

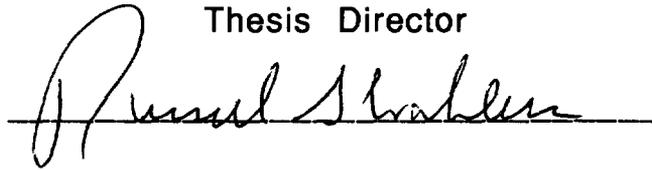
NUTRITIONAL LABELING: A NEED FOR A NEW FORMAT

An Honors Thesis (HONRS 499)

by

Leigh Ann Howe

Thesis Director

A handwritten signature in cursive script, reading "Russell Stahler", is written over a horizontal line.

Ball State University

Muncie, Indiana

May 1991

May 4, 1991

THE NEED FOR NEW NUTRITIONAL LABELS

The Health Conscious American Society

The rise of a health conscious society across the nation has brought nutrition into the eyes of the consumer. The days of potato chips and candy bars seem to be over for some people. Consumers are becoming more health oriented. Consumers want to become more aware of the ingredients in the foods they purchase. A boom of information has been introduced to society about what is healthy and what is health threatening. Some information has been available for quite some time but is getting renewed attention. The nutritional labels found on food products are an example of information that has been available for some time. With all the information that is available to consumers are they able to attain, comprehend, and use this wealth of information about nutrition that is available to them?

The growing concern for a healthy diet is a trend that is needed in the United States. Evidence shows that many Americans are improperly nourished (Jacoby 1977). While some malnourishment can be attributed to poverty levels, not all malnourished is the result of this problem. A significant portion of the people in the United States suffer from

malnourishment or are at high risk for developing nutritional problems.

The reason for such malnourishment is the lack of understanding of a well-balanced diet and the nutrients needed to attain a healthy diet (Jacoby 1977). The remedy for this problem is education. The producers of food must educate the public, and the schools must educate the children to solve the problem. Consumers must be educated to use the information that is available to them.

Understanding Nutrition and Nutritional Labels

Directly related to the lack of knowledge of the ingredients of a healthy diet and the inability to define certain nutrients, is the problem consumers have understanding the nutritional labels that are provided on packaged food. It is incorrect to assume that the producers of food products are communicating the nutrients in their products by just printing them on the product (Jacoby 1977). Consumers say they want and will use the information provided by nutritional labels and even a large percentage are willing to pay extra for a product that has a nutritional label (Jacoby 1977). Few consumers, though, comprehend nutrition information in the form currently provided on the package.

The consumer may have difficulty understanding a nutritional label

for any one of four reasons (Muller 1985). The format, or the manner in which the information is organized and printed, is inadequate and confusing to the consumer. While the label may seem to have a wealth of information included, the label may not provide information on a certain nutrients or the information available may be presented in a way that is not easily sorted and understood. The consumer may become confused as to what certain numbers represent. For example, consumers might regard the nutrient value as reflecting the entire contents of the box, not of a serving size. This could be a threat if the consumer is on a salt conscious diet or closely watching the intake of some other nutrient.

The wide variation among brands in the use of nutritional information may also hinder the understanding of nutritional labels by consumers. Two different brands may have two different serving sizes for a similar product. One product may have three ounces listed as a serving size while the next product may list four ounces as the serving size. This does not permit the consumer to compare the nutrients in the two packages without taking the time to compute the difference. Sometimes the computation can become complicated, also confusing the consumer.

The lack of knowledge by the consumer as to the importance of each nutrient may also limit the understanding and use of nutritional labels.

The labels do not convey the importance of certain nutrients on the label. How can the amount of Vitamin B mean anything to the consumer if they do not know exactly what Vitamin B does for them and why it is important for good health?

Finally, the amount of information conveyed on the nutritional label may be overwhelming. Consumers may not either have the ability or the motivation to comprehend and use the information presented. Consumers shopping for multiple items may find the analysis of each labeled product they are considering requires too much time and effort to process.

