Considerations in Nutrition - Evaluations

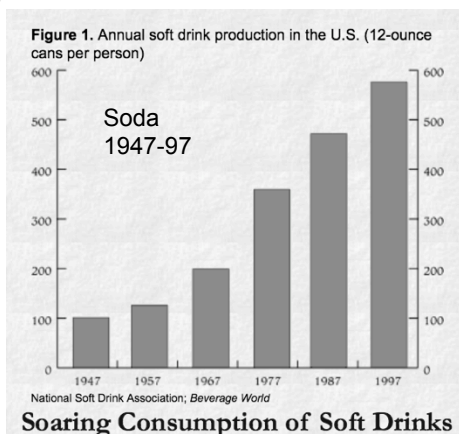1. CSFII (Continuing Survey of Food Intakes by Individuals)

2. HEI (Healthy Eating Index)

3. Healthy People 2020

4. Nutrient Density

5. INQ

6. Food Labels

7. NuVal http://www.nuval.com

8. Meal Plan Assignment

BROAD PICTURE: Goal of nutrition and people in our field? Health and well-being. What would you say about how we, as a nation, are doing? How do we know?
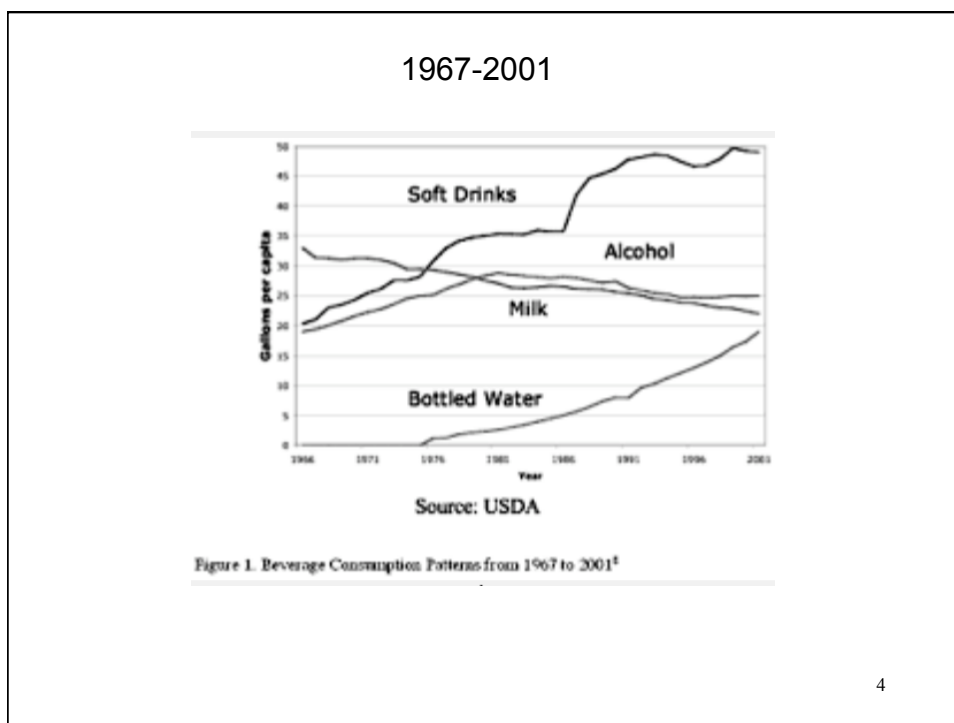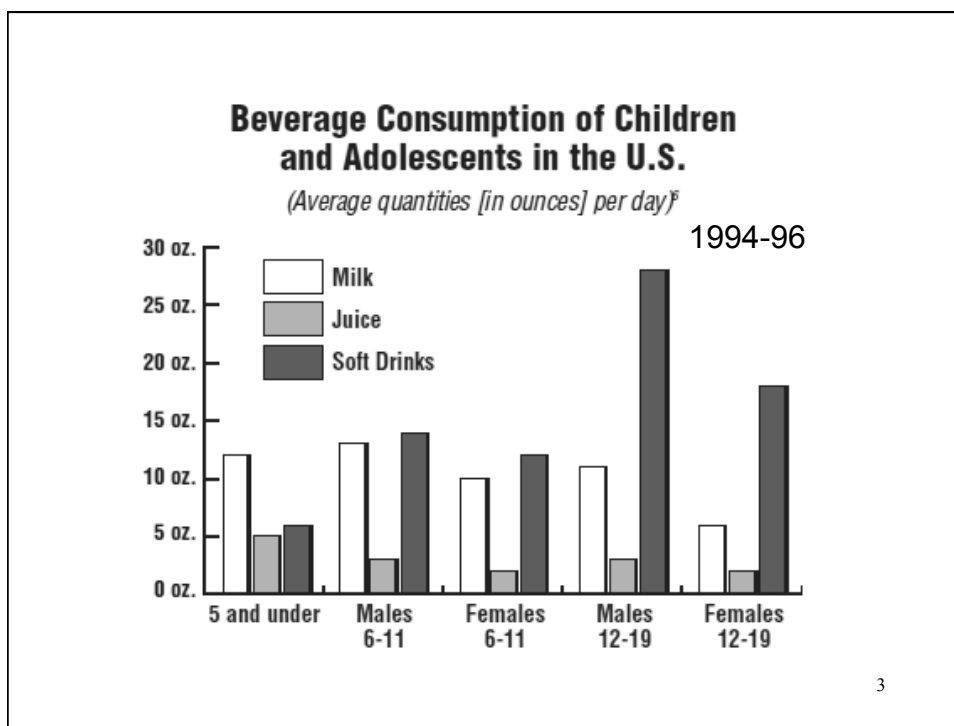

