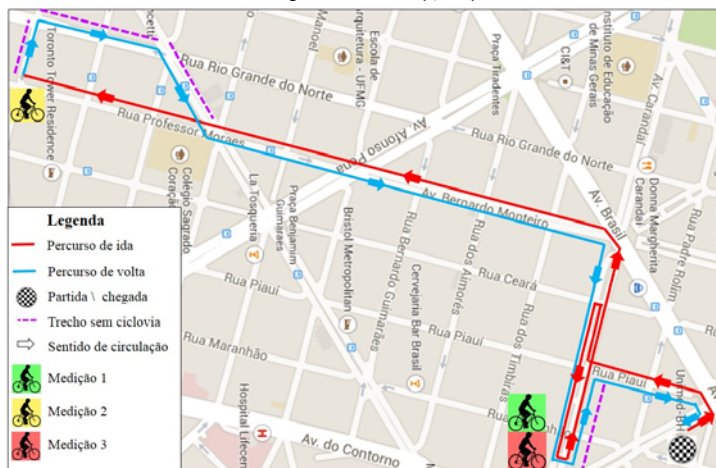


Figure 2 – Borg scale modified

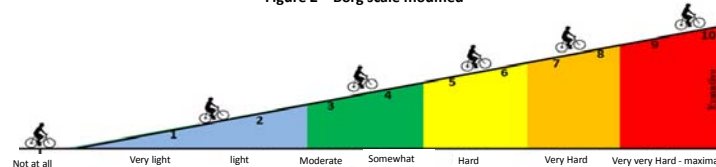
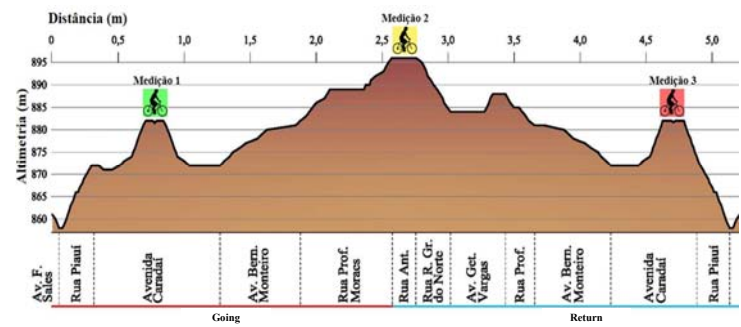


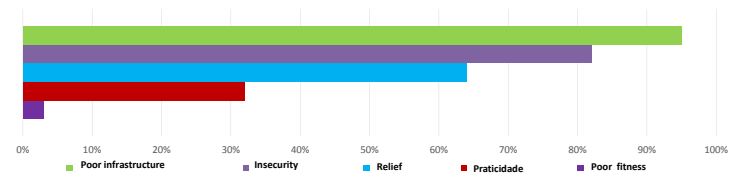
Figure 3 - Altimetry



RESULTS

Pre-participation questionnaire

Figure 2 - Factors that limit the use of bicycles in Belo Horizonte among participants



Data along the path

Figure 3 - Comparison of Heart Rate

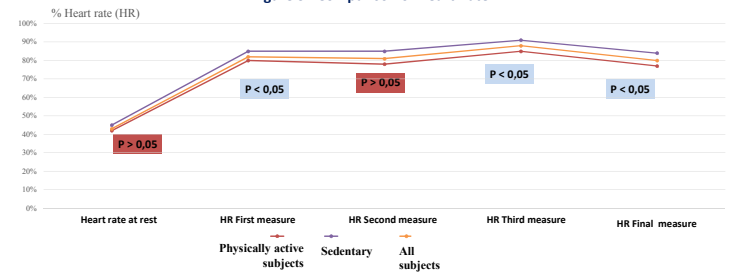
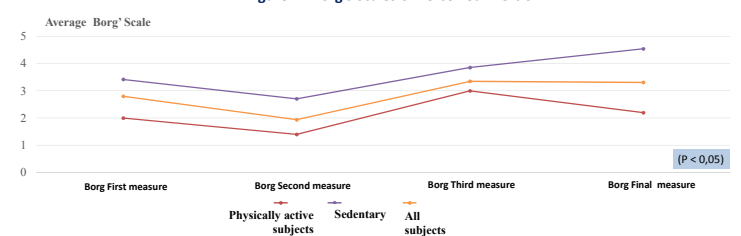
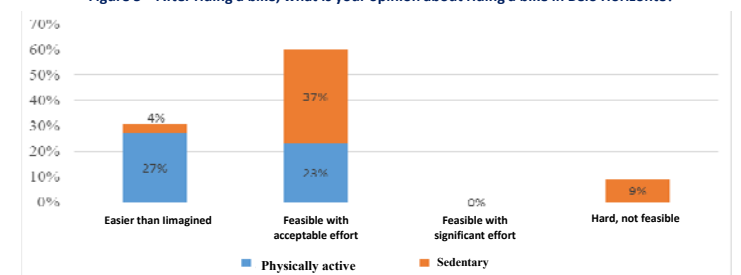


Figure 4 - Borg's Scales of Perceived Exertion



After participation questionnaire

Figure 5 – After riding a bike, what is your opinion about riding a bike in Belo Horizonte?



CONCLUSION

It can be concluded that the relief was not an impediment for most people to complete the course, no matter their different physical abilities. This reinforces the importance of stimulating the practice of physical exercises among all age groups. Recent studies have shown that active urban mobility not only promotes health benefits, but also makes cities healthier and more sustainable. New studies should be conducted with the aim of overcoming barriers related to the relief, as well as those related to age, that might discourage the use of bicycles in mountain cities.

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