In order to diminish these problems and encourage consumers to acquire and comprehend the information provided by nutritional labels, certain steps must be taken. Steps must be taken to educate the consumer. Once educated, the effort involved in acquiring, understanding and using the information must be lowered. Three areas exist where the consumer must exert effort: (1) acquiring the relevant information; (2) combining all the information; (3) understanding the information. (Russo 1985)

Increasing the Understanding of Nutrition and Nutritional Labeling

Two paths can be taken to reduce the effort exerted by the consumer

to acquire, understand, and use the information provided by nutritional labels (Russo 1985). The perceived benefits of acquiring and understanding the information on nutritional labels can be increased. This would probably be achieved through education programs to inform the consumer about the nutritional labels and the importance of the nutritional information that is provided. This would provide the consumer with the motivation to expend the effort to use the nutritional labels. The second path would be to decrease the effort in using the nutritional labels. This can be done by formatting the labels to make them easier to read and understand. If the perceived benefits outweigh the costs, consumers will acquire, comprehend, and use the information provided by nutritional labels.

Educational programs to teach the consumers about nutrition will take national commitment. An effort of this size would take an enormous amount of cooperation among food producers, government, and the people. The results will be slow to be realized. Learning is process that takes time and experience. Nutrition is currently being taught in most high schools. This is a practice that must continue to ensure the health the younger generations.

The format and information included in the nutritional labels will

have to be changed to make them easier to understand. It has been shown that consumers feel more satisfied and less in need of more information when the information is presented in percentage format (Scammon 1977). Some of the proposed changes are simple visual cues , pictures and graphs, rating systems, and nutrition scores (Stephenson 1980). The need for a more understandable format is definitely established.

NUTRITIONAL LABELING REGULATIONS

Regulatory History

In the early 1970's, The Food and Drug Administration (FDA) proposed to establish regulations on nutrition labeling. There was a need for a single set of standard nutrient requirements that would apply to nutritional labeling. The development of the nutritional label began. The proposal for the regulation was published in 1972 and revised in 1973. The final regulation was published on January 19, 1973. The regulation said nutritional labeling was voluntary unless a vitamin or mineral is added to a product or a specific nutrition claim is made. Nutrient quantities were to be declared in relation to the average or usual serving

of the product as packaged. The required format for nutritional labeling included a tabular listing of calorie content, the amounts in grams of protein, carbohydrate, and fat, and the percentages of U.S. Recommended Daily Allowances (U.S. RDA) for protein and seven vitamins and minerals (vitamin A, vitamin C., thiamine, riboflavin, niacin, calcium, and iron.) Additional vitamins and minerals could be listed if desired (Food and Drug Administration, 1990). The FDA continually studied the need for changes in the nutritional labeling of food products.

The Need to Change

Comments received by the FDA in 1989 indicated a great desire for more food products to have nutritional labels and for the label to have more information about the nutrients that have been identified as important in maintaining good health. The concern for health by the public had grown tremendously in the last 20 years. Citizens are curious about the relationship between diet and health and the role of certain elements in the cause of particular diseases(Federal Register FDA, 1990). However, the information on food labels left consumers unable to determine how certain individual foods fit into their diets. The labels did not require information about some of elements that were most

important. Changes became extremely important to make the nutritional labels useful the consumer.

It is estimated that approximately sixty percent of packaged food products carry nutritional labeling (Federal Register FDA, 1990). Strong interest in has been expressed by consumers in having nutritional labeling on more food products.

The Proposed Regulations

The FDA has proposed to change the nutritional labeling requirements to require labeling on most products that are meaningful sources of nutrients. Also, the FDA has proposed to revise the list of required nutrients and the conditions, or formats, for listing nutrients in the label. Some proposed changes include: calories from fat, saturated fatty acids, cholesterol, and dietary fiber, and to make the listing of thiamin, riboflavin, and niacin optional(Food and Drug Administration, 1990).

