

My Nutritional Needs Activity

Energy:

Energy is measured using an SI unit: the joule (J). Since the joule is a relatively small unit of energy, we often use kilojoule (kJ). 1kJ=1000J. 1 calorie (small c) is the amount of energy required to raise the temperature of 1g of water by 1°C. Food energy is measured in Calories (capital C). 1 Calorie = 1000 calories = 4180J.

The rate at which energy is used by an organism when it is at rest is referred to as the **basal metabolic rate (BMR)**. This is the amount of energy you would use per day if you stayed in bed all day, with your body performing only vital processes such as breathing and heartbeat.

How to Calculate Your BMR using the Harris-Benedict Formula

Females	$BMR = [655 + (9.6 \times mass_{in\text{kilograms}}) + (1.8 \times height_{in\text{centimetres}}) - (4.7 \times age\ in\ years)] \times 4.18$
Males	$BMR = [66 + (13.7 \times mass_{in\text{kilograms}}) + (5.0 \times height_{in\text{centimetres}}) - (6.8 \times age\ in\ years)] \times 4.18$

Ex a): Tom is 16 years old and is 175cm tall with a mass of 75kg. Estimate his BMR. (answer: 7800kJ)

Ex b): The Harris-Benedict formula uses the following activity factors in conjunction with the BMR to estimate the average individual daily energy requirement.

- Little or no exercise BMR x 1.2
- Light exercise or sports 1-3 days/week BMR x 1.375
- Moderate exercise or sports 3-5 days/week BMR x 1.55
- Vigorous exercise or sports 6-7 days/week BMR x 1.725
- Very hard exercise daily or sports & physical job BMR x 1.9

Tom is a fairly active student who plays sports most weekdays. What will be his average daily energy requirement?

How many Calories should Tom be consuming to maintain his energy levels?

Your Nutrition & Energy Levels:

1. Calculate your own BMR. (Remember that 1kg = 2.2 lbs and that 1inch = 2.54cm)
2. Calculate your own energy requirements based on your activity level.
3. What would be your caloric requirements to meet your energy level requirements?
4. Chose one of the following options to analyze:

Option 1: Create a meal plan that would meet your energy level requirements (daily caloric needs) and also fulfill the percentage requirements of carbs, lipids and proteins. Take into consideration all the meals you would require for the day including snacks when preparing your meal plans.

Option 2: Write down all of the food you consume in one day and analyze the amount of calories, carbs, proteins and lipids you consume.

For either option, you must obtain the information for each type of food and scale it based on the serving size. Use websites like www.caloriecount.com to get the food information.

Organize your meals in a table that includes the following columns. You may wish to create an Excel file to help present it.

Food	Serving Size	Calories	Carbs (g)	Sugar (g)	Fibre (g)	Protein (g)	Fats (g)

Example:

Food	Serving Size	Calories	Carbs (g)	Sugar (g)	Fibre (g)	Protein (g)	Fats (g)
Big Mac	1	550	46	9	3	25	29
Chicken breast	1 breast	282	0	0	0	55.2	6.2

Big Mac
big mac, mcdonalds, fast food, lunch, burger

D
Grade

550
Calories

Nutrition Facts
Serving Size 1 Sandwich (215 g)

Per Serving	% Daily Value*
Calories 550	
Calories from Fat 261	
Total Fat 29g	45%
Saturated Fat 10g	50%
Cholesterol 75mg	25%
Sodium 970mg	40%
Carbohydrates 46g	15%
Dietary Fiber 3g	12%
Sugars 9g	
Protein 25g	
Vitamin A 4% · Vitamin C 2%	
Calcium 25% · Iron 25%	

*Based on a 2000 calorie diet

Chicken, Breast, Meat Only
Cooked dry heat, Roasted, Grilled, Broiled
chicken breast, chicken, meat, dinner, protein

A-
Grade

141
Calories

Nutrition Facts
Serving Size 1/2 breast, bone and skin removed (86 g)

Per Serving	% Daily Value*
Calories 141	
Calories from Fat 28	
Total Fat 3.1g	5%
Saturated Fat 0g	0%
Polyunsaturated Fat 0g	
Monounsaturated Fat 0g	
Cholesterol 74mg	25%
Sodium 99mg	4%
Potassium 218.12mg	6%
Carbohydrates 0g	0%
Dietary Fiber 0g	0%
Sugars 0g	
Protein 27.6g	
Vitamin A 0% · Vitamin C 0%	
Calcium 1% · Iron 6%	

*Based on a 2000 calorie diet

5. Complete your totals for each category (calories, carbs, sugars, fibre, fat, protein). Determine if you are meeting the necessary percentages for food requirements.

Carbs 45-65%

Protein 10-35%

Fats 25-35%

6. Determine how much fibre and sugar you are consuming as a percentage of your diet. Do you think this is an appropriate amount?

7. Pretend you are a dietician analyzing your meal plan. Write up an analysis to yourself about the positive aspects of your diet and list some areas for improvement. What changes could you make to your diet to meet your requirements.