

Lactware® - Performance analysis

Subject of a test

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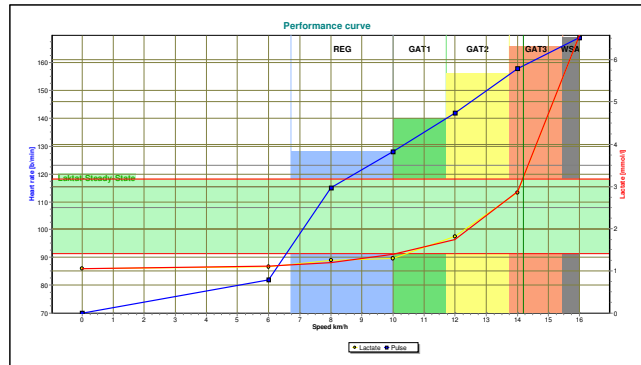
Surname
 First name
 Date of birth
 Weight HF max.:
 Sex male female

Street
 Zip/City
 Telephone
 Size BMI
 underweight <20 <19 normal weight 20-25 19-24 overweight 25-30 24-30 strongly overweight >30 >30

measured data and performance curve

Date of meas.

Speed [km/h]	Pulse [b/min]	Lactate [mmol/l]	Speed [km/h]	Pulse [b/min]	Lactate [mmol/l]
stand. pul.	70	1.05			
6,00	82	1,10	16,00	169	6,58
8,00	115	1,25			
10,00	128	1,30			
12,00	142	1,82			
14,00	158	2,85			



Measuring cycle

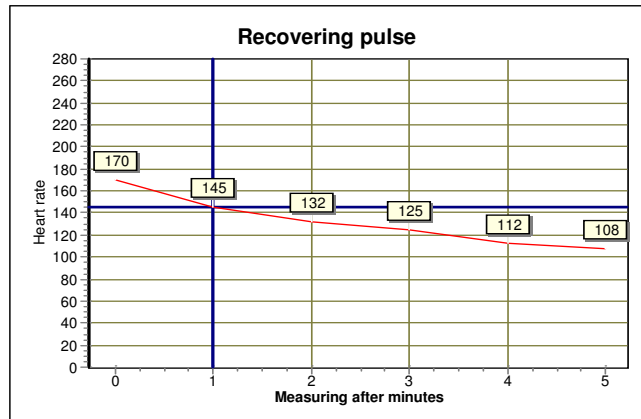
IANS 159 [b/min] 3,2 [mmol/l] 14,2 [km/h] 04:14 [min/1000]
 Threshold value model

Remark

Recreation duration (after maximum load)

$6 - \left(\frac{10 \cdot (HF_{max} - HF_{1min})}{HF_{max}} \right)$	Performance condition	Category	Grade
> 7	lousy	Normal person	7
6 - 7	bad	Normal person	6
5 - 6	sufficient	Casual athlete	5
4 - 5	satisfying	Breadth athlete	4
3 - 4	good	Good breadth athlete	3
2 - 3	very good	Competitive athlete	2
< 2	high perform.	Top-class sportsman	1

time [min]	0	1	2	3	4	5
Pulse [b/min]	170	145	132	125	112	108
Lactate [mmol/l]						

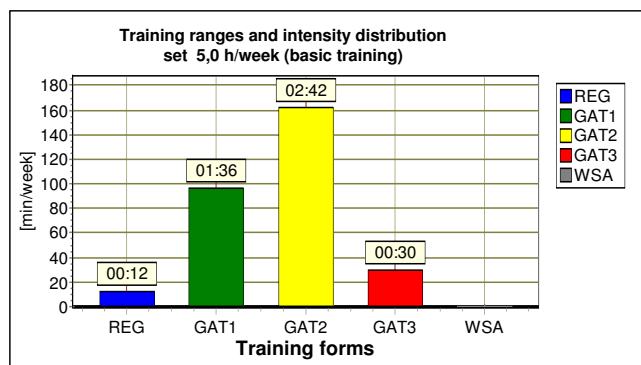


Training recommendation

Grade	DLKA %	min. pul. [b/min]	max. pul. [b/min]	deb. time [min/week]
REG	< AS	94	128	12,0
GAT1	AS +40	128	140	96,0
GAT2	+40 +90	140	156	162,0
GAT3	+90 IAnS	156	166	30,0
WSA	IAnS >IAnS	166	169	0,0