SUGGESTED NEW FORMATS

As discussed in the previous sections, consumers do have trouble comprehending nutritional labeling in the format that is currently being used by producers. In the following labels, several changes have been made to the format in attempt to make them more understandable to the average consumer. The use of bar graphs, pie charts and rating dots are employed. These visual cues are used to make the information included in the nutritional label easier for the consumer to understand and relate to his/her own diet.

With each suggested new format, several variations are presented. First, the visual cue for the U.S. RDA of the nutrients are shown in the same order as on current labels. The bar graph, pie chart, or rating dots are substituted for the actual numerical value. Second, the numerical values are added and given along with the visual cue. Third the nutrients are arranged in descending order in regards to the U.S. RDA of each nutrient. Fourth, the numerical values are added to the descending order visual cues.

The following suggested new formats for nutritional labels resulted from the apparent need for a better understanding of nutritional labels and

the interest suggested by the FDA with the new proposal for nutritional labeling. Only the format on the label will be changed. The information in the labels will remain the same as the information currently being used in nutritional labels.

EXHIBIT 1

The Current Format

Nutritional Information Per Serving

Serving size . . . . .	.12oz
Serving per pkg . . . . .	.4
Calories . . . . .	.170
Protein . . . . .	.6g
Carbohydrate . . . . .	.31g
Fat . . . . .	.2g
Sodium . . . . .	.380mg

Percentage of U.S. Recommended Daily Allowance (U.S. RDA)

Protein . . . . .	.9
Vitamin A . . . . .	.35
Vitamin C	•
Thiamine . . . . .	.25
Riboflavin . . . . .	.18
Niacin . . . . .	.13
Calcium . . . . .	.5
Iron . . . . .	.20
Vitamin D. . . . .	.25
Folic Acid . . . . .	.50
Phosphorous . . . . .	.29
Zinc. . . . .	.40

• Contains Less Than 2% Of
The U.S. RDA of These Nutrients

The Bar Graph Format

The changes included in this format are from actual numbers to a visual cue, the shaded bar represents the U.S. RDA of the certain nutrients included in the nutritional label. Four variations of this format are included: bar graph representations, bar graph representations with percentages in number form, descending bar graph representations, descending bar graph representations with percentages in number form.

EXHIBIT 2

The Bar Graph Format

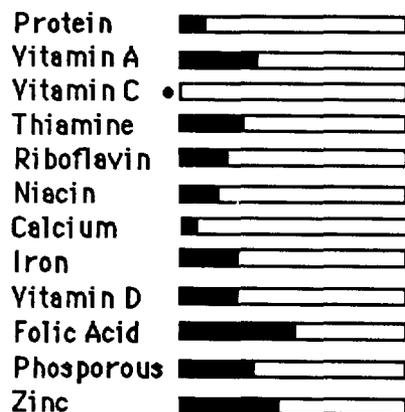
Nutritional Information Per Serving

Serving Size 12oz
Serving per pkg 4
Calories 170
Protein 6g
Carbohydrate 31g
Fat 2g
Sodium 380mg

Nutritional Information Per Serving

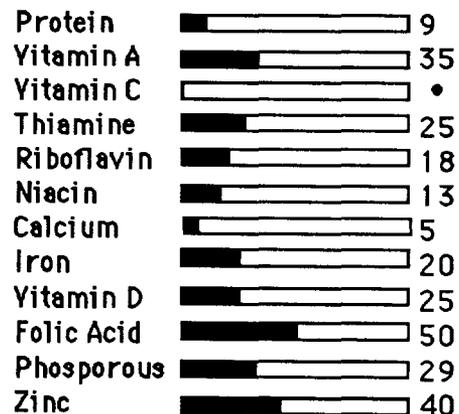
Serving Size 12oz
Serving per pkg 4
Calories 170
Protein 6g
Carbohydrate 31g
Fat 2g
Sodium 380mg

