

# **(XIV.) Ergometry**

Physiology I - practicals

**Ergometry** deals with evaluation of performance (work, power).

Its name comes from two Greek words: „*ergon*“ = work, „*metron*“ = measure.

The test is a part of complex examinations evaluating responses and adaptation of organism to exercise. It is used to diagnose, to decide about the treatment and/or evaluation of its effectiveness. In the sport medicine, it is used mainly for evaluation of fitness.

# Examination phases:

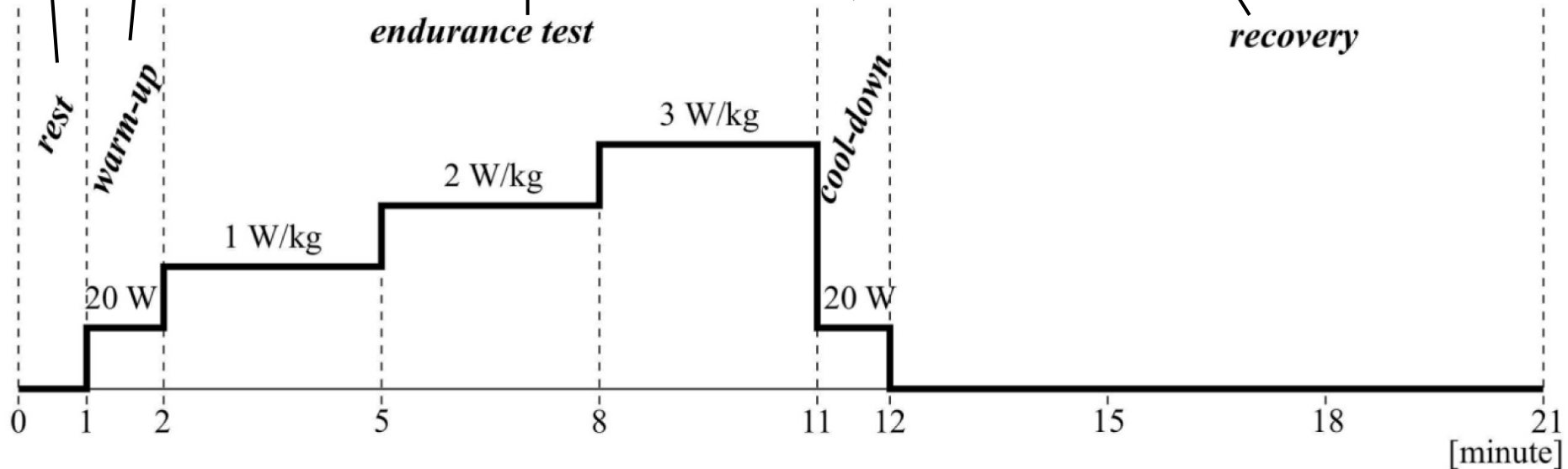
recording of resting values

exposure of examined person to graduated physical work

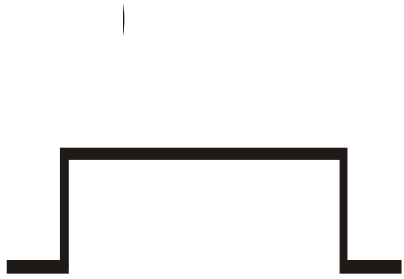
workload of low intensity supporting catabolites removal (lactic acid), helping heart rate recovery, reducing vertigo and collapses (due to after-work hypotension)

application of low workload in order to increase tissue perfusion and improve joints mobility

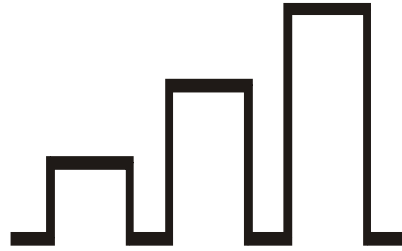
follow-up after exercise



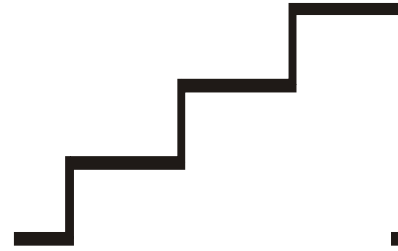
# Basic protocol types :



