

# Health and Wellness Testing Assessment

Student Researcher: Jordan A. Graves

Advisors: Dr. Rajeev Swami and Dr. Brandy Phipps  
Central State University, Department of Education

## Abstract

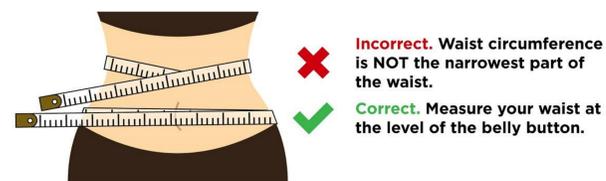
It is important for astronauts to maintain a healthy lifestyle because they have an increased risk of cardiovascular disease and muscle deterioration. Researchers study and monitor astronaut health for safety and disease prevention. Many of these methods are used in other health fields (e.g. exercise science, nutrition, medicine.) In this lesson students will be given the opportunity to learn and perform health assessment techniques, calculate risk factors, and make recommendations for “clients.” I will teach the assessment methods, healthy eating and exercise recommendations, and testing techniques and sample calculations on paper. Then, students will be divided into groups of three, with each student assigned a role (future astronaut, doctor/exercise scientist, and nutritionist.) Students will record height, weight, blood pressure, heart rate, and waist circumference. Calculations and standard risk charts will be used to evaluate “future astronaut” health risk. Students will then work in a group to determine nutrition and exercise recommendations for their “client.” By the end of the lesson, students will understand healthy eating practices, demonstrate ability to perform common health measurements and calculations of risk, and demonstrate ability to translate risk analysis into health recommendations.

## Introduction

The common core standard for my lesson is the nature of science, these 8<sup>th</sup> grade students will be applying knowledge of science in real world challenges. I will begin the lesson by having students give their perspective and knowledge of a healthy diet is and what foods should you eat regularly. I will also ask students to guess what a normal blood pressure and heart rate is. Next students will watch a video about Nutrition from NASA astronauts. After the video, I will provide handouts including 1) detailed protocols for measuring height, weight, blood pressure, heart rate, and waist circumference; 2) standard risk charts relating measurements to cardiovascular disease and metabolic syndrome; 3) instructions for converting measurements into risk analyses; and 4) standard nutrition recommendations for healthy individuals. I will demonstrate the measurements on a volunteer, and have students practice calculations, risk analyses, and action plan with data from two “sample clients.” The lesson is designed to provide a collaborative, “real world” learning opportunity for the students. To accomplish this, after the demonstrations and “sample client” practice, students will be divided into groups of three (deciding within the group which student will assume the roles of future astronaut, doctor/exercise scientist, and nutritionist.) The exercise scientist/physician will record height, weight, blood pressure, heart rate, and waist circumference of the future astronaut and perform calculations and risk analyses. The exercise scientist/physician will work with the nutritionist to develop a written nutrition and exercise plan for the future astronaut based on the results of the risk analysis. Students will the switch roles, allowing each member of the group to assume each role. By the end of the lesson, students will have demonstrated 1) understanding healthy eating and exercise practices, 2) the ability to perform common health measurements and calculations of risk, and 3) the ability to translate risk analysis into health recommendations.

## Materials

- Stadiometer with scale
- Sphygmomanometer
- Measuring tape
- Calculator
- Protocol handouts, standard risk analyses charts, and nutrition handouts
- STEMonstrations: nutrition video



## Methodology

In this lesson, the methodology used is the Lev Vygotsky Social Theory. He suggested that students learn best when they interact with their peers, teachers, and experts. This lesson provides a collaborative “real world” learning experience for students to take the information they are taught and apply it modeling expert behavior. They will work together, providing critique and suggestions to work of their group-mates, demonstrating their knowledge and ability to work in teams.

## Results

Students will learn that nutrition is an important factor in life and specific steps they can take to create healthy eating habits in their life. This activity can influence students who do not care for health or science to be in an interactive lesson. Students will know how to take common body measurements and how they relate to health.

### Step Into the RIGHT FOODS

Here are simple steps to fill your plate with healthy, correctly portioned foods (visit [www.choosemyplate.gov](http://www.choosemyplate.gov) for more info):

1. Fill half of your plate with fruits and vegetables which provide fiber as well as a variety of vitamins and minerals.
2. Fill one quarter of your plate with carbohydrates such as bread, pasta, rice, cereal, oatmeal, muffins or pancakes. Look for whole grain when possible.
3. Fill the remaining quarter with a lean protein such as skinless poultry, pork, fish, eggs, nuts, and occasionally beef, preferably labeled as “extra lean.”
4. Add a dairy serving, such as a glass of milk, a slice of cheese or a serving of yogurt.