Percentage of U.S. Recommended Daily Allowance (U.S. RDA)



• Contains Less Than 2% Of The
U.S. RDA of These Nutrients

Percentage of U.S. Recommended Daily Allowance (U.S. RDA)



• Contains Less Than 2% Of The
U.S. RDA of These Nutrients

EXHIBIT 3

The Descending Bar Graph Format

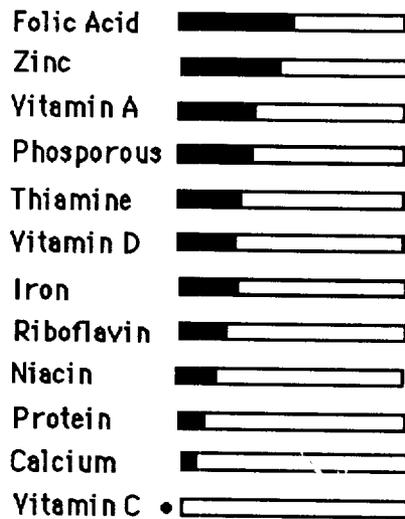
Nutritional Information Per Serving

Serving Size 12oz
Serving per pkg 4
Calories 170
Protein 6g
Carbohydrate 31g
Fat 2g
Sodium 380mg

Nutritional Information Per Serving

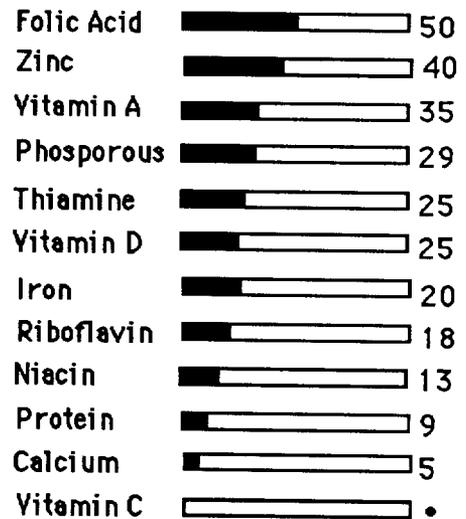
Serving Size 12oz
Serving per pkg 4
Calories 170
Protein 6g
Carbohydrate 31g
Fat 2g
Sodium 380mg

Percentage of U.S. Recommended Daily Allowance (U.S. RDA)



• Contains Less Than 2% Of The U.S. RDA of These Nutrients

Percentage of U.S. Recommended Daily Allowance (U.S. RDA)



• Contains Less Than 2% Of The U.S. RDA of These Nutrients

The Pie Chart Format

Instead of a bar graph, a pie chart is used the visual cue. Again, four variations are included following the same pattern as with the bar graph: pie chart representation, pie chart representation with percentages expressed in number form, descending order pie chart representation, and descending order pie chart representation with percentages expressed in number form.

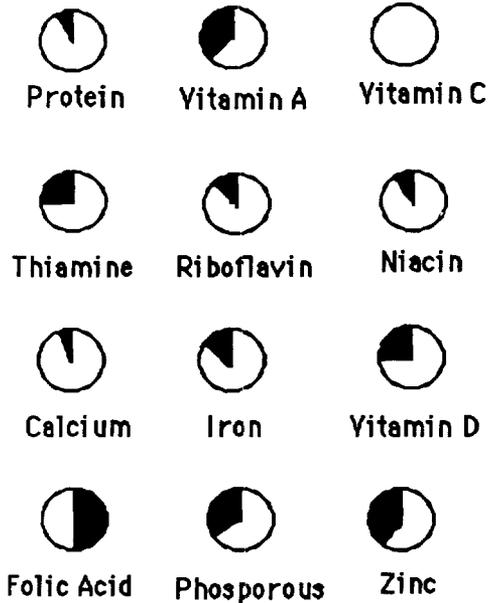
EXHIBIT 4

The Pie Chart Format

Nutritional Information Per Serving

Serving Size 12oz
 Serving per pkg 4
 Calories 170
 Protein6g
 Carbohydrate31g
 Fat 2g
 Sodium 380mg

