SCIFIT
Prescribed for Progress™

Lower and Total Body Ergometer MET and Calorie Calculations (PRO2, ISO Bikes, SXT, REX, StepOne)

ACSM formula:

VO2	= 1.8*(W/BW) + 7

W: Work Rate (kg*m/min) / 1 watt = 6.12 kg*m/min
BW: Body Weight (kg) / 1 pound=0.45 kg

METs derived formula:

METs	= VO2/3.5 = [1.8*(W/BW) + 7]/3.5 = 0.514*(W/BW) + 2 = 0.514[(watts*6.12)/(weight*0.45)] + 2

Weight is in pounds

Calories derived formula:

Kcal/min	= VO2*BW/200 = [1.8*(W/BW) + 7]*BW/200 = [(1.8*W) + (7*BW)]/200 = 0.009*W + 0.035*BW = 0.009*watts*6.12 + 0.035*weight*0.45 = 0.05625*watts + 0.01575*weight

Weight is in pounds

Application:

- PRO2
- ISO1000
- ISO1000R
- ISO7000
- ISO7000R
- REX
- StepOne
- SXT

SCIFIT
Prescribed for Progress™

TC1002 MET and Calorie Calculations

ACSM formula:

VO2	= (0.2*f) + (1.33*1.88*H*f) + 3.5

(0.2*f) represents horizontal motion that is not used on our climbers, so this will be removed from the formula

We use a standard of 7 inches for the step height.

Revised formula:

VO2	= (1.33*1.88*H*f) + 3.5

f: stepping rate (steps/min)
H: step height (m) / 1 inch=0.0254 m
BW: Body Weight (kg) / 1 pound=0.45 kg

METs derived formula:

METs	= VO2/3.5 = [(1.33*1.88*H*f) + 3.5]/3.5 = (0.7144*H*f) + 1 = (0.7144*7*0.0254*f) + 1 = (0.127*f) + 1

f: stepping rate (steps/min)

Calories derived formula:

Kcal/min	= VO2*BW/200 = [(1.33*1.88*H*f) + 3.5]*BW/200 = [(1.33*1.88*7*0.0254*f) + 3.5]*BW/200 = [(0.4446*f) + 3.5]*BW/200 = [(0.0022*f) + 0.0175]*BW = [(0.0022*f) + 0.0175]*weight*0.45 =[(0.00099*f) + 0.00788]*weight

f: stepping rate (steps/min)
Weight is in pounds

Application:

- TC1002

SCIFIT
Prescribed for Progress™

Treadmill MET and Calorie Calculations (AC5000, DC1000)

Running - speed is greater than or equal to 4.3 mph

ACSM formula:

VO2	= (S*0.2) + (S*G*0.9) + 3.5

S: Speed (m/min) / 1 mph=26.8 m/min
G: Grade (decimal) / 1%=0.01
BW: Body Weight (kg) / 1 pound=0.45 kg

METs derived formula:

METs	= VO2/3.5 = [(S*0.2) + (S*G*0.9) + 3.5]/3.5 = [(speed*26.8*0.2) + (speed*26.8*G*0.9) + 3.5]/3.5 = [(speed*5.36) + (speed*G*24.12) + 3.5]/3.5 = (speed*1.53) + (speed*G*6.89) + 1

Weight is in pounds
Speed is in mph
Grade is in decimal

Calories derived formula:

Kcal/min	= VO2*BW/200 = [(S*0.2) + (S*G*0.9) + 3.5]*BW/200 = [(speed*26.8*0.2) + (speed*26.8*G*0.9) + 3.5]*BW/200 = [(speed*5.36) + (speed*G*24.12) + 3.5]*BW/200 = [(speed*0.0268) + (speed*G*0.1206) + 0.0175]*BW = [(speed*0.0268) + (speed*G*0.1206) + 0.0175]*weight*0.45 = [(speed*0.01206) + (speed*G*0.05427) + 0.00788]*weight

Weight is in pounds
Speed is in mph
Grade is in decimal

Application:

- AC5000
- DC1000

SCIFIT
Prescribed for Progress™

Treadmill MET and Calorie Calculations (AC5000, DC1000)

Walking - speed is less than 4.3 mph

ACSM formula:

VO2	= (S*0.1) + (S*G*1.8) + 3.5

S: Speed (m/min) / 1 mph=26.8 m/min
G: Grade (decimal) / 1%=0.01
BW: Body Weight (kg) / 1 pound=0.45 kg

METs derived formula:

METs	= VO2/3.5 = [(S*0.1) + (S*G*1.8) + 3.5]/3.5 = [(speed*26.8*0.1) + (speed*26.8*G*1.8) + 3.5]/3.5 = [(speed*2.68) + (speed*G*48.24) + 3.5]/3.5 = (speed*0.766) + (speed*G*13.78) + 1

Weight is in pounds
Speed is in mph
Grade is in decimal

Calories derived formula:

Kcal/min	= VO2*BW/200 = [(S*0.1) + (S*G*1.8) + 3.5]*BW/200 = [(speed*26.8*0.1) + (speed*26.8*G*1.8) + 3.5]*BW/200 = [(speed*2.68) + (speed*G*48.24) + 3.5]*BW/200 = [(speed*0.0134) + (speed*G*0.2412) + 0.0175]*BW = [(speed*0.0134) + (speed*G*0.2412) + 0.0175]*weight*0.45 = [(speed*0.00603) + (speed*G*0.10854) + 0.00788]*weight

Weight is in pounds
Speed is in mph
Grade is in decimal

Application:

- AC5000
- DC1000

SCIFIT
Prescribed for Progress™

Upper Body Ergometer MET and Calorie Calculations (PRO1, PRO1000)

ACSM formula:

VO2	= 3*(W/BW) + 3.5

W: Work Rate (kg*m/min) / 1 watt = 6.12 kg*m/min
BW: Body Weight (kg) / 1 pound=0.45 kg

METs derived formula:

METs	= VO2/3.5 = [3*(W/BW) + 3.5]/3.5 = 0.857(W/BW)+1 = 0.857[(watts*6.12)/(weight*0.45)]+1

Weight is in pounds

Calories derived formula:

Kcal/min	= VO2*BW/200 = [(3*W)+(3.5*BW)]/200 = (0.015*W)+(0.0175*BW) = (0.015*watts*6.12)+(0.0175*weight*0.45) = (0.0918*watts)+(0.007875*weight)

Weight is in pounds

Application:

- PRO1
- PRO1000