Continuing Survey of Food Intake by Individuals
(Human Nutrition Information Service of USDA)

• 2 non-consecutive days - intake
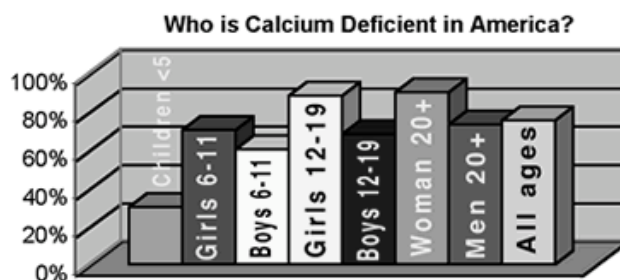• Sources, shopping practices
• Sufficiency of nutrients

https://www.google.com/search?hl=en&site=imghp&tbm=isch&source=hp&biw=1024&bih=656&q=continuing+survey+of+food+intakes+by+individuals&oq=Continuing+Survey+of+&gs_l=img.1.0.0i24k1l3.2343.8954.0.12024.23.13.1.9.9.0.94.947.13.13.0....0...1ac.1.64.img..0.22.910...0j0j0i30k1j0i5i30k1j0i8i30k1.Zlk9XRclHdo#imgrc=_

Figure 1. Annual soft drink production in the U.S. (12-ounce cans per person)

Soda 1947-97

National Soft Drink Association; *Beverage World*

Soaring Consumption of Soft Drinks

2

Beverage Consumption of Children and Adolescents in the U.S.

(Average quantities [in ounces] per day)

1994-96

- Milk
- Juice
- Soft Drinks

30 oz. · 25 oz. · 20 oz. · 15 oz. · 10 oz. · 5 oz. · 0 oz.

5 and under · Males 6-11 · Females 6-11 · Males 12-19 · Females 12-19

3

1967-2001

Soft Drinks
Alcohol
Milk
Bottled Water

Gallons per capita

Year

Source: USDA

Figure 1. Beverage Consumption Patterns from 1967 to 2001

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Continuing Survey of Food Intake by Individuals
(Human Nutrition Information Service of USDA)

Who is Calcium Deficient in America?

Is there a correlation?

