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# Detecting the Correct Portion Size

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# Detecting the Correct Portion Size

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## Detecting the Correct Portion Size

### **Introduction**

Portion sizes of foods have been increasing. Dietetic professionals are trained to recognize standard portion sizes of foods. The Food Guide Pyramid was created in order to promote overall health, be practical, be evolutionary, meet nutritional goals in a realistic manner, and be useful to target audience (1). Although the Food Guide Pyramid has been around for over 20 years, and has been found in fliers, posters, fliers, and the Internet there are still many people that do not follow it (2). The size of plates, utensils, and containers that food is served in has increased in size, also skewing dietitians' final decisions in determining the correct portion and serving size.

The portions of foods have also changed in the past 20 years such as a bagel used to have a 3" diameter but now has a 6" diameter(3). It is important for the population to be looking at the most current Food Guide Pyramid to get the latest and most practical information. Although the population may still have difficulty reading and understanding the current Food Guide Pyramid, "the abandonment of the USDA Food Guide Pyramid would cause massive confusion among an already confused public" (1). Therefore it is still important for the public to know how to read it, understand, and comply as best they can.

### **Method/ Design**

This study was designed to find the percentage of dietetic students (n=30) and professors (n=2) who would be able to determine the correct serving size of five food items according to the Food Guide Pyramid. Junior and senior classes of dietetic students at Eastern Michigan University participated in the study.

There were five tables set up with a different food item on each table. For each food item there were three different portions displayed (all containers were the exact same size). The subjects had a survey (see Appendix A) to complete by going to each table and marking down what they thought the correct portion/serving size was according to the Food Guide Pyramid (4). This was anonymous except for knowing what class they are in: junior or senior class, professor or student. There was no talking while observing the serving sizes on the tables. Each subject completed the survey and gave the researcher the completed survey. It took about two to three minutes to complete the survey.

The portion sizes of each food and the corresponding three digit code are as follows:

Measurements of each example as it was displayed  
However the measurements were not written on the numbers for the participants, this was for personal reference. (4,5)

Table #1

Food: Walnuts  $\frac{1}{4}$  cup, 1 oz  
Plate 567:  $\frac{1}{3}$  cup  
Plate 897: 3 T  
Plate 942:  $\frac{1}{4}$  cup

Table #2

Food: Fruit Juice (6 fl oz)  
Glass 345: 4 fl oz  
Glass 890: 8 fl oz  
Glass 548: 6 fl oz

Table #3

Food: Cooked Chick Peas ( $\frac{1}{2}$  cup 4 oz)  
Bowl 941:  $\frac{1}{2}$  cup 4oz  
Bowl 620:  $\frac{3}{4}$  cup  
Bowl 493: 1 cup

Table #4

Food: Cold Breakfast Cereal (Flakes) 1 cup (8 oz)  
Baggie 230: 1 cup  
Baggie 496:  $\frac{2}{3}$  cup

Baggie 295: 1/3 cup

Table #5

Food: Air popped popcorn 2 cup

Bowl 748: 1 cup

Bowl 048: 2 cup

Bowl 572: ½ cup

## **Results**

The results are close to what was expected. The chick peas were correctly identified the most and walnuts were the least correctly identified for their correct portion size. Tables 1, 2, and 3 show the number of correct and incorrect responses for each food category. It was assumed the professors would score higher due to their higher education followed by the seniors than the juniors. However it was expected that the respondents would identify the cereal portion higher than 28% on average. The Figures 1, 2, and 3 represent seniors, juniors, and professors respectively. Figure 4 illustrates the percent of each group that correctly identified the portion size for each food. Figure 5 illustrates the percent of respondents as a whole that correctly identified the portion size for the particular food group.

## **Conclusion**

The students first had to know, instantly in their heads, the correct portion size according to the Food Guide Pyramid. They then had to identify the correct portion size in the containers provided per food example. The students in the dietetic program completed and passed the survey. It seemed to be challenging for the students to determine the correct portion size just by looking at the food item rather than knowing the actual portion size. Once the test was completed, the students talked among themselves and it was observed that they knew the correct portion size but it was just hard to identify in the examples provided.

