

Chapter 4, page 109, Table 4.7: Prediction Equations for Cardiorespiratory Field Tests
 Corrections are highlighted below with a green box.

- Under Step Tests, STEP tool (row 3) from Knight, Stuckey and Petrella (2014): There should be a note that men = 1 and women = 2 (not men = 1 and women = 0 as in other equations). Also, it is probably assumed, but time should be recorded in seconds (not minutes) for this test.

Table 4.7 Prediction Equations for Cardiorespiratory Field Tests

Field test	Equation ^a	Source
DISTANCE RUN/WALK		
1.0 mi steady-state jog	$\dot{V}O_{2max} = 100.5 - 0.1636(BW, \text{ kg}) - 1.438(\text{time, min}) - 0.1928(\text{HR, bpm}) + 8.344(\text{gender})^b$	George et al. (1993)
1.0 mi run/walk (8-17 yr)	$\dot{V}O_{2max} = 108.94 - 8.41(\text{time, min}) + 0.34(\text{time, min})^2 + 0.21(\text{age} \times \text{gender})^b - 0.84(\text{BMI})^c$	Cureton et al. (1995)
1.0 mi run/walk (13-16 yr)	$\dot{V}O_{2peak} = 7.34 \times \text{speed, m}\cdot\text{sec}^{-1} + 0.23(\text{age, yr} \times \text{gender}^b) + 17.75$	Burns et al. (2016)
1.5 mi run/walk	$\dot{V}O_{2max} = 88.02 - 0.1656(BW, \text{ kg}) - 2.76(\text{time, min}) + 3.716(\text{gender})^b$	George et al. (1993)
1.5 mi run/walk	$\dot{V}O_{2max} = 100.16 + 7.30(\text{gender})^b - 0.164(BW, \text{ kg}) - 1.273(\text{time, min}) - 0.1563(\text{HR, bpm})$	Larsen et al. (2002)
12 min run	$\dot{V}O_{2max} = 0.0268(\text{distance, m}) - 11.3$	Cooper (1968)
15 min run	$\dot{V}O_{2max} = 0.0178(\text{distance, m}) + 9.6$	Balke (1963)
1.0 mi walk	$\dot{V}O_{2max} = 132.853 - 0.0769(BW, \text{ lb}) - 0.3877(\text{age, years}) + 6.315(\text{gender})^b - 3.2649(\text{time, min}) - 0.1565(\text{HR, bpm})$	Kline et al. (1987)
STEP TESTS		
Astrand	Men: $\dot{V}O_{2max} (\text{L}\cdot\text{min}^{-1}) = 3.744 [(BW + 5) / (\text{HR} - 62)]$ Women: $\dot{V}O_{2max} (\text{L}\cdot\text{min}^{-1}) = 3.750 [(BW - 3) / (\text{HR} - 65)]$	Marley and Linnertud (1976)
Queens College	Men: $\dot{V}O_{2max} = 111.33 - (0.42 \text{ HR, bpm})$ Women: $\dot{V}O_{2max} = 95.61 - (0.42 \text{ HR, bpm})$	McArdle et al. (1972)
STEP tool	$\dot{V}O_{2max} (\text{ml}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}) = 3.9 + (1511 / \text{time}) \times [(\text{weight, kg} / \text{HR, bpm}) \times 0.124] - (\text{age, yr} \times 0.032) - (\text{gender}^b \times 0.633)$	Knight, Stuckey, and Petrella (2014)
Individualized	$\dot{V}O_{2max} (\text{ml}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}) = 45.936 + 0.253(\text{gender}) - 0.140(\text{weight, kg}) + 0.670(\text{PFA}) + 0.429(\text{FSR}) - 0.149(45\text{sRHR})$	Webb et al. (2014)
Self-paced (≥ 65 yr)	Men: $\dot{V}O_{2max} (\text{ml}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}) = 129.6 - (3.82 \text{ O}_2 \text{ pulse}) - (5.32 \text{ time to completion, s}) - (0.22 \text{ age, yr}) - (0.24 \text{ BMI}^c) - (0.12 \text{ HR, bpm})$ Women: $\dot{V}O_{2max} (\text{ml}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}) = 116.4 - (5.10 \text{ O}_2 \text{ pulse}) - (2.81 \text{ time to completion, s}) - (0.24 \text{ age, yr}) - (0.24 \text{ BMI}^c) - (0.14 \text{ HR, bpm})$	Petrella et al. (2001)

HR = heart rate; m = meters; PFA = perceived functional ability score; FSR = final step rate, steps·min⁻¹; 45sRHR = HR at 45 sec after test termination; O₂ pulse = step test $\dot{V}O_{2 \text{ cost}} / \text{HR}$.

^aAll equations estimate $\dot{V}O_{2max}$ in ml·kg⁻¹·min⁻¹ unless otherwise specified.

^bFor gender, substitute 1 for males and 0 for females.

^cBMI = body mass index, or body weight (BW, in kg) / ht² (in meters).

2. Under Step Tests, Individualized test (row 4) from Webb et al (2014): The constant multiplied with the gender variable should be 9.253 instead of 0.253.

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Queens College	Men: $\dot{V}O_{2\max} = 111.33 - (0.42 \text{ HR, bpm})$ Women: $\dot{V}O_{2\max} = 65.81 - (0.1847 \text{ HR, bpm})$	McArdle et al. (1972)
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Individualized	$\dot{V}O_{2\max} (\text{ml}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}) = 45.938 - 0.253(\text{gender})^b + 0.140(\text{weight, kg}) + 0.670(\text{PFA}) + 0.429(\text{FSR}) - 0.149(45\text{sRHR})$	Webb et al. (2014)
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