5

HISTORICALLY:

USDA - CSFII

HHS -National Health and Nutrition Examination Survey (NHANES) To assess health and nutritional status of adults, children in US

1998: MOU: HHS and USDA ➔ dietary portion of
         NHANES and CSFII into one survey

2002: Collaboration ➔ include data collection and survey implementation. Later analysis and evaluation.

We now have a single, continuous, population-based national nutrition survey

What We Eat in America (WWEIA):
The dietary intake interview component of the

National Health and Nutrition Examination Survey (NHANES)

http://fnic.nal.usda.gov/surveys-reports-and-research/food-and-nutrition-surveys/national-health-and-nutrition-examination


Trends in overweight, obesity, and extreme obesity among men aged 20–74 years: United States, 1960–1962 through 2009–2010
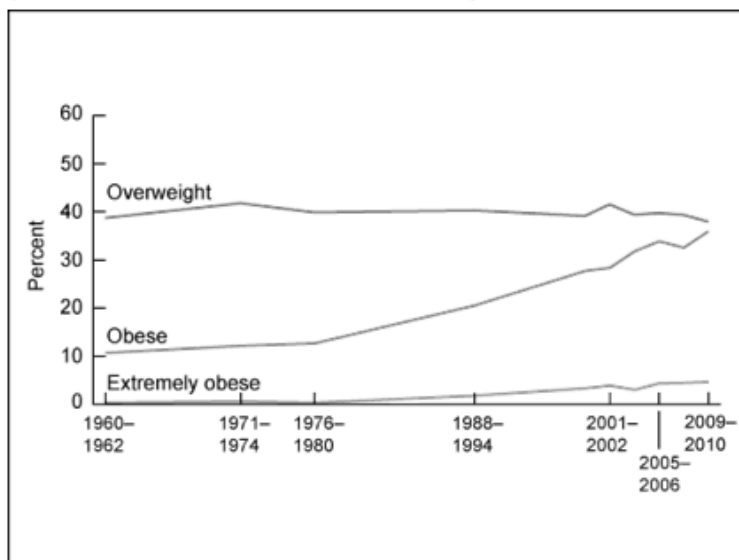
SOURCES: CDC/NCHS, National Health Examination Survey I 1960–1962; National Health and Nutrition Examination Survey (NHANES) I 1971–1974; NHANES II 1976–1980; NHANES III 1988–1994; NHANES 1999–2000, 2001–2002, 2003–2004, 2005–2006, 2007–2008, and 2009–2010.

Trends in overweight, obesity, and extreme obesity among women aged 20–74 years: United States, 1960–1962 through 2009–2010
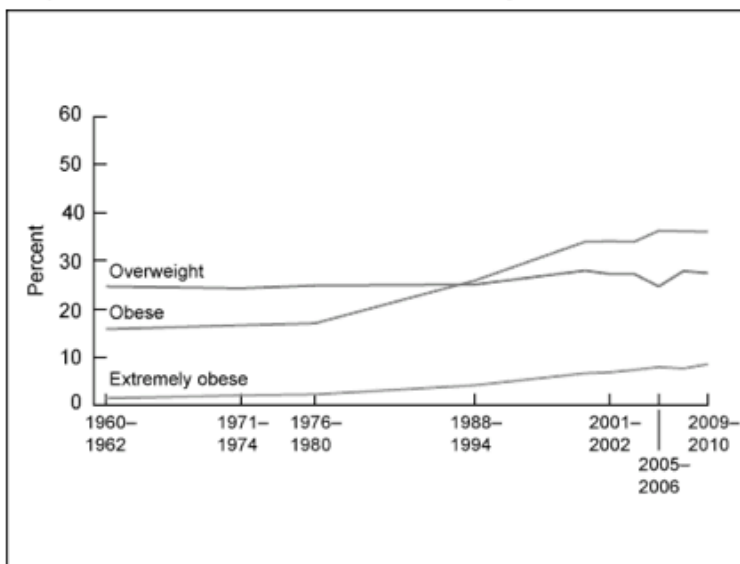
SOURCES: CDC/NCHS, National Health Examination Survey I 1960–1962; National Health and Nutrition Examination Survey (NHANES) I 1971–1974; NHANES II 1976–1980; NHANES III 1988–1994; NHANES 1999–2000, 2001–2002, 2003–2004, 2005–2006, 2007–2008, and 2009–2010.