After the survey, the researcher explained to students that random numbers were used instead of A, B, or C to help eliminate second guessing. This is also a technique used in food science. Since they were unable to speak with one another and they also knew it was not graded, most of them seem to go through quickly (less than two minutes) and circled what they thought the correct answers were.

It has been noted that with certain food samples such as chick peas, most of the participants identified it correctly consistently. However with the cereal, all groups were consistently incorrect. It is noted that the cereal samples looked similar and therefore hard to determine between the 1c, 2/3c, 1/3c respectively.

In general, it is not just one meal that people typically overeat, it's usually a 2-day period and then they may return to a normal eating pattern for a few days (2) However, if the usual meal already has larger portion sizes, the viewer may start to consider these portion sizes to be normal and weight gain is likely (2). It is important as dietitians to teach correct portion sizes and instruct the population on how to find correct information for nutrition questions.



**Table 1 Junior Students' Responses to Portion Sizes**

	Correct	Incorrect
Walnuts	3	11
Fruit Juice	7	7
Chick Peas	8	6
Cold Cereal	3	11
Popcorn	4	10

**Table 2 Senior Students' Responses to Portion Sizes**

	Correct	Incorrect
Walnuts	4	12
Fruit Juice	8	8
Chick Peas	13	3
Cold Cereal	5	11
Popcorn	11	1

**Table 3 Professors' Responses Portion Sizes**

	Correct	Incorrect
Walnuts	0	2
Fruit Juice	1	1
Chick Peas	2	0
Cold Cereal	1	1
Popcorn	2	0

