Graded Project

Nutrition
OVERVIEW

Your graded project in Nutrition consists of three parts. In Part 1, you’ll demonstrate your ability to accurately read and analyze the nutritional information on a food label. In Part 2, you’ll calculate the target body weight of a subject with a specific weight-loss goal. In Part 3, you’ll respond to a series of questions on how you might adapt your recommendations based on changes in age and circumstances.

Note: You’ll need a calculator to complete Parts 1 and 2 of this project.

Expectations for This Project

Students should be able to

- Accurately read a food label and explain to others how to do the same
- Analyze nutritional information and compare it to USRDA nutritional guidelines
- Provide accurate feedback about the nutritional content contained in food
- Calculate target body weight based on body composition goals/changes
- Set short- and long-term goals based on weight-loss objectives
- Devise a method of achieving weight-loss goals based on the energy balance equation
- Make recommendations based on a variety of ages and circumstances
PART 1: READING FOOD LABELS

Background

The changing of a person’s dietary habits begins with an evaluation of intakes. The first step in the process is instructing how to properly read a food label. Although many opt to use one of the many nutritional-analysis software programs, the information found on labels is relevant when educating anyone about what constitutes good and poor nutritional choices.

Many individuals are directed to follow the recommendations of the Dietary Reference Intake (DRI) for energy nutrient consumption. The basic recommendation for <30% of total calories from fat, 55%–60% from carbohydrates, and 10%–12% from protein is somewhat difficult to follow based on the fact that computations are necessary to derive these values. Essentially, one must know the total caloric intake, the number of grams of each energy source consumed, and how to covert the numbers into a percentage of total calories. Anyone using these recommendations must first understand how to calculate the percentages and then instruct their clients to be able to do the same.

This process all starts with the ability to read a food label. Additionally, if one’s total energy consumption is going to be nutrient-specific based on size and physical activity, he or she must be able to quantify the number of calories and where those calories came from.

Procedure

In this part of the project, you’ll analyze a nutrition label to calculate the percentage of calories from each nutrient listed. You’ll use the following formula to perform the calculations:

\[
\frac{(\text{Grams of nutrients} \times \text{kcal per gram})}{\text{Total calories consumed}} = \text{Percentage of calories from nutrient}
\]
Example: A 37-year-old woman consumed an energy bar containing 250 calories and 22 grams of sugar. What percentage of the bar was sugar? (Recall that sugar is a carbohydrate and therefore contains 4 kcal per gram.)

\[
22 \text{ grams of sugar} \times 4 \text{ kcal per gram} = 88 \text{ kcal of sugar}
\]

\[
88 \text{ kcal of sugar} \div 250 \text{ kcal of energy} = 0.35 \text{ or } 35\% \text{ of the calories are from sugar}
\]

The following food label (Figure 1) belongs to a box of macaroni and cheese. For lunch, a 22-year-old man prepared the entire box. He consumed \( \frac{3}{4} \) of the box before getting full, and placed the leftovers in the refrigerator. Review the label and answer the questions that follow about the nutritional satisfaction of the meal for this person’s daily requirements based on the food label content values for each nutrient.

![FIGURE 1—Sample Nutrition Label](image-url)
Questions 1–13: Answer the questions that follow.

1. What is a single serving size? _______

2. What is the total number of servings consumed? _______

3. What is the total number of calories consumed? _______ kcal

4. What percentage of the total calories consumed came from fat? _______ %

5. What percentage of fat calories came from saturated fat? _______ %

6. What percentage of the total calories consumed came from carbohydrates? _______ %

7. What percentage of the calories came from sugars? _______ %

8. What percentage of the total calories consumed came from protein? _______ %

9. How many grams of fiber were consumed? _______ g

10. How much sodium was consumed? _______ mg

11. What energy source provided the most calories? _______

12. Why would you be inclined to think this food is made from processed or refined grains?

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_________________________________________________________________________

_________________________________________________________________________
PART 2: CALCULATING TARGET BODY WEIGHT

Background

After completing a nutritional analysis and dietary profile, a nutrition expert will have several valuable pieces of information which can be used for appropriate weight management decisions. However, prior to making any recommendations for dietary modification based upon the dietary analysis, one should assist the client in understanding what relevance each piece of information holds and why it may be applicable in determining the appropriate dietary modifications.

Although the resting metabolic rate (RMR) and food logs complement quantifiable data, the dietary analysis is still incomplete. Additional information is required to fully develop the initial conclusion on what actions should be made to address the physical and nutritional status of a client.

It’s necessary to use body composition measurements in conjunction with the information gathered in this activity, so that reasonable decisions can be made as to the direction to follow for weight management purposes. Current body composition measurements, morphology, and physical status all factor into reasonable body weight goals.

To create a mapping sequence in any fitness program, a professional must use quantifiable start and end points, such as current body mass and relative leanness. The precalculated stops along the way reflect the objectives, or short-term goals necessary to reach the final destination. This suggests that to get to a reasonable body composition goal, the target body weight must be calculated based on the client’s current body composition and individual body goals.
Frequently, weight-loss goals are established with limited or no information pertaining to lean mass. The target body weight formula allows the formulation of weight goals based on body compositional changes as opposed to arbitrary body weights.