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http://www.cnpp.usda.gov/healthyeatingindex.htm
HEALTHY EATING INDEX (HEI)

Analysis of Food Consumption Data Between Specified Years (E.g. 1994-1996)

GOAL for HEALTHY EATING:

o Fruits 2-4

o Grains 6-11 Serv   o   **>80 = Healthy diet**

o Veg 3-5   o   **51-80 = Needs help**

o Milk 2-3   o   **<50 = Poor**

o Meat 2-3

o Total Fat <30%

o Sat Fat <10%   • **US in '94-96 – score was 63.6**

o Chol <300 Mg   • **2010: score was 59.0**

o Na <2400 Mg

o Variety 8+ different items in a day   **How'd we do?**

What's the trend? Why?

Quantifying: What's a serving/group?

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Healthy Eating Index Results

11
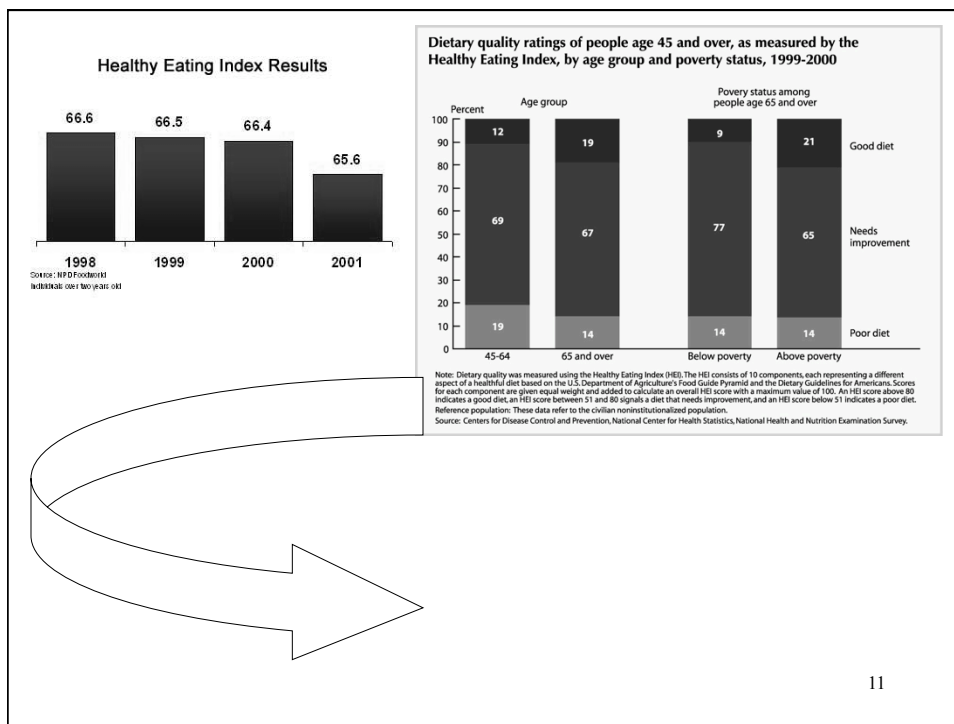
Healthy People 2020

www.healthypeople.gov

Vision:

A society in which all people live long, healthy lives.

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Healthy People 2020

- Establish national health objectives.

- Provide data and tools to enable states, cities, communities, and individuals across the country to combine their efforts to achieve the health objectives.
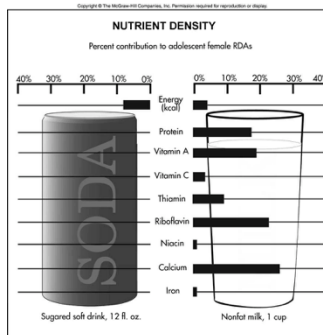
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Healthy People 2020 Goals

- $\wedge$ $\vee$ disease, disability, injury, and premature death.
- Achieve health equity, (-) disparities, and $\wedge$ the health of all groups.
- Create social and physical environments that promote good health for all.
- Promote quality of life, healthy development, and healthy behaviors across all life stages.

