Calculating BMI and Estimated Energy Requirements (EER)

1.   Conversions

   a.   Convert height from inches into meters (remember that each "foot" of height is equivalent to 12 inches so if a person is 5 ft. 10 in. tall, his height is 70 in.)

   Divide height in inches by 39.37 to find height in meters

   example: 70 inches ÷ 39.37 inches/meter = 1.78 meters (rounded off)

   b.   Convert weight from pounds into kilograms

   Divide weight in pounds by 2.2 to find weight in kilograms

   example 175 pounds ÷ 2.2 = 79.55 kg (rounded off)

2.   Calculate BMI (Body Mass Index) – note BMI is an <u>index</u> of height & weight, there are no units associated with BMI, it is simply reported as a number

   a.   [weight (lbs) X 703} ÷ [height (in)]^2 = BMI

   example: (175 X 703) ÷ 70^2 = 25.11   (Just into the "overweight" range)

   b.   weight (kg) ÷ height (m)^2 = BMI

   example: 79.55 ÷ 1.78^2 = 25.11 (Note: the "English" and the metric calculations will not always yield exactly the same result depending on how much rounding off is done in conversions. They should be close, however.)

3.   Calculate Estimated Energy Requirements (EER) from the DRI equations.

   We will be using equations for adults; there are also equations for infants and children. There are separate equations for men and women. You need to convert body measurements (ht & wt) to metric units for these calculations.

   Men: 19 years and older

   EER = [662 – (9.53 X age)] + PA* X [(15.91 X wt) + (539.6 X ht)]

Women: 19 years and older

EER = [(354 – (6.91 X age)] + PA* X [(9.36 X wt) + (726 X ht)]

*PA = Physical Activity Factor

Physical Activity (PA) Factors for EER Equations

	Men	Women	Physical Activity
Sedentary	1.0	1.0	Typical daily living activities
Low active	1.11	1.12	Plus 30-60 minutes moderate activity
Active	1.25	1.27	Plus ≥ 60 minutes moderate activity
Very active	1.48	1.45	Plus ≥ 60 minutes moderate activity and 60 minutes vigorous or 120 minutes moderate activity

Example:

20 year old male, 5 feet 10 inches in height, 175 pounds. A full-time student, he spends 45 minutes in the gym 5-6 days a week doing a variety of strength, flexibility, and aerobic activities. He also jogs on local trails 3-5 miles, 3-4 times a week.

If you add up his minutes and average out over 7 days he is basically between "low active" and "active". You could use either factor. For illustration purposes, we will use "active".

EER = [662 – (9.53 X 20)] + 1.45 X [(15.91 X 79.55) + (539.6 X 1.78)]

EER = [662 – 190.6] + 1.45 X [1256.64 + 960.49]

EER = 471.4 + (1.45 x 2217.13)

EER = 471.4 + 3214.84

EER = 3686

4.   Really easy way to obtain both BMI and EER:

http://fnic.nal.usda.gov/interactiveDRI/