Percentage of U.S. Recommended Daily Allowance (U.S. RDA)

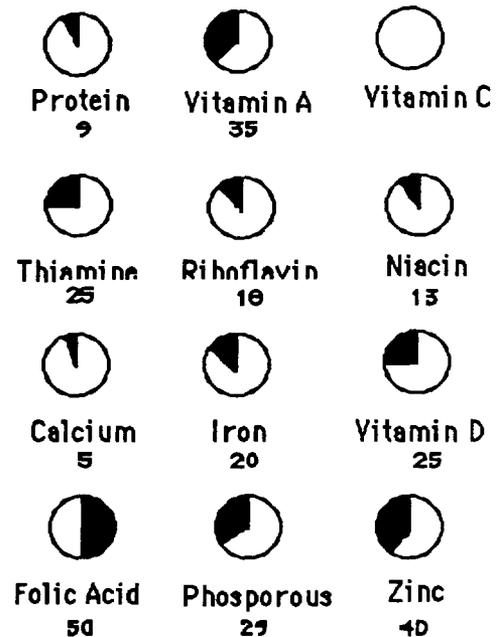


○ Contains Less Than 2% Of The U.S. RDA of These Nutrients

Nutritional Information Per Serving

Serving Size 12oz
 Serving per pkg 4
 Calories 170
 Protein6g
 Carbohydrate31g
 Fat 2g
 Sodium 380mg

Percentage of U.S. Recommended Daily Allowance (U.S. RDA)



○ Contains Less Than 2% Of The U.S. RDA of These Nutrients

EXHIBIT 5

The Descending Pie Chart Format

Nutritional Information Per Serving

Serving Size 12oz
 Serving per pkg 4
 Calories 170
 Protein 6g
 Carbohydrate 31g
 Fat 2g
 Sodium 380mg

Percentage of U.S. Recommended Daily Allowance (U.S. RDA)

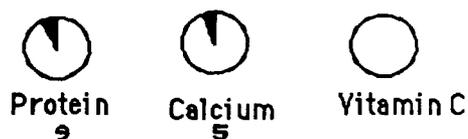


○ Contains Less Than 2% Of The
U.S. RDA of These Nutrients

Nutritional Information Per Serving

Serving Size 12oz
 Serving per pkg 4
 Calories 170
 Protein 6g
 Carbohydrate 31g
 Fat 2g
 Sodium 380mg

Percentage of U.S. Recommended Daily Allowance (U.S. RDA)



○ Contains Less Than 2% Of The
U.S. RDA of These Nutrients

The Rating Format

The number of dots filled in the format of the rating will be representative of the percentage of U.S. RDA is present of a certain nutrient. Again four representations will be provided: rating, rating with percentages expressed in number form, descending order rating, descending order rating with percentages expressed in number form.

EXHIBIT 6

The Rating Format

Nutritional Information Per Serving

Serving Size 12oz
 Serving per pkg 4
 Calories 170
 Protein6g
 Carbohydrate 31g
 Fat 2g
 Sodium 380mg

Percentage of U.S. Recommended Daily Allowance (U.S. RDA)

Protein	● ○ ○ ○ ○
Vitamin A	● ● ○ ○ ○
Vitamin C	● ○ ○ ○ ○ ○
Thiamine	● ○ ○ ○ ○
Riboflavin	● ○ ○ ○ ○
Niacin	● ○ ○ ○ ○
Calcium	● ○ ○ ○ ○
Iron	● ○ ○ ○ ○
Vitamin D	● ○ ○ ○ ○
Folic Acid	● ● ● ○ ○
Phosphorous	● ● ○ ○ ○
Zinc	● ● ○ ○ ○