The information gathered from the use of this formula will assist the professional in making the appropriate recommendations with regard to body weight and body composition outcomes.

**Procedure**

The following formula is used to calculate a subject’s target body weight based on body-fat percentage goals. It can be used to assist in setting short- and long-term weight-loss goals as well as to aid in tracking program effectiveness and identifying errors in balance between diet and energy expenditure. The formula will enable you to calculate a client’s target total body weight based on a desired or target body-fat percentage. From this value, caloric intake recommendations can be made, taking into account the fact that 3,500 calories = one pound of fat and that maximum weight loss per week should not exceed two pounds.

You’ll use the following formula to perform the calculations:

**Target Body Weight Formula**

\[
\begin{align*}
\text{Fat mass} &= \text{Current body weight} \times (\% \text{ Body fat} \div 100) \\
\text{Fat-free mass (FFM)} &= \text{Current body weight} - \text{Fat mass} \\
\text{Target body weight} &= \frac{\text{Fat-free mass}}{1 - (\text{Desired} \% \text{ body fat} \div 100)}
\end{align*}
\]

**Example:** A 50-year-old accountant weighs 195 lbs and has a body-fat percentage of 31%. His goal is to reach 15% body fat. What is his target body weight at 15% body fat?

Fat mass = 195 \times .31 = 60 lbs

Fat-free mass = 195 lbs – 60 lbs = 135 lbs

Target body weight = \frac{135}{1 - (15 \div 100)} = 158.8 lbs
Questions 1–7: Answer the questions that follow.

Heather is a 28-year-old attorney who weighs 175 lbs. Her current body composition is 35% body fat. The initial goal is to reduce her body composition to 30% body fat. Complete the calculations that follow to identify the new weight goal. Be sure to show your work where necessary.

1. What is Heather’s fat mass?
   __________________________________________________
   __________________________________________________

2. What is Heather’s fat-free mass?
   __________________________________________________
   __________________________________________________

3. What is Heather’s target body weight?
   __________________________________________________
   __________________________________________________
   __________________________________________________
   __________________________________________________
   __________________________________________________

4. How can you determine the number of calories Heather will need to burn to reach her goal of 30% body fat?
   __________________________________________________
   __________________________________________________
   __________________________________________________
   __________________________________________________

5. Once Heather’s initial short-term goal has been attained, you must then recompute her target body weight based on her new desired body-fat goals. Determine the remaining values in the following chart by calculating Heather’s desired weight as she loses body fat. (Hint: You’ve already calculated the body weight value for Goal #1.) Note that fat-free mass shouldn’t change during the calculation of predicted weight loss and body-fat goals.
6. Why is it necessary to determine Heather’s accurate body composition before helping her set body weight goals?

______________________________________________

______________________________________________

______________________________________________

7. What might be a reason for discrepancies between Heather’s measured body composition and her predicted body weight at a given percentage?

______________________________________________

______________________________________________

______________________________________________

**PART 3: NUTRITION THROUGHOUT A LIFETIME**

**Background**

In this final part of your project, you’ll list important details that Heather should consider in maintaining healthy nutrition throughout the other phases of her life.
Procedure

Although you won’t need to make calculations in this section, you will demonstrate your knowledge of what nutrients are likely to be of concern in various situations and circumstances.

Questions 1–3: Answer the questions that follow.

1. At age 31, Heather is expecting a child. However, gestational diabetes tends to run in her family. What nutritional guidelines would be especially important for her to keep in mind during her pregnancy?

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________________________________________________________________________
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2. At age 46, Heather has decided to begin training for her dream of climbing Mount Ranier. She wants to know whether she should increase her protein intake during her 12 months of planned training. Should she, and if so, by about how much?

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________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

3. At age 55, Heather is beginning to plan to retire from her professional career. What can she do to delay the possible onset of osteoporosis, which affected her mother and grandfather?

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SUBMITTING YOUR PROJECT

To submit your project online,

1. Type and double-space your responses in a word-processed document, and save it in text format.

2. Upload this document to your instructor through your My Courses page.

Your instructor will send the evaluation of your project to you via an e-mail response.
Graded Project

Nutrition

Be sure this sheet is included with your project if you’re sending it to the school using conventional mail. Your project represents one examination grade for this course. Your instructor will use this form to evaluate your answers. If you e-mail your project to the instructor, you’ll receive the evaluation in an e-mail from the instructor.

Grading Criteria

Your answers will be graded on the following criteria:

Part 1: Reading Food Labels

Questions 1–11 (2 points each) _______ points
Questions 12–13 (6.5 points each) _______ points

Part 2: Calculating Target Body Weight

Questions 1–5 (5 points each) _______ points
Questions 6–7 (8 points each) _______ points

Part 3: Nutrition Throughout a Lifetime

Questions 1–3 (8 points each) _______ points

Total Score _______ points

Instructor Comments ____________________________________________________________
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