ASSESSMENT OF ENDURANCE FITNESS

There are two types of tests to assessment of the aerobic resistance: Maximum effort and submaximal effort. In this post, we have written about the submaximal effort because it uses in physical activity and health. In this types of test, it's monitored the pulse rate and RPE (Rating of perceived Exertion Borg RPE Scale)

Why did assessment the aerobic resistance?

- To establish a starting point to see the possible improvements
- Volume and intensity of beginning
- To have reference data
- To identify strengths and weaknesses
- To help to know short-term, medium-term and long-term goals

What test can you use?

- According your level
- According your age
- Considering your limitations and injuries
- Adapted to his interests and hobbies (more motivation)

When we must interrupt a stress test?

- Chest discomfort
- Systolic blood pressure <20mmHg
- Systolic blood pressure >260mmHg
- Diastolic blood pressure >115mmHg
- Paleness, headache, nausea, clammy skin.
- Failure to increase the pulse rate
- Change in heart rhythm
- You want to stop
- Severe tiredness
Test A. YMCA step test

The purpose of this test, is to provide a submaximal measure of cardio-respiratory or endurance fitness. You can step on and off the bench for 3 minutes straight while keeping a consistent pace and then see how quickly your heart rate will come back down.

Equipment: a step with 30 cm, stopwatch and metronome (96 beat per minute)

Procedure: Go up and down during 3 minutes. After you finish, take the heart rate.

Scoring: The total one-minute post-exercise heart rate is the subject's score for the test.
Test B. Rockport Fitness Walking Test

The objective of this test (Kline, 1987) is to monitor the development of the VO\(_2\)\(_{\text{max}}\) of people 18 to 69 years. Suitable for sedentary and older people.

**Equipment:** a stopwatch and distance of 1,6 km (one mile)

**Procedure:** To walk 1,6 km as fast as possible. The person records the time taken for the athlete to complete the test and the heart rate immediately on finishing.

**Assessment:** The formula (Kline, 1987) used to calculate VO\(_2\)\(_{\text{max}}\) is:

\[
\text{VO}_2\text{max (ml/kg/min)} = 132.853 - (0.0769 \times \text{weight}) - (0.3877 \times \text{age}) + (6.315 \times \text{gender}) - (3.2649 \times \text{time}) - (0.1565 \times \text{Heart rate})
\]

Gender Male= 1 or Female=0

You can calculate automatic:

[http://www.exrx.net/Calculators/Rockport.html](http://www.exrx.net/Calculators/Rockport.html)

**Results:**

![Fitness Score Table](image-url)
Men’s 1 mile walk fitness score

This test is designed to measure the respiratory and cardiovascular performance of normally active men and women. The UKK has proven to be a useful fitness assessment tool to support the guidance of exercise for health.

**Equipment**: a stopwatch and distance of 2 km (plain and interrupted)

**Procedure**: To walk 2 km as fast as possible. Then, to calculate the Walk Index.

**Assessment**: The test-result is the index-values which is calculated as follows (according to sex):

- **Men’s index value**
  \[
  \text{Walk index} = 420 + (\text{age} \times 0.2) - [\text{time} \times 0.19338 + \text{HR} \times 0.56 + (2.6 \times \text{weight/\text{time}^2})]
  \]

- **Ladies index value**
  \[
  \text{Walk index} = 304 + (\text{age} \times 0.4) - [\text{time} \times 0.1417 + \text{HR} \times 0.32 + (1.1 \times \text{weight/\text{time}^2})]
  \]
REFERENCES:


✓ LUNT, H. et al. (2013) Validation of one-mile walk equations for the estimation of aerobic fitness in British military personnel under the age of 40 years. Military medicine, 178 (7), p. 753-759


✓ WEIGLEIN, L. et al. (2011) The 1-Mile Walk Test is a Valid Predictor of VO2max and is a Reliable Alternative Fitness Test to the 1.5-Mile Run in US Air Force Males. Military medicine, 176 (6), p. 669-673