Figure 1 Senior Responses

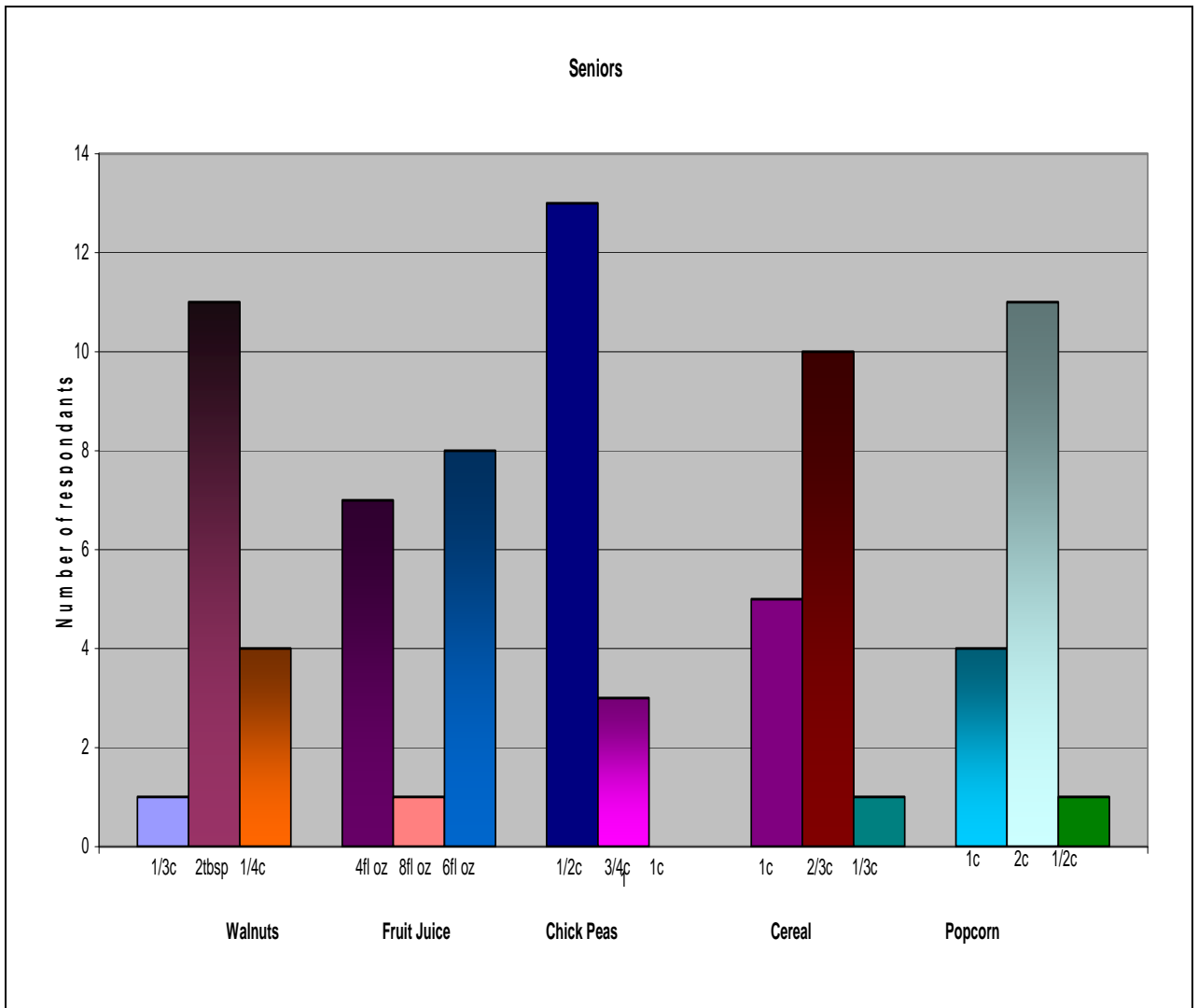


Figure 2 Junior Responses

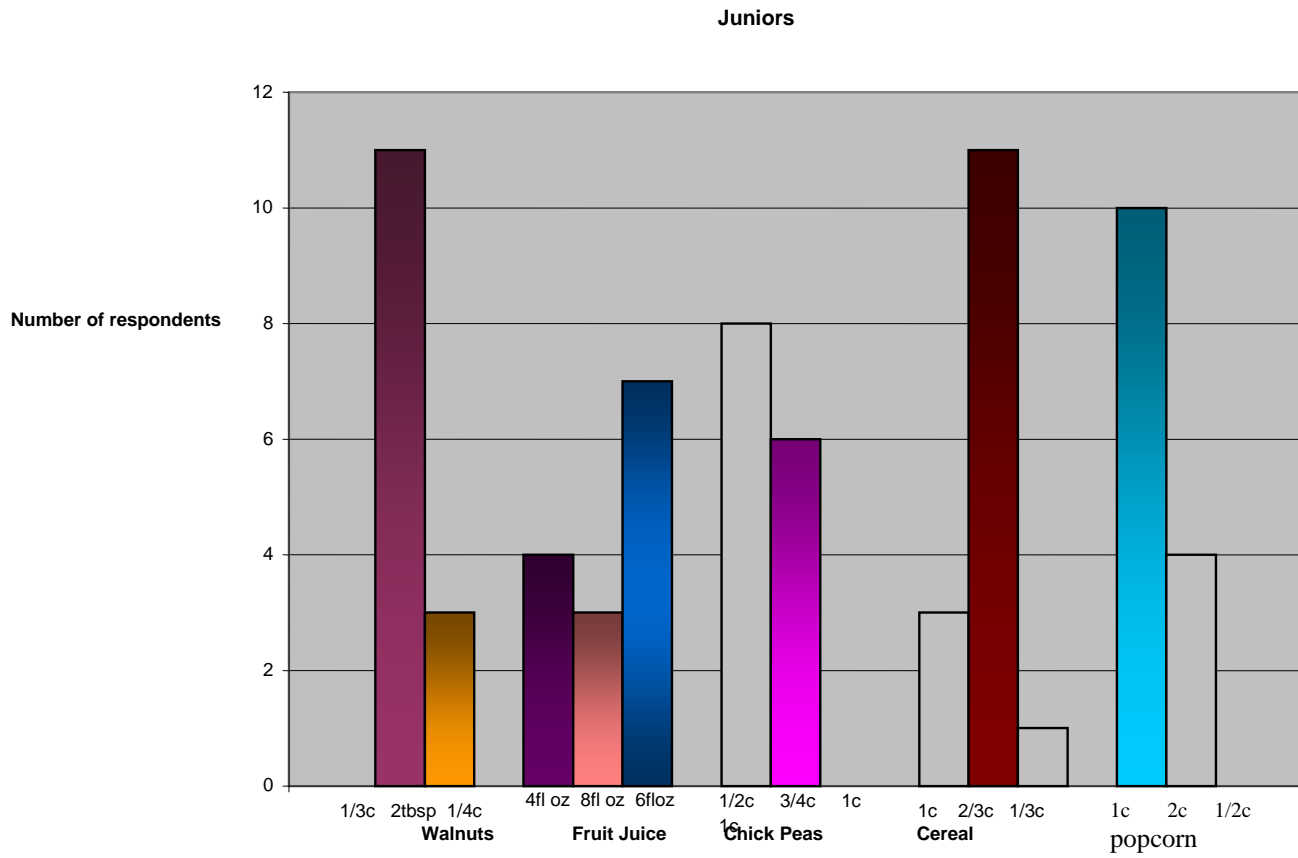


Figure 3 Professor Responses

Professors

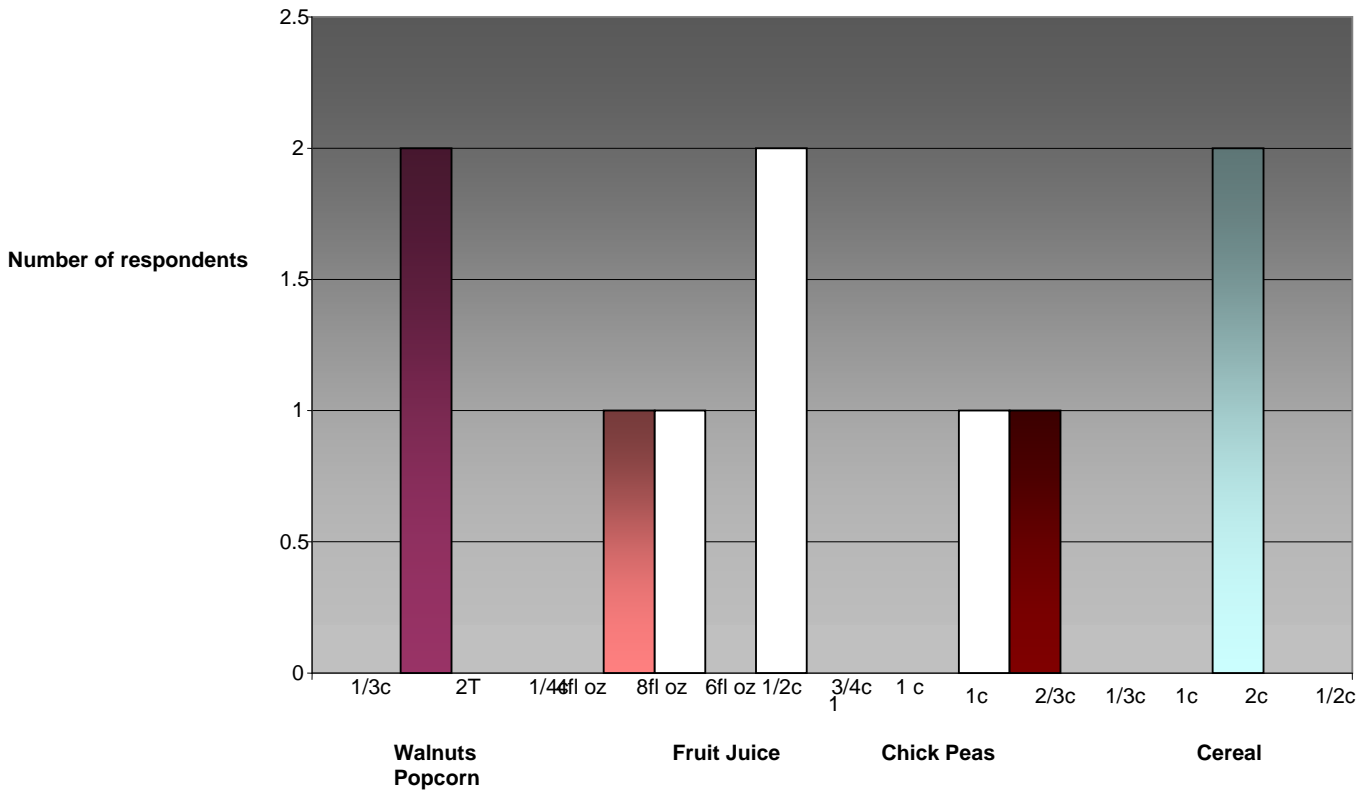