● Contains Less Than 2% Of The
U.S. RDA of These Nutrients

Nutritional Information Per Serving

Serving Size 12oz
 Serving per pkg 4
 Calories 170
 Protein6g
 Carbohydrate 31g
 Fat 2g
 Sodium 380mg

Percentage of U.S. Recommended Daily Allowance (U.S. RDA)

Protein	● ○ ○ ○ ○ 9
Vitamin A	● ● ○ ○ ○ 35
Vitamin C	● ○ ○ ○ ○ ○
Thiamine	● ○ ○ ○ ○ 25
Riboflavin	● ○ ○ ○ ○ 18
Niacin	● ○ ○ ○ ○ 13
Calcium	● ○ ○ ○ ○ 5
Iron	● ○ ○ ○ ○ 20
Vitamin D	● ○ ○ ○ ○ 25
Folic Acid	● ● ● ○ ○ 50
Phosphorous	● ● ○ ○ ○ 29
Zinc	● ● ○ ○ ○ 40

● Contains Less Than 2% Of The
U.S. RDA of These Nutrients

EXHIBIT 7

The Descending Rating Format

Nutritional Information Per Serving

Serving Size 12oz
 Serving per pkg 4
 Calories 170
 Protein6g
 Carbohydrate31g
 Fat 2g
 Sodium 380mg

Percentage of U.S. Recommended Daily Allowance (U.S. RDA)

Folic Acid	●●●○○
Zinc	●●○○○○
Vitamin A	●●○○○○
Phosphorous	●●○○○○
Thiamine	●○○○○○
Vitamin D	●○○○○○
Iron	●○○○○○
Riboflavin	●○○○○○
Niacin	●○○○○○
Protein	●○○○○○
Calcium	●○○○○○
Vitamin C	●○○○○○

• Contains Less Than 2% Of The U.S. RDA of These Nutrients

Nutritional Information Per Serving

Serving Size 12oz
 Serving per pkg 4
 Calories 170
 Protein6g
 Carbohydrate31g
 Fat 2g
 Sodium 380mg

Percentage of U.S. Recommended Daily Allowance (U.S. RDA)

Folic Acid	●●●○○	50
Zinc	●●○○○○	40
Vitamin A	●●○○○○	35
Phosphorous	●●○○○○	29
Thiamine	●○○○○○	25
Vitamin D	●○○○○○	25
Iron	●○○○○○	20
Riboflavin	●○○○○○	18
Niacin	●○○○○○	13
Protein	●○○○○○	9
Calcium	●○○○○○	5
Vitamin C	●○○○○○	

• Contains Less Than 2% Of The U.S. RDA of These Nutrients

BIBLIOGRAPHY

- Food and Drug Administration, Department of Health and Human Services. "Food Labeling; Mandator Status of Nutrition Labeling and Nutrient Content Revision." Federal Register Vol 55. No. 139, Thursday, July 19, 1990, 21 CRF Parts 101 and 105 [Docket No. 90N-01351], pp. 29487-29511.
- Jacoby, Jacob, Robert W. Chestnut, and William Silberman. "Consumer Use and Comprehension of Nutrition Information." Journal of Consumer Research Vol.4 September 1977, pp. 119-127.
- Muller, Thomas E. "Structural Information Factors Which Stimulate the Use of Nutrition Information: A Field Experiment." Journal of Marketing Research Vol. XXII May 1985, pp. 143-157.
- Russo, J. Edward, Richard Staelin, Gary Russell, and Barbara Metcalf. "Nutrition Information in the Super Market." Marketing Science Institute, Cambridge, Mass. January 1985, Report No. 85-100.
- Scammon, Debra L. "Information Load and Consumers" Journal of Consumer Research Vol. 4 December 1977, pp. 148-155.
- Stephenson, Marilyn A. "Making Food Labels More Useful and Informative." Aging September-October 1980, pp. 29-32.