

Buffalo Concussion Bike Test

Name: _____ DOB: _____ Supervising Provider Name: _____

Symptoms at rest (VAS): _____ Resting HR: _____

Stage (% grade)	VO2	METs	BW (KG)	Workload (watts)	Heart Rate (bpm)	RPE	Visual Analogue Scale (VAS)	Symptoms/Observations
0	13.1	3.74						
1	14.83	4.24						
2	16.56	4.73						
3	18.28	5.22						
4	20.01	5.72						
5	21.74	6.21						
6	23.47	6.71						
7	25.2	7.2						
8	26.92	7.69						
9	28.67	8.19						
10	30.38	8.68						
11	32.12	9.17						
12	33.85	9.67						
13	35.56	10.16						
14	37.92	10.65						
15	39.03	11.15						

Adapted from "Exercise is Medicine for Concussion" by J. J. Leddy, M. N. Haider, M. Ellis, and B. S. Willer, 2018, *Current Sports Medicine Reports*, 17(8), p. 263. Copyright 2018 by the American College of Sports Medicine.

Calculations

Workload (kg·m·min⁻¹)

$$= (((VO_2 - 3.5\text{mL}\cdot\text{kg}^{-1}\cdot\text{min}^{-1} - 3.5\text{mL}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}) \cdot \text{BW}) / 1.8) \cdot 0.164) \cdot 0.9$$

VO₂ = VO₂ of stage

BW = bodyweight

Maximum HR at Symptom Exacerbation: _____ bpm

Exercise Prescription:

Signature of Healthcare Provider

Visual Analogue Scale (VAS)

VISUAL ANALOGUE SCALE (VAS)

Rate Your Overall Condition
Choose a number from 0 to 10 and describe your condition.

Feeling Good 0 1 2 3 4 5 6 7 8 9 10 Worst I have ever felt

0 2 4 6 8 10

Feel Terrific
No Symptoms

Feel some symptoms but quite tolerable

Symptoms a little worse

Symptoms worse

Symptoms much worse

Feel Terrible
Worst I ever felt

BE SURE TO TELL YOUR DOCTOR THE CONDITION YOU ARE IN

Reprinted with permission from “Buffalo Concussion Treadmill Test (BCTT) – Instruction Manual” by J.J. Leddy, M.N. Haider, and B.S. Willer.

Rate of Perceived Exertion Scale (RPE)

Rating of Perceived Exertion / The Borg Scale		
Green	6	Zero exertion
	7	Extremely light
	8	Minimal recognition of effort
Yellow	9	Very light exertion (Comfortable walking pace)
	10	Can just start to hear your breathing
	11	Conversation is easy and you can run like this for a while
	12	Light exertion
Orange	13	Somewhat hard
	14	You can hear your breathing but you're not struggling
	15	You can talk but not in full sentences
	16	Hard work
Red	17	Very hard – Starting to get uncomfortable
	18	You can no longer talk because of your breathing
	19	Extremely hard – Your body is screaming at you
	20	Maximal exertion

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