

The aim of this thesis was to determine the effect of driving in a wheelchair and walking on crutches on the energy expenditure and cardiopulmonary system in people with lower limb amputation. For this measurement we used a device Metamax 3B made by Cortex, functioning by measuring the concentration of oxygen and carbon dioxide in the breathing air, and a sporttester made by Polar. On the basis of oxygen consumption it is possible to determine an energy expenditure during the activity.

Our study was attended by 11 probands (men), patients of long-term hospital in Motol Hospital. Nine probands were amputated from vascular causes, one from the traumatological causes and one from the other causes. Probands rode (or walked) for four minutes back and forth along the corridor thirty meters long. They were instructed to ride (walk) at a speed to fit their needstand to also keep the same pace for a defined period of time. Walking on crutches without prosthesis managed only three of the testing file. During the study, these values were measured: distance traveled, average speed, oxygen consumption (VO_2 , VO_2/kg , VO_2 peak), carbon dioxide output (VCO_2), respiratory exchange ratio (RER), tidal volume (VT), breathing frequency (BF), minute ventilation (MV), heart rate (HR), energy expenditure and performance. In this work we have, despite minor flaws, established, that walking on crutches is for people with lower limb amputation more energy-intensive and more burdensome for cardiopulmonary system than riding in a classical wheelchair.