Physical efficiency (Physical Work Capacity) – test PWC_{170}, (PWC_{150}, PWC_{130})

Index PWC_{170} is the work load performed on any type of ergometer (treadmill, cycloergometer) that will result with the heart rate of 170/min. Values of PWC highly correlates to VO_{2max}.

Idea of the measurement is derived from the linear relation between the heart rate during submaximal exercise and exercise load. Values of PWC can be calculated graphically by extrapolation or from the formula.

PWC_{170}/body mass can be used as the index of general physical efficiency. Values of PWC_{170}/body mass higher than 3 W/kg of the body mass characterize fit, very efficient clients.

Protocol of the PWC_{170} test:
1. Warm-up exercise load (W_0) 50W; duration 6 minutes; measurement of the blood pressure and heart rate (HR_0).
2. Work-load W_1 exercise load 100W; duration 6 minutes; measurement of the blood pressure and heart rate (HR_1).
3. Work-load W_2 exercise load 150W; duration 6 minutes; measurement of the blood pressure and heart rate (HR_2).

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PWC_{170} = W_2 + \left[ \frac{(W_2 - W_1) \times (170 - HR_2)}{HR_2 - HR_1} \right]
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