Cardio Fitness in Worklife

Categorys:

Category A = Officework.
Category B = Work with a constant moderate physical strain
Category C = Work with constant heavy physical strain

Demandlevel in VO2max (ml O2 / (kg KV * min))

Category A	35	Base level
Category B	45	((1,26/70*1000)/0,40)=45
Category C	60	((1,68/70*1000)/0,40)=60

Workresult in % of max:

Category A has losses of consentration abilty and is calculated as 50% of loss of physical abilty

Category B+C has a real loss of working power in WATT

Workpotential in % of max

VO2max	Category A	Category B	Category C
Under 15			
15			
16			
17			
18			
19			
20			
21	*67%*	23%	14%
22	*68%*	24%	15%
23	*70%*	27%	17%
24	*71%*	28%	18%
25	*72%*	29%	18%
26	*73%*	31%	19%
27	*75%*	33%	21%
28	***77%***	36%	23%
29	*79%*	39%	24%
30	*80%*	**40%**	**25%**
31	*86%*	48%	30%
32	*90%*	53%	33%
33	*94%*	59%	37%
34	*98%*	64%	40%
35	*100%*	**67%**	**42%**
36		70%	44%
37		73%	46%
38		77%	48%
39		80%	50%
40		83%	52%
41		87%	54%
42		90%	56%
43		93%	58%
44		97%	60%
45		**100%**	**63%**
46			65%
47			68%
48			70%
49			73%
50			75%
51			78%
52			80%
53			83%
54			85%
55			88%
56			90%
57			93%
58			95%
59			98%
60			**100%**

Average work

Usage in %	(Watt)	(Watt)
	(from tab)	(from formula)
33%	17	31
33%	18	33
33%	20	35
33%	21	37
33%	22	38
33%	23	40
33%	25	42
33%	27	44
33%	29	46
33%	**30**	47
33%	36	49
33%	40	51
33%	44	53
33%	48	54
40%	**50**	68
40%	53	70
40%	55	72
40%	58	75
40%	60	77
40%	63	79
40%	65	81
40%	68	83
40%	70	85
40%	73	88
40%	**75**	90
40%	78	92
40%	81	94
40%	84	96
40%	87	98
40%	90	101
40%	93	103
40%	96	105
40%	99	107
40%	102	109
40%	105	111
40%	108	114
40%	111	116
40%	114	118
40%	117	120
40%	**120**	122

Maximum test

Coopertest

3000m	2400m	2000m
Whole minutes (not sec)		
		24,50
		23,50
		22,50
		21,50
		20,50
		19,50
		19,00
		18,00
		17,50
		17,00
		16,50
		16,00
		15,50
	18,00	15,00
	17,25	14,50
	16,50	**14,00**
	16,00	14,50
	15,50	13,00
	15,00	12,50
	14,50	12,00
	14,25	**11,75**
	14,00	11,50
	13,50	11,25
	13,25	11,00
	12,75	10,75
15,50	12,50	10,50
15,25	12,25	10,25
15,00	12,00	10,00
14,87	11,75	9,75
14,75	11,50	9,67
14,50	**11,50**	**9,50**
14,25	11,25	
14,00	11,25	
13,75	11,00	
13,50	10,75	
13,25	10,50	
13,00	10,25	
12,75	10,25	
12,50	10,00	
12,37	9,75	
12,25	9,75	
12,00	9,50	
11,75	9,50	
11,50	9,25	
11,37	9,25	
11,25	**9,00**	

Running, Speed, Tempo

Speed	Tempo	VO2max	Age	
(km/h)	**min/km**		M	F
4,9	12.15	**15**	A	E
5,1	11.45	**16**	L	M
5,3	11.15	**17**	E	A
5,6	10.45	**18**		L
5,9	10.15	**19**		E
6,2	9.45	**20**		r
6,3	9.30	**21**		
6,7	9.00	**22**		
6,9	8.45	**23**		
7,1	8.30	**24**		
7,3	8.15	**25**		
7,5	8.00	**26**	65	65
7,7	7.45	**27**	63	63
8,0	7.30	**28**	62	60
8,3	7.11	**29**	61	58
8,7	**6.52**	**30**	**59**	**55**
9,0	6.40	**31**	57	53
9,3	6.27	**32**	55	51
9,6	6.15	**33**	53	48
9,9	6.02	**34**	51	45
10,1	**5.56**	**35**	**48**	**43**
10,3	5.49	**36**	45	41
10,7	5.37	**37**	43	39
10,9	5.31	**38**	41	37
11,3	5.18	**39**	38	35
11,5	5.12	**40**	35	33
11,8	5.06	**41**	34	30
12,0	5.00	**42**	33	28
12,3	4.54	**43**	31	25
12,5	4.47	**44**	29	
12,5	**4.47**	**45**	**27**	
12,8	4.41	**46**	25	
12,8	4.41	**47**		
13,1	4.34	**48**		
13,4	4.28	**49**		
13,7	4.22	**50**		
14,0	4.16	**51**		
14,0	4.16	**52**		
14,4	4.10	**53**		
14,8	4.04	**54**		
14,8	4.04	**55**		
15,2	3.57	**56**		
15,2	3.57	**57**		
15,6	3.51	**58**		
15,6	3.51	**59**		
16,0	**3.45**	**60**		

Workresult is a product (according to Rensis Lickert) of five factors

Attitude*Health*knowledge*Experience*Accessibility.

This shows the importance of bodymass

kg	55	60	65	70	75	80,0	85	90	95	100
VO2max person 1	74	68	62	58	54	50,6	48	45	43	41
VO2max person 2	48	44	40	38	**35**	32,8	31	29	28	26
VO2max person 3	38	**35**	32	30	28	26,3	25	23	22	21

Table from Åstrand, I,

Watt	lit/min
20	0,50
40	0,75
50	1,00
75	1,25
100	1,50
125	1,75

1 Watt is equivalent to the work 0,060 kJ/min

A normal person (70kg) consumes 0,25 liter O2 every minute in rest wich is the same as 3,5 (ml O2 / (kg KV * min))

When one litre O2 is "used" it gives 20,6 kJ

The degree of efficency in a normal individual is 22,5% (20-25%), rest will be heat.

One 70kg individual workcapacity in Watt during a longer period (33% workload according til ILO (UN),

40% according to resarchers) is teoreticaly (VO2max-3,5)*20,6/60*0,225*0,4*70

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