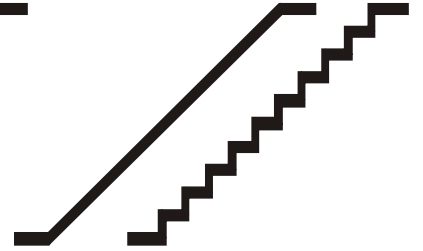
Single stage test



Intermittent incremental steps



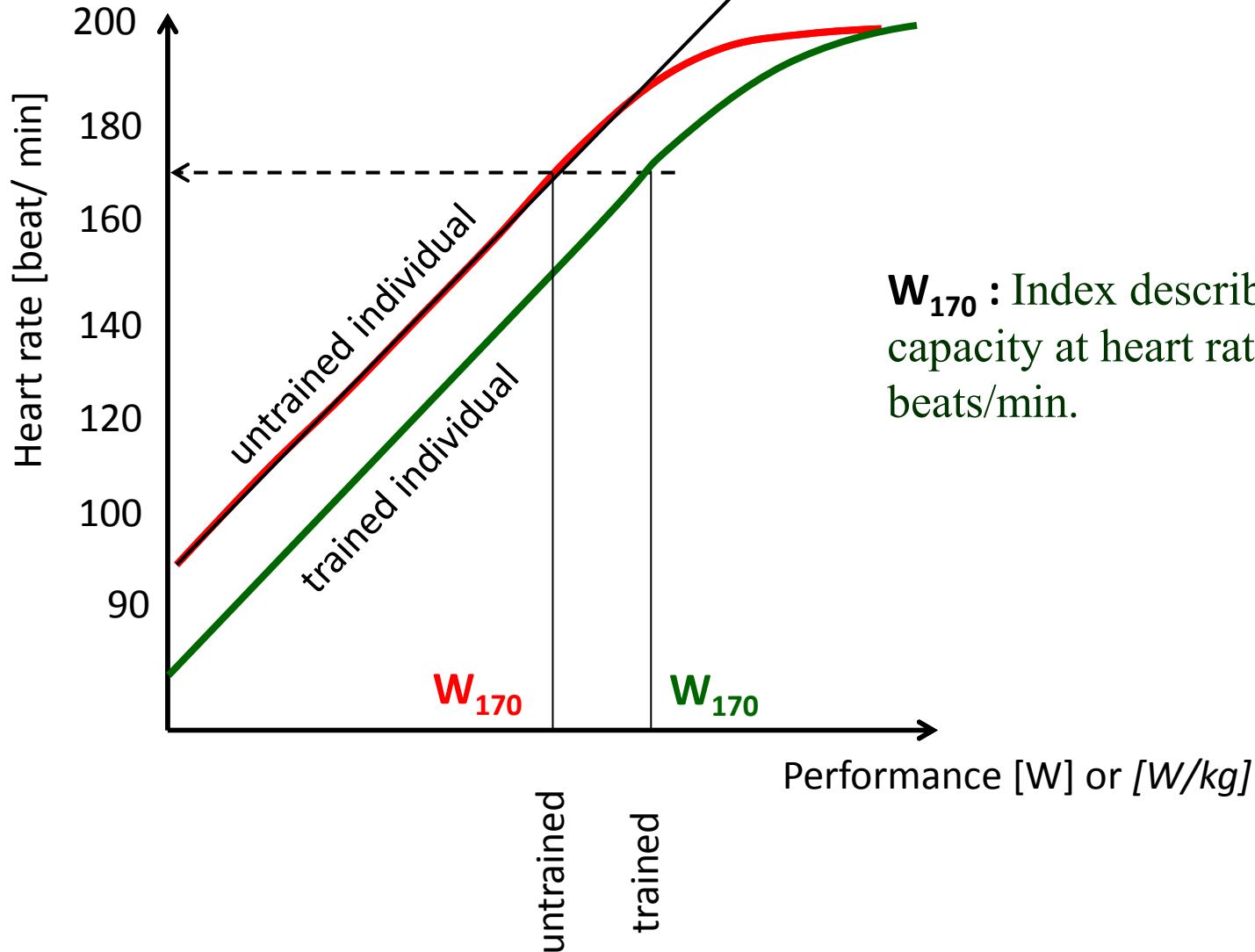
Continuous incremental step



„ramp“ protocol

# Heart rate change:

Up to 180 beats/min heart rate increases LINEARLY (if workload increases continually)



$W_{170}$  : Index describing work capacity at heart rate of 170 beats/min.

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**$W_{170}$**  : Index describing work capacity at heart rate of 170 beats/min

Population norms (Heller, 2005)

A G E	Men		Women	
	[W]	[W/kg]	[W]	[W/kg]
<b>18</b>	178	2,7	103	1,8
<b>20</b>	185	2,7	106	1,8
<b>22</b>	190	2,7	107	1,8
<b>25</b>	193	2,7	109	1,8
<b>30</b>	194	2,6	112	1,8
<b>35</b>	195	2,6	115	1,8
<b>40</b>	195	2,5	118	1,8
<b>45</b>	195	2,4	121	1,8