

Carbohydrate Mythology: Instructor Guide

Title:

Carbohydrate Mythology

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Discipline:

Nutrition and Dietetics

Target Audience

Intermediate, majors

Keywords

Carbohydrate, diet, myth, nutrients, weight loss

Length of Time/Staging

Three twenty minute segments of class-time, one week apart and two two hour small group meetings.



Abstract

Dylan has always struggled with his weight and has been told by his doctor that he needs to lose weight. A month ago Dylan started a fad diet that includes significantly reducing carbohydrate intake. He has lost over twenty pounds and is raving about the diet. Students will examine the role of carbohydrates in the diet, micronutrients associated with carbohydrate food sources, and issues surrounding weight loss.

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Format of Delivery

Part 1 will be distributed in first meeting of class. Groups will be assigned and instructions on how to approach the problem will be explained. The instructor will review the problem with the students and address any questions. Students are to meet on their own time and answer the questions in Part 1.

Part 2 will be distributed in the following class. The instructor will go over the problem in class.

In the third class, reports will be submitted and the instructor will guide a discussion that addresses the questions from Parts 1 and 2. Different groups will learn from other groups about aspects of the problem they did not consider.

Student Learning Objectives

1. Identify and describe the food sources of carbohydrates.
2. Identify and list the micronutrients and non-nutrients contained in carbohydrate foods.
3. List the premises behind low carbohydrate diets.
4. Understand the mechanisms behind the transient weight-loss that occurs with these diets.
5. List the recommended intakes of carbohydrates.
6. Become aware of the sensitivity surrounding discussions of weight loss.
7. Describe healthy ways that provide permanent, long-term weight loss.

Assessment Strategies

Students will be divided into small groups of four to five members and will submit a report that addresses the questions in this two-part problem.

In the third meeting of the class, when the reports are submitted there, will be a twenty minute discussion that addresses the questions asked in the problem. Students will learn from each other about various aspects that they may not have considered when answering the questions. They will receive participation marks for contributing to the discussion.

Solution Notes

Part 1

1. Health risks associated with being overweight include coronary heart disease, atherosclerosis, type II diabetes, gallstones, certain cancers, and hypertension.
2. Some main fad diets that focus on carbohydrate restriction are the Atkins diet, the South Beach Diet, and the Zone diet.
3. Dylan is having "success" on this diet and losing weight because he has likely significantly reduced his total daily calorie intake.
4. Carbohydrates are a critical part of one's diet because it is recommended by the American MyPyramid and Canada's Food Guide that they make up approximately 45-65% of the daily calorie intake. Food sources of carbohydrates include fruit, vegetables, and grains all of which contain essential vitamins and minerals in addition to calories.
5. Reducing carbohydrate intake is not a good approach to weight loss. Successful permanent weight loss requires permanent changes in lifestyle. These changes include lowering fat intake, lowering overall calorie intake, and being physically active. The majority of calories should be coming from carbohydrates. Only refined carbohydrates should be reduced.

Part 2

1. Weight loss is a sensitive topic. One would want to tactfully approach the discussion, especially when talking to a good friend.
2. This question is open to interpretation, however some things to look for are showing concern when explaining what the students' research found, and expressing how to successfully and permanently lose weight.
3. Dylan is likely lacking fiber, and many of the major vitamins and minerals. Importance of fiber/minerals/vitamins are found in any nutrition textbook.
4. Dylan will likely not be able to keep the weight off because he is on a diet, and diets are not thought of as permanent changes. He will likely grow very hungry and not be able to follow the strict rules of his diet and end up consuming more calories than he was to begin with. This weight oscillation is not healthy.
5. Approaches to a healthy diet include balancing macronutrient intake, reducing fats, reducing refined sugars, reducing salt, increasing whole grains, increasing fruits and vegetables, and staying physically active. Students should be able to discuss why these things are important to health.

Reviewers' Comments

This is a concise, nicely written problem on a general topic sure to be interesting to students. Acceptance is recommended, with some suggestions ("opening up" some of the problem stages, introducing a driving question, focusing on a specific diet, and providing a few credible web-based resources) that the author may wish to consider. These are left to the author's

discretion, however, and are not required for acceptance. There are many dimensions to this problem, and it could go in a number of different ways, each equally interesting.

In general, I think the problem would be more engaging if the first stage were a little less narrow and opened up to encourage students thinking about what they already know, or have heard, or what they have seen in popular culture. More important than that is for them to think about what they don't know and to prioritize their learning issues.

Having Dylan using a specific diet might be helpful.

The problem would be more interesting if it were less teacher-centered. Questions 1, 4, and 5 (Part 1) are basically their learning issues—is there some way students could be motivated to phrase these questions themselves?

I think the whole problem could be tightened up if there were "driving question" explicitly stated as part of the conversation, *e.g.*, "I just don't know what to think about low-carb diets...are they the latest fad that might be dangerous in some way?"

You might consider a third stage with Dylan doing terribly, and his friends explore what is going on there. Learning objectives might include the neurological basis of appetite.

Given the multitude of web-based information and misinformation, the instructor probably should be ready with a list of creditable sources.