

Abstract: Experimental data evaluating the role of various aspects of diet-health related information provided on functional food labels are presented. 285 student subjects were randomly assigned to receive differing label information from the front of a product and the nutrition facts for a hypothetical food (tomato juice with added soy protein) with potential cardio-vascular and anti-cancer benefits. The packaging of the product was manipulated to contain health claims, phyto-chemical content claims, or simple product information. In addition, an argument quality manipulation - a "healthy" and "unhealthy" nutritional profile was included. Finally, the role of product endorsement, the presence of medical association names and logos validating the diet to health link of the phyto-chemicals - the American Heart Association (AHA) and the American Institute for Cancer Research (AICR) - was assessed. Following exposure to the particular stimulus material, attitudes toward the product, purchase intentions, participant personality characteristics, demographics, and health-related knowledge were measured. This poster reports measures of overall attitudes toward the product and discusses moderation of these measures by the manipulated variables and personal characteristics. The impact of real and hypothetical claims and endorsements is discussed. The argument quality manipulation is used to examine the possibility that health claims can mask an otherwise "bad" nutritional profile, and is therefore related to the recent "de-listing" of AHA-endorsed beef products for excessive fat content. The results suggest that the level of health information on a product label affects consumer attitude and product label evaluation.

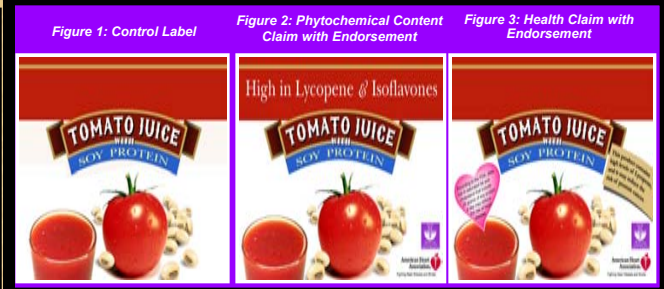


Figure 4: "Healthy" Version

Nutrition Facts	
Serving Size (340g) Saturated Fat Content: 1	
Amount Per Serving	
Calories 60	Calories from Fat 0
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 200mg	40%
Total Carbohydrate 13g	4%
Dietary Fiber 3g	6%
Sugar 10g	20%
Protein 2g	4%
Vitamin A 10%	Vitamin C 100%
Calcium 4%	Iron 4%

Figure 5: "Unhealthy" Version

Nutrition Facts	
Serving Size (340g) Saturated Fat Content: 1	
Amount Per Serving	
Calories 400	Calories from Fat 0
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 400mg	80%
Total Carbohydrate 26g	8%
Dietary Fiber 3g	6%
Sugar 150g	300%
Protein 10g	20%
Vitamin A 5%	Vitamin C 100%
Calcium 4%	Iron 4%

Methodology

Experimental Design: 2 x 2 x 2 between-subjects factorial design manipulating claim type (health claim, phyto-chemical content claim), endorsement by AHA and AICR (present, absent), and nutritional quality (healthy, unhealthy) as design factors to examine effect of health information on product labels on consumer attitude toward product and label evaluation. Control group received no claim or endorsement on the front product label.

Effect of Health Information (Label) on Attitudes Toward the Product

Table 1: ANOVA Results

Explanatory Variables	F-Test
Health Claim (HC)	2.51
Endorsement (EN)	0.85
Healthy Nutrition Facts (NF)	10.66 ***
HC x EN	1.38
HC x NF	4.13 **
EN x NF	0.56
HC x EN x NF	0.02

** Significant at 95%, *** Significant at 99%

Results from the three-way ANOVA suggest a significant interaction effect between claim type and argument quality-nutrition facts. Subsequent analyses demonstrated that both factors have simple effects on attitude toward the product.