#### Some foods may fit in more than one section

- Spaghetti with meat sauce contains grain (pasta), protein (meat), and vegetable (tomato sauce, onions, mushrooms, green peppers)
- Salads may contain vegetable, fruit, protein (meat, poultry, egg, nuts), and dairy (cheese)
- Soups may contain vegetable, protein (meat, poultry, beans), and dairy (cheese, milk)
- Pizza may contain grain (crust), dairy (cheese), vegetable (toppings), and protein (toppings)
- Tacos may contain grain (tortilla or shell), dairy (cheese), vegetable (tomato, lettuce, avocado), and protein (meat, beans)

### Step Into the RIGHT PORTIONS

Most people eat much more or much less than they think they are eating! Look at the nutrition label and take note of the serving size. Use a measuring cup or count the number of items to correctly measure out one serving.

In the nutrition label to the right, 2/3 cup is equal to one serving. If you don't actually measure, it's very easy to underestimate your portion, consuming two servings and twice the calories! Underestimating for each meal can lead to consuming twice as many calories as you thought each day.

| Nutrition Facts            |     |
|----------------------------|-----|
| Serving size 2/3 cup (55g) |     |
| Amount per serving         |     |
| Calories                   | 230 |

#### Some easy ways to estimate a serving size include:

- 1 cup (2 servings) of fruit or vegetables is the size of a baseball
- 3 oz. serving of meat is about the size of a deck of cards
- 1 serving of lettuce/greens (1 cup) is the size of a baseball
- 1 serving of cheese is about the size of 3 dice
- 1 serving of grains includes a pancake the size of a CD, 1 slice of bread, or a mini bagel
- 1 serving of brownie is about the size of a small container of dental floss
- 1 serving (2 tablespoons) of peanut butter, hummus, or salad dressing is about the size of a golf ball

## Conclusion

### Step Into BETTER CARBOHYDRATES

Experts recommend that at least half of our daily grains be whole. Whole grains will help you feel full faster. They can also assist in weight loss and weight management and reduce the risk of many types of cancer.

When shopping, the food packaging can make it difficult to determine if the product is truly a whole grain. Look for labels that say “100% whole grain” or read the ingredient list on the food label. Whole grains have the word “whole” listed before the ingredient (such as whole wheat flour).

#### What about gluten-free?

For those who have celiac disease, gluten-free diets are a must. Those who don't have a medical reason to avoid gluten should consult with their physician before doing so, because **gluten-free diets can lead to:**

- **Vitamin B deficiency.** Fortified cereals and breads are a major source of vitamin B in American diets, so avoiding these gluten-containing foods can lead to a vitamin B deficiency.
- **Weight gain.** Whole wheat is a major source of fiber, which makes you feel fuller sooner and longer than processed grains.
- **Increased risk of heart disease,** as consumption of whole grains is associated with a lower risk of heart disease.

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## Recommendations

### Step Into HEALTHY SNACKS

Careful planning can help you avoid consuming excess or empty (no nutritional value) calories at snack time. Try some of these options:

- Single-serving size packages of nuts (without seasonings or salt is best) or for a budget-friendly option, buy them in larger packages and divide them into single serving bags yourself
- Low-sugar granola bars
- Single-serving packages of unsweetened (natural) applesauce or fruit in 100% juice
- Unsweetened dried fruit - raisins, cranberries, apples, etc.
- Plain popcorn or light microwave popcorn
- Whole-wheat crackers with peanut butter (assemble your own as pre-packaged varieties usually have sugar and other additives)
- Whole-grain pretzels
- Whole-grain, low-sugar cereals
- Fat-free yogurt - plain, or flavored with an artificial sweetener
- Reduced-fat string cheese
- Reduced-fat cottage cheese
- Single-serving packages of fresh vegetables (or cut up whole vegetables and make up your own bags once a week) with hummus or fat-free ranch dressing
- 4 ounce servings of 100% vegetable juice, 100% fruit juice, or a mixture of 50% fruit and 50% vegetable juice (such as V8-fusion)

#### What's Your Next Step?

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Sources: Celiac Disease Foundation, [www.celiac.org](http://www.celiac.org); MyPlate, [www.choosemyplate.gov](http://www.choosemyplate.gov); Harvard Health Publishing, [www.health.harvard.edu](http://www.health.harvard.edu); Mayo Clinic, [www.mayoclinic.org](http://www.mayoclinic.org)



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## Acknowledgements

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Circle Wellness  
NASA

<https://www.healthhub.sg/live-healthy/1260/if-you-think-that-thin-people-dont-get-diabetes-think-again>