Heart rate customization

- REG Regeneration training
- GAT1 Base of endurance training I (aerobic)
- GAT2 Base of endurance training II (aerobic/easily anaerobic)
- GAT3 Base of endurance training III (aerobic/anaerobic)
- WSA Contest specific endurance training (anaerobic)



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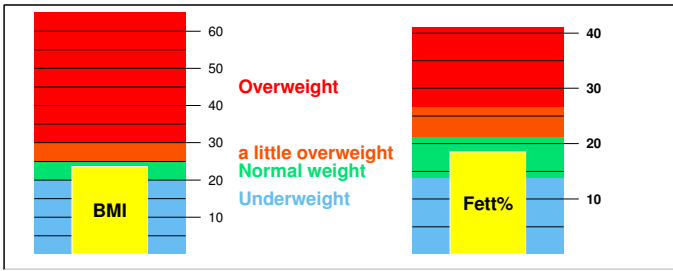
Date of meas.

01.03.2009

14:19:40

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Surname
 First name
 Date of birth
 Weight
 Size
 BMI/Fett%:



Analysis overview

Heart rate thresholds					
% MHF	60%	70%	80%	90%	MHF
Pulse [b/min]	106	124	142	159	177
Lactate [mmol/l]	1,16	1,33	1,75	2,99	6,58
[km/h]	7,45	9,38	12,00	14,18	16,00

Threshold values Lactate							
[mmol/l]	2.0	2.5	3.0	3.5	4.0	MAX	IAS
Pulse [b/min]	148	154	159	161	162	169	159
[mmol/l]							6,6 3,2
[km/h]	12,7	13,5	14,1	14,5	14,8	16,0	14,2

Finishing time calculation

Val. of lactate	Pulse	Speed	5.000m	10.000m	Half marathon	Marathon
1,7 mmol/l	141 S/min	11,80 km/h = 00:05:05 /1000m			01:42:10	03:34:33
3,0 mmol/l	159 S/min	14,10 km/h = 00:04:15 /1000m		00:42:33		
3,2 mmol/l	159 S/min	14,20 km/h = 00:04:14 /1000m	00:21:08			

Description of the training ranges

REG

For the active regeneration after long or hard training units. The load is very low and can be carried through in other sports (swimming, cycling ...) as well.

GAT1

The long time staying power is exercised in the area of low intensity. The load is purely aerobic. In this range the long runs (> 2 hours) for the marathon preparation are completed.

GAT2

Together with GAT1 the largest portion of the training is completed in this range. A solid base endurance is indispensable to improve the competition performance. Training units in an energy metabolism, which reaches the aerobic till light anaerobic transition range improve the absorption of oxygen as well as the efficiency of the oxygen utilizing organ systems (musculature, cardiovascular system). Training example: 60 min. endurance run

GAT3

The load intensity in the so-called "development range" corresponds to an aerobic/anaerobic mixing metabolism. The training is also called anaerobic threshold training. The organism learns to adapt the energy metabolism to the increased lactate values. The changeable duration method and the extensive interval method are suitable training methods. Training example: 60 min. endurance run with varying pulse frequency between GAT2 - GAT3.

WSA

At the competition specific endurance training, distances adapted to the competition way are trained with or above the competition speed. The energy generation is anaerobic. Training example: 8*1000 meters with 95% MHF. Between the runs 3 min. going pause.

legend

Aerobic endurance capability Load mastering without lactic acid accumulation. The oxygen being available is sufficient as an energy distributor. To keep up, a lactate increase as low as possible is aspired although increasing the load intensity.

anaerobic threshold At about 4 mmol/l the lactic acid content increases strongly and the sportier performance capability is affected because of the acidemia of the muscle cells. IAS is characterising the individual anaerobic threshold. The anaerobic threshold is the maximum speed/performance, which can be just kept up without cumulative acidemia.

Lactate-Steady-State In this range the energy generation is both aerobic and anaerobic. The production and reduction of lactate is in balance. This range is between 2-4 mmol/liter.

Deflection point With the load the heart range rises linearly in wide areas. At some of the measured test persons it comes to an deflection point (according to Conconi) in the upper ranges. As per statistics the threshold heart rate, being affected from the lactate performance curve, doesn't always agree with the affection according to Conconi.