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What is Nutrient Density?

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Nutrient Density
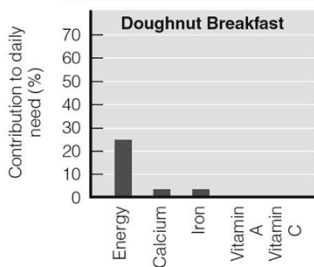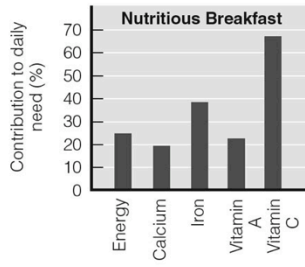
Photo source: Sizer, Whitney 2014

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Slide 17

<u>19 g pro</u>
305 cal

Now per
100 cal?

Grams fat?

<u>25 g fat</u>
305 cal

Now per
100 cal?

Your turn!

NUTRIENT DENSITY PROBLEMS

1. Pork chop, broiled (2.7 oz serving)
2. Peanut butter (1 Tbl serving)
3. Egg (1 each serving)
4. Oatmeal, cooked (1 c)
5. Cheddar cheese (1 oz.)
6. Cottage cheese, creamed (1 c)
7. Liver, beef, fried (3 oz.)

FILL IN THE MISSING DATA

ITEM	Kcal/serv	g protein/ serv	g protein/ 100 kcals	g fat/ serv	g fat/ 100 kcals
1. Pork	305	19	100 kcal (19 g. prot) (305 kcal) = 6.2 g pro/100 kcal	25	
2. P.B.	95	4		8	
3. Egg	80	6		6	
4. Oatmeal	130	5		2	
5. Cheddar	115	7		9	
6. Cottage Cheese	235	28		10	
7. Liver	195	22		9	

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Slide 18

NUTRIENT DENSITY PROBLEMS KEY

1. Pork chop, broiled (2.7 oz serving)
2. Peanut butter (1 Tbl serving)
3. Egg (1 each serving)
4. Oatmeal, cooked (1 c)
5. Cheddar cheese (1 oz.)
6. Cottage cheese, creamed (1 c)
7. Liver, beef, fried (3 oz.)

ITEM	Kcal/serv	g protein/ serv	g protein/ 100 kcals	g fat/ serv	g fat/ 100 kcals
1. pork (2.7 oz)	305	19	100 kcal (19 g. prot) (305 kcal) = 6.2 g pro/100 kcal	25	8.2
2. P.B. (1 Tbl)	95	4	4.2	8	8.4
3. Egg (1 ea)	80	6	7.5	6	7.5
4. Oatml (1 c)	130	5	3.8	2	1.5
5. Cheddar (1 oz)	115	7	6.1	9	7.8
6. cottage cheese (1 c)	235	28	11.9	10	4.3
7. liver (3 oz)	195	22	11.3	9	4.6

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INQ-=Index of Nutritional Quality

<u>Nutritional value of foods</u> in relation to RDA values

and

<u>Specific Calories</u> in foods to KCAL needs.

QUESTION:
Is a <u>banana</u> **a good source of** <u>protein</u> **for a** <u>child</u>**?**

Need to know: (All of this information must be given to you)
1. Protein: How much is in a banana?
2. Protein: How much protein does a child need? (the RDA)
3. Kcals: How much Kcals are in a banana?
4. Kcals: How many Kcals does a child need?

PROTEIN *This info is GIVEN:* (by US)
1) **Banana = 1 gram protein**
2) **RDA** for protein for a **child = 36 g protein**
To figure the **% of standard: 1 g prot/36 g protein x 100% = ~3%**

KCALS *This info is also GIVEN:* (by US)
3) Banana=100 kcal;
4) **RDA** for kcal for a **child** = 2400.
% of standard: 100 Kcal/2400 Kcals x 100% = ~4%
%NUTRIENT (PROTEIN) / % KCALS

3%/4% = .75 (<1 means *not a good source*)

INQ < 1 = POOR SOURCE of the nutrient;
INQ >1, that food IS a good source of that nutrient.

