What are My Calorie, Protein, Fat, & Carbohydrate Needs?

Calorie Needs

The Harris-Benedict Equation for Basal Energy Expenditure (BEE) is commonly used to figure energy requirements based on sex, height, weight and age.

\[ W = \text{weight in kilograms} \quad H = \text{height in centimeters} \quad A = \text{age in years} \]

Men:  \[ \text{BEE} = 66.5 + 13.8(W) + 5.0(H) - 6.8(A) \]

Women:  \[ \text{BEE} = 655.1 + 9.6(W) + 1.9(H) - 4.7(A) \]

Example:

Beth is a 47 year-old female. She is 5’5” tall and weighs 147 pounds. What is her BEE?

\[
\begin{align*}
(147 \text{ pounds})/(2.2 \text{ pounds/kg}) &= 66.8 \text{ kg} \\
(65 \text{ inches})(2.54 \text{ cm/inch}) &= 165 \text{ cm}
\end{align*}
\]

\[
\begin{align*}
\text{BEE} &= 655.1 + [(9.6)(66.8 \text{ kg})] + [(5.0)(165 \text{ cm})] - [(4.7)(47 \text{ age})] \\
\text{BEE} &= 655.1 + 641 + 825 - 221 = \boxed{1900 \text{ calories}}
\end{align*}
\]

If Beth gets regular physical activity, her BEE may need to be multiplied by a factor of 1.2-1.5 to account for extra calories needed during exercise. A factor of 1.2 represents an average amount of activity, where 1.5 would be a very high amount of activity. We’ll say Beth gets an average amount of activity. In this case her needs would be:

\[ 1900 \text{ calories (1.2)} = \boxed{2280 \text{ calories}} \]

Protein Needs

The American Dietetic Association (ADA) recommends daily protein intake for healthy adults as 0.8-1.0 g of protein/kg body weight.

Example:

Jay weighs 168 pounds. How much protein does he need per day?

\[
\begin{align*}
(168)/(2.2\text{g/kg}) &= 76.4 \text{ kg} \\
76.4 \text{ kg (.8 g/kg)} &= 61 \text{ g} \\
76.4 \text{ kg (1.0 g/kg)} &= 76 \text{ g}
\end{align*}
\]

61 – 76 grams of protein per day
Fat Needs

Fat intake should equal 30% of your total daily calories.

Example:

Jackie consumes 1600 calories per day. How many calories and grams of fat should she be consuming each day? 1 gram of fat = 9 calories

1600 calories (.30) = 480 calories from fat

(480 calories)/(9 calories/g) = 53 grams of fat per day

Carbohydrate Needs

The USDA recommends that 45 to 65 percent of your total daily calories come from carbohydrates.

For example: To consume 60% of total daily calories from carbohydrate sources:

- A moderately active 18-year old male who requires 2800 calories a day would need to consume 1680 calories from carbohydrate sources.

- A moderately active 18-year old female who requires 2000 calories a day would need to consume 1200 calories from carbohydrate sources.

Fruits, vegetables, grains, and milk are carbohydrate sources.