Figure 4 Percent Correctly Identified by each group

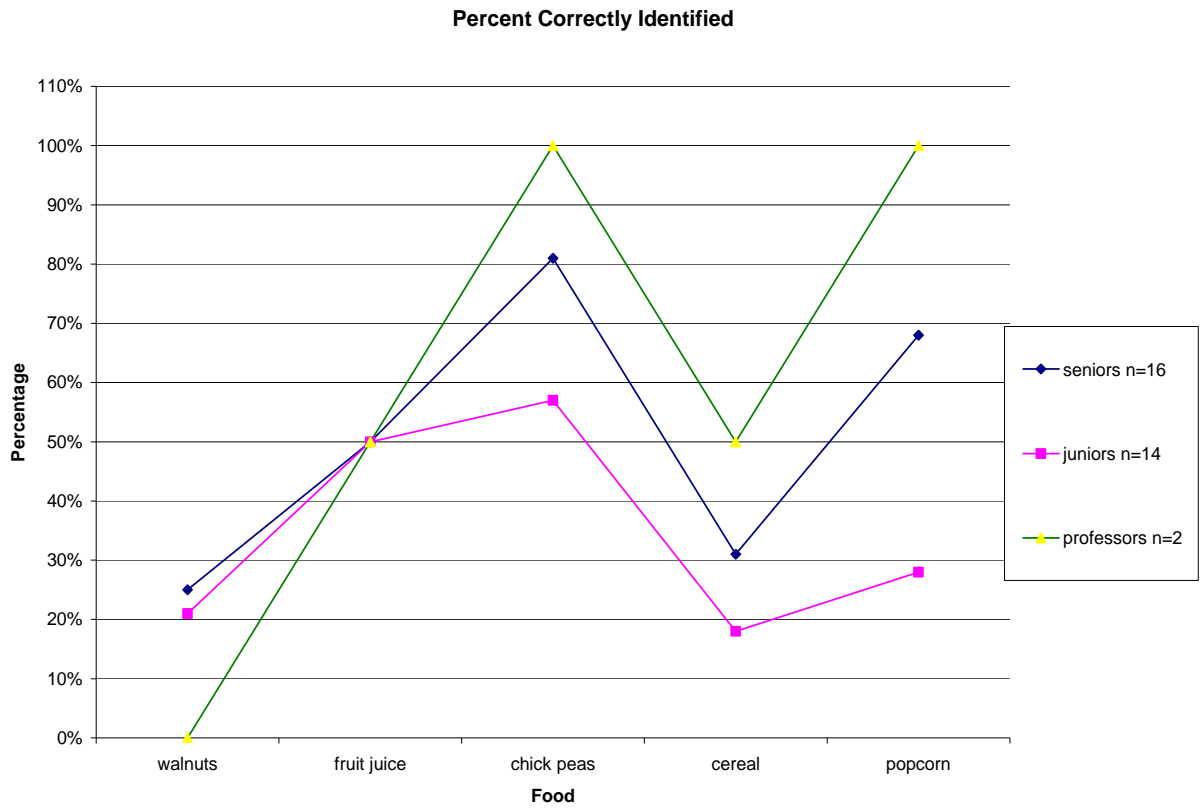
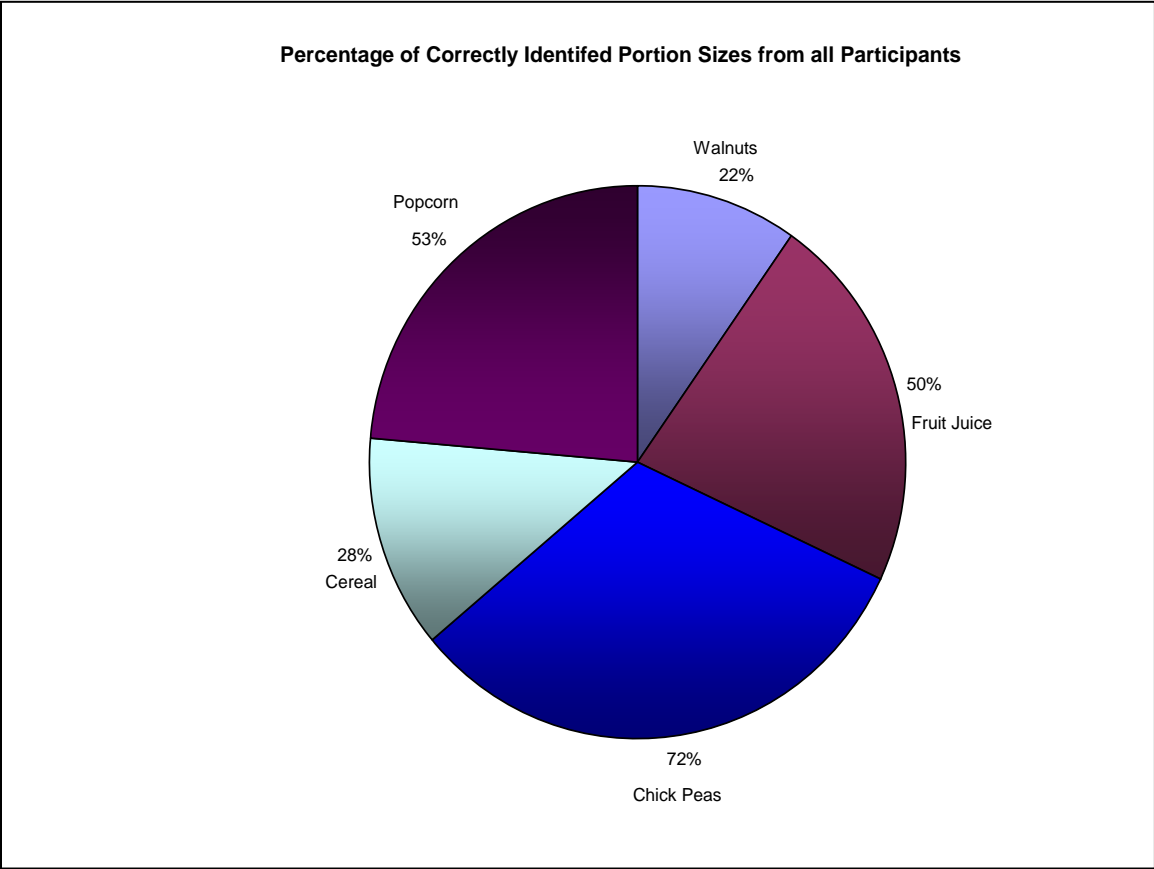


Figure 5 Percentage correct from all the participants



References References 4 and 5 are not found in the text of the paper. All references must be used in the text.

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## Appendix A

Please circle the number you think displays the correct portion size according to the Food Guide Pyramid for each food item.

### Table 1: Walnuts

567

897

942

### Table 2: Fruit Juice

345

890

548

### Table 3: Chick Peas

941

620

493

### Table 4: Cold Breakfast Cereal

230

496

295

### Table 5: Air popped popcorn

748

048

572