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Calculations: Index of Nutritional Quality (INQ)

Person and Food	Kcal needs/ day	Nutrient needs/ day	calories/ serving	g nutrient/ serving	INQ (2 points ea.)	Good source? (Yes or No)
30 year old man 1 cup beans	2400	38 g fiber	1 cup beans = 215 cal	13.6 g/1 cup		
88 year old woman 1 cup beans	1600	8 mg iron	1 cup beans = 215 cal	3 mg/ 1 cup		
21 year old woman 1 cup beans	2000	18 mg iron	1 cup beans = 215 cal	3 mg/ 1 cup		
21 year old woman, pregnant 1 cup beans	2250	27 mg iron	1 cup beans = 215 cal	3 mg/ 1 cup		

Calculations: Index of Nutrtional Quality (INQ) Answers

Person and Food	Kcal needs/ day	Nutrient needs/ day	calories/ serving	g nutrient/ serving	INQ	Good source? (Yes or No)
30 year old man 1 cup beans	2400	38 g fiber	1 cup beans = 215 cal	13.6 g/1 cup	**Fiber:** (13.6/38) *100 = 35.8% **Calories:** (215/2400) *100 = 8.95% **INQ :** 35.8% / 8.95% = 4; >1	Y
88 year old woman 1 cup beans	1600	8 mg iron	1 cup beans = 215 cal	3 mg/ 1 cup	**Iron:** (3/8) *100 = 37.5% **Calories:** (215/1600) *100 = 13.43 **INQ :** 37.5% / 13.43% = 2.79; >1	Y
21 year old woman 1 cup beans	2000	18 mg iron	1 cup beans = 215 cal	3 mg/ 1 cup	**Iron:** (3/18) *100 = 16.6% **Calories:** (215/1600) *100 = 10.75% **INQ :** 16.6% / 10.75% = 1.54; >1	Y
21 year old woman, pregnant 1 cup beans	2250	27 mg iron	1 cup beans = 215 cal	3 mg/ 1 cup	**Iron:** (3/27) *100 = 11.1% **Calories:** (215/2250) *100 = 9.5% **INQ :** 11.1% / 9.5% = 1.16; >1	Y

Calculations: Index of Nutrtional Quality (INQ)

Person and Food	Kcal needs/ day	Nutrient needs/ day	calories/ serving	g nutrient/ serving	INQ (2 points ea.)	Good source? (Yes or No)
35-year old woman 3.5 oz chicken breast, cooked	1800	400 mcg folate	3 oz chicken = 165 cal	4 mcg/ 3 oz		
21 year old woman 1 cup Cheerios	2000	400 mcg folate	1 cup Cheerios = 103 cal	268 mcg/1cup		
55 year old man 1 medium banana	2000	15 mg vitamin E	1 med. banana = 105 cal	0.12 mg/banana		
5 year old boy ½ cup spinach	1400	800 mg calcium	½ spinach = 32 cal	145 mg/ ½cup		

Calculations: Index of Nutrtional Quality (INQ) Answers

Person and Food	Kcal needs/ day	Nutrient needs/ day	calories/ serving	g nutrient/ serving	INQ	Good source? (Yes or No)
35-year old woman 3.5 oz chicken breast, cooked	1800	400 mcg folate	3 oz chicken = 165 cal	4 mcg/ 3 oz	**Folate:** (4/400) *100 = 1% **Calories:** (165/1800) *100 = 9.1% **INQ :** 1% / 9.1% = 0.1; <1	N
21 year old woman 1 cup Cheerios	2000	400 mcg folate	1 cup Cheerios = 103 cal	268 mcg/1cup	**Folate:** (268/400) *100 = 67% **Calories:** (103/2000) *100 = 5.15% **INQ :** 67% / 5.15% = 13; >1	Y
55 year old man 1 medium banana	2000	15 mg vitamin E	1 med. banana = 105 cal	0.12 mg/banana	**Vitamin E:** (0.12/15) *100 = 0.8% **Calories:** (105/2000) *100 = 5.25% **INQ :** 0.8% / 5.25% = 0.15; <1	N
5 year old boy ½ cup spinach	1400	800 mg calcium	½ spinach = 32 cal	145 mg/ ½cup	**Calcium:** (145/800) *100 = 18.13% **Calories:** (32/1400) *100 = 2.29% **INQ :** 18.13% / 2.29% = 7.9; >1	Y

