

Cardio-respiratory parameters and determination of VO₂ max during an ergometric test with submaximal load

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Abstract: The current research work presents the assessment of the aerobic capacity of healthy non-intermed students as a current problem of sports physiology and sports pedagogy. Aerobic capacity parameters (VO₂ max , Wmax , lactate and glucose levels) were analyzed using the Astrand 6 min Cycle Test and arguments were presented for the application of the test in untrained women between the ages of 19 and 24. The presented data prove the role of functional studies of aerobic capacity, physical work capacity, function of the cardio-respiratory system, including aerobic metabolism and the submaximal test itself (created by Astran and Rieming to calculate VO₂ max) and optimization of the loading process in healthy, untrained women. Factors such as: age, weight, diet, cognitive status, level of mobility, presence of disease should be taken into account for the selection of the test.

Now we choose a submaximal load with the ergometric value (W), which belongs to the group of individuals we need to examine (in our case untrained women). Since the test is submaximal, we multiply the kilograms by 2.2 W and get the load value.

Before the test, the anthropometric data, the work of the heart, RR (Blood pressure) are recorded, and during the test the pulse is monitored and recorded, which should be in the range of 130-180 bpm (for the untrained). The test itself (Astrand 6 min Cycle Test) consists of 10 minutes of warm-up, 6 minutes of loading and 5 minutes of recovery (until the body recovers approximately to the previous state). As mentioned, the heart rate is monitored all the time (every minute), because it is the most important parameter for all our research.

The test is not only used to determine VO₂ max. It can serve to determine other parameters, for example: - blood can be taken before and during the test to monitor lactate and glucose values before and during the test.

The aim is to determine the function of the cardio-respiratory system (aerobic capacity, expressed in VO₂ max ml/ kg/ min - the maximum oxygen consumption) during submaximal load (Astrand 6 min Cycle Test).

Key words: cardio-respiratory system, aerobic capacity VO₂ max and Astrand 6 min Cycle Test.