Effect of Health Information on Consumer Label Evaluation

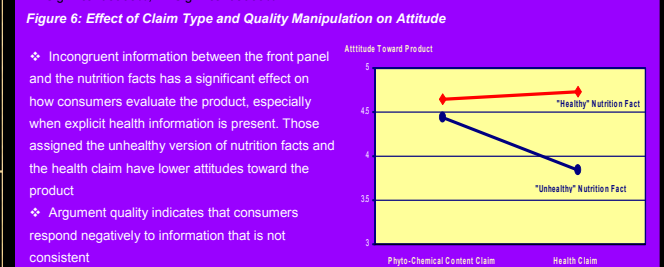
Table 2: Ordered Regression Model

Explanatory Variables	Dependent Variables							
	Estimate	Std. Error	Estimate	Std. Error	Estimate	Std. Error	Estimate	Std. Error
Health Claim	0.428 ***	0.115	0.039	0.112	-0.124	0.113	0.019	0.103
Endorsement	0.686 ***	0.117	-0.124	0.112	0.125	0.113	0.236 ***	0.104
Nutrition Facts	0.754 ***	0.118	0.685 ***	0.115	0.217 **	0.113	0.443 ***	0.103

** Significant at 95%, *** Significant at 99%

Subjects: Two hundred and eighty-five undergraduate business and agri-business students at The Ohio State University

Product and Stimuli: The product used in this research is tomato juice containing soy protein. It is a hypothetical functional food that is not available in the market. It has multiple claims of health benefits. The front label of the package contained product type and health information. The nutrition facts panel was manipulated, see figures 1-5



Dependent Variables

- Attitude toward tomato juice containing soy** was measured using three items with 7-point scales
 - I feel the tomato juice product is (very bad - very good)
 - My opinion of the tomato juice product is (extremely unfavorable - extremely favorable)
 - Consuming the tomato juice product is likely to be (extremely unpleasant - extremely pleasant)
- Label Evaluation** (7-point scales: strongly disagree - strongly agree):
 - EVAL1: The FRONT LABEL of the tomato juice product does a good job of telling me about the health benefits
 - EVAL2: The NUTRITION FACTS of the tomato juice product does a good job of telling me about the health benefits
 - EVAL3: I trust the information on the FRONT LABEL of the tomato juice product
 - EVAL4: I trust the information on the NUTRITION FACTS of the tomato juice product

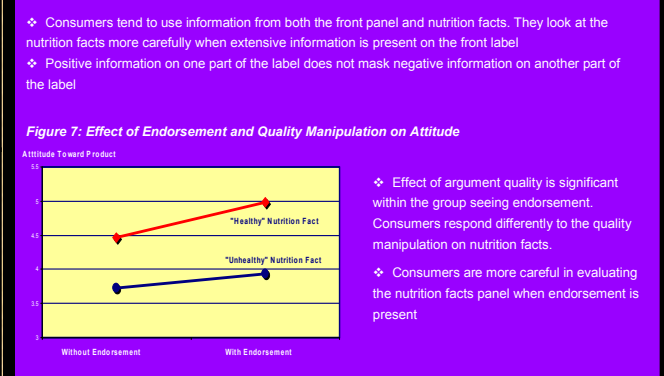
Consumers receive more information about the benefit of the product from health claim than from phyto-chemical content claim

Endorsement by health organizations augments consumer perceptions that the front label is informative about the health benefits and increases trust in the nutrition facts

Argument quality manipulation indicates that the information on nutrition facts affects consumer evaluations of both the front label and the nutrition facts

Explanatory Variables

- Health Claim vs. Phyto-chemical Content Claim:**
 - Health claim version has these messages on the front label. "According to the FDA, diets low in saturated fat and cholesterol that include 25 grams of soy protein a day may reduce the risk of heart disease" and "This product contains high levels of lycopene and it may reduce the risk of prostate cancer"
 - Phyto-chemical content claim version has this message on the front label. "High in lycopene and isoflavones"
- Endorsement:** The logo of AHA and AICR used to measure credibility impacts
- Argument Quality:** The level of calories, sodium content, and Vitamins A and C are varied for healthy and unhealthy versions



Conclusion

Consumers use health information provided on the front label (claims and endorsement) and nutrition facts. They respond negatively when information provided on different parts of label is incongruent. Positive information such as an explicit claim about the health benefit of the product does not offset negative information shown in the nutrition facts. Consumers receive more information about the benefits of the product from health claims than from phyto-chemical content claims. Endorsement by health organizations tends to augment consumer knowledge of the product benefits and increase the credibility of the health information. Nutrition facts play a significant role in how subjects evaluate the benefits of the product based on the information on the label and whether they will trust such information. Results from this study confirm that consumers process all information on the front panel and nutrition fact when evaluating products. Different claim types, endorsement and nutrition quality information have significant effects on the evaluation of the product label.