The NuVal
Nutritional Scoring System

http://www.nuval.com/How

Food Labels

Các Dữ Kiện Về
Dưỡng Chất
Lượng Dùng 1/2 ly đo (114g)
Số Phần Dùng Trong Mỗi Hộp 4

Số Lượng Trong Mỗi Phần Dùng

Nhiệt Lượng 90	Nhiệt lượng trong mỡ 30
	% Trị lượng mỗi ngày
Tổng Số Mỡ 3g	5%
Mỡ dầy 0g	0%
Cholesterol 0mg	0%
Muối 300mg	13%
Tổng số Carbohydrate 13g	4%
Xơ lượng 3g	12%
Đường 3g	
Chất Đạm 3g	

Sinh tố A	80%	•	Sinh tố C	60%
Vôi	4%	•	Sắt	4%

* Tỉ Lệ Trị Lượng Mỗi Ngày (percent daily value) được tính trên 2,000 đơn vị nhiệt lượng tiêu thụ. Trị lượng mỗi ngày của từng người có thể cao hoặc thấp hơn, tùy theo nhu cầu cần nhiệt lượng của mỗi người:

	Nhiệt lượng	2,000	2,500
Tổng số mỡ	Thấp hơn	65g	80g
Mỡ dầy	Thấp hơn	20g	25g
Cholesterol	Thấp hơn	300mg	300mg
Muối	Thấp hơn	2,400mg	2,400mg
Tổng số Carbohydrate		300g	375g
Chất Xơ		25g	30g

Nhiệt lượng trong mỗi gram:
Mỡ 9 • Carbohydrate 4 • Chất đạm 4

Thêm dưỡng chất có thể được liệt kê trên các nhãn hiệu khác.

Nutrition Facts
Serving Size 1 serving (140g)
Servings Per Container 1

Amount Per Serving

Calories 140	Calories from Fat 70
	% Daily Value*
Total Fat 7g	**11%**
Saturated Fat 2.5g	13%
Trans Fat 0g	
Cholesterol 25mg	**8%**
Sodium 300mg	**13%**
Total Carbohydrate 9g	**3%**
Dietary Fiber 2g	8%
Sugars 3g	
Protein 8g	

Vitamin A 10%	•	Vitamin C 20%
Calcium 4%	•	Iron 10%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Saturated Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Ingredients: Tomatoes; Chicken; Mushrooms; White Wine; Celery; Onions; Green Bell Pepper; Flour; Butter; Olive Oil; Salt; Black Pepper.

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NUTRIENTS TO ADDRESS? THINK: FOOD LABEL.
- ***KCALS** (and comparison)
- ***g fat** (and comparison)
- ***g saturated fat** (and comparison)
- ***g trans fat**
- ***mg cholesterol** (and comparison)
- ***mg sodium** (and comparison)
- ***g CHO** (and comparison)
- ***g dietary fiber** (and comparison)
- ***g protein** (and comparison)
- ***mg folacin** (and comparison)
- ***Vitamins A and C** (and comparison)
- ***Calcium and Iron** (and comparison)

***Ratios & Percents Calories from Fat, CHO, Protein**
(with comparison to your client)

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How can we use food labels?

- Look at serving size
- Help to plan nutritious family meals
- Get more nutrition for $
- Select foods for special diets (low Na)
- Count calories
- Compare new foods with familiar ones

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Can we *directly* tell nutrient density from a food label?

- NO…
- Need to do calculations, as discussed earlier
- Can *compare* similar products for nutritional content, calories, etc.
  - Only if serving sizes are the same
- So understanding nutrient density is important!

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