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NUTRITION ASSESSMENT

M1 - Endocrine/Reproduction Sequence

Virginia Uhley PhD, RD

Winter, 2009



Famous Quote

- “If we could give every individual the right amount of nourishment and exercise, not too little and not too much, we would have found the safest way to health.”
 - *Hippocrates c. 460-377 B.C.*

Nutritional Assessment

- 5 components
 - A. Anthropometry
 - B. Biochemical
 - C. Clinical Examination
 - D. Dietary Evaluation
 - E. Energy Expenditure (Physical Activity)

Anthropometry

- Height
- Weight
- BMI
- Waist Circumference
- % Body Fat



Body Mass Index (BMI)

body weight kg/height m²

CLASSIFICATION OF OVERWEIGHT AND OBESITY BY BMI		
	Obesity Class	BMI (kg/m ²)
Underweight		<18.5
Normal		18.5 - 24.9
Overweight		25.0 - 29.9
Obesity	I	30.0 - 34.9
	II	35.0 - 39.9
Extreme Obesity	III	≥40



Waist Circumference (cm)

HIGH RISK

Men > 102 cm (> 40 in)

Women > 88 cm (> 35 in)



Total Body Fat

- Men: **3** risk > 25% of total body weight
 - Healthy level 15%
- Women **3** risk > 30–40% of body weight
 - Healthy level 25%

Diet History

- 24-hour recall
- Food Frequency
- Usual Intake
- Food Record

24-Hour Recall

- Documents a patient's intake of all food and beverages during the previous 24-hour period.
- Many patients do not remember what they ate and can not accurately estimate quantities consumed.
- Ideal for patients with diabetes-ability to assess timing of meals, snacks, and insulin injections

Usual Intake Method

- Documents a patient's usual intake, including breakfast, lunch, dinner, and snacks.
- Many patients are not consistent with their eating habits and state that there is no usual pattern.
- Ideal for elderly patients in order to assess number of meals eaten (or skipped), and infants, children, and adolescents whose diets may not be as varied.

Food Frequency Method

- Estimate the frequency and quantity of foods eaten during a weekly or monthly period.
- Ideal method to estimate fat, sodium, sugar, dairy, fruit and/or vegetable intake.
- Ideal for patients with CVD, HTN, osteoporosis, those that question whether they should take a vitamin supplement, and elderly who avoid food groups.

Food Record Method

- Written record by the patient of everything they ate and drank over a 2 to 7 day period.
- Many patients are not motivated to write down everything. (although those who do, may lose weight.)
- Difficult for physicians to take the time to review and comment, especially if not trained.
- Ideal for patients who have difficulty losing weight, those who are eating out of control and gaining weight, brittle diabetics, emotional eaters.

Images of WAVE
assessment form removed

Form can be accessed
here: [http://bms.brown.edu/
nutrition/tools.htm](http://bms.brown.edu/nutrition/tools.htm)

Four pages of Weight Activity Variety
Excess (WAVE) assessment form
developed by Brown University
Institute for Community Health
Promotion.

Access here: [http://bms.brown.edu/
nutrition/tools.htm](http://bms.brown.edu/nutrition/tools.htm)

Assessing Nutrient Intake

- Assess energy requirements via Harris Benedict Equation.
- Compare current caloric intake with calculated requirements.

Estimation of Resting Energy Requirements (REE) for adults

■ Harris Benedict Equation

- derived from healthy adults
- calculates resting energy expenditure
- additional stress and activity factors added
- REE for males: $66 + [13.7 \times \text{wt (kg)}] + [5.0 \times \text{ht (cm)}] - [6.8 \times \text{age}] = \text{kcal/day}$
- REE for females: $655 + [9.7 \times \text{wt (kg)}] + [1.8 \times \text{ht (cm)}] - [4.7 \times \text{age}] = \text{kcal/day}$

Calculation to Estimate Caloric Needs to Maintain Body weight

- (Current Weight, in lbs) x (A) = Daily Caloric Needs.
 - A= activity level
 - Not very active 12
 - Moderately active 15
 - Very Active 20
 - Extremely Active 25

Calculation for Estimate of Basal Metabolic Rate

- Men = $1 \times \text{body weight (kg)} \times 24$
- Women = $.9 \times \text{body weight (kg)} \times 24$
calculates basic expenditure of calories
in a 24 hour period.

ESTIMATED ENERGY REQUIREMENTS

- BASED ON INSTITUTE OF MEDICINE
DIETARY REFERENCE INTAKES,
2002

Estimated Energy Requirements (EER) for toddlers (ages 1-3)

- $\text{Kcal/day} = (89 \times \text{weight (kg)} - 100) + 20$
 - Institute of Medicine 2002

Children (ages 3-8)

- EER:

- Male = $88.5 - (61.9 * \text{age}) + \text{PA} * (26.7 * \text{weight [kg]} + 903 * \text{Height [m]}) + 20$
- Female = $135.3 - (30.8 * \text{age}) + \text{PA} * (10 * \text{weight [kg]} + 934 * \text{height [m]}) + 20$

Physical Activity Coefficients (PA)

	Sedentary	Low Active	Active
Males			
3-18 yrs	1.00	1.13	1.26
Adults	1.00	1.11	1.25
Females			
3-18 yrs	1.00	1.16	1.31
Adults	1.00	1.12	1.27

EER CALCULATIONS FOR MALES AND FEMALES, AGES 9-18

■ MALE:

- $88.5 - (61.9 * \text{AGE}) + \text{PA} * (26.7 * \text{WT}[\text{kg}] + 903 * \text{HT}[\text{m}]) + 25$

FEMALE:

$$135.3 - (30.8 * \text{AGE}) + \text{PA} * (10 * \text{WT}[\text{kg}] + 934 * \text{HT}[\text{m}]) + 25$$

EER CALCULATIONS FOR ADULT MALES AND FEMALES

■ MALES

- $662 - (9.53 * \text{AGE}) + \text{PA} * (15.91 * \text{WT}[\text{kg}] + 539.6 * \text{HT}[\text{m}])$

FEMALES

$$354 - (6.91 * \text{AGE}) + \text{PA} * (9.36 * \text{WT}[\text{kg}] + 726 * \text{HT}[\text{m}])$$

Definitions

- Deficiency: lack of nutrients
 - biochemical deficiency symptoms
 - nutrition deficiency symptoms measured in blood or urine (such as low levels of a nutrient or enzyme activities)
 - clinical symptoms appear as a result of severe or prolonged lack of nutrients (changes seen in physical examination in skin, hair, nails, tongue, and eyes.

Definitions, cont

- Overnutrition: nutritional intake exceeds needs.
- Undernutrition: nutritional intake falls below needs to maintain health, results from long-term reductions in nutrients.

Macronutrients

- Carbohydrates
- Proteins
- Fats (lipids)

Major Functions of Macronutrients, cont

- Important for growth and development
- Act to keep body functioning normally

Major Functions of Macronutrients

- Provide energy (kcalorie)
 - Kcal: measure of the amount of heat needed to raise the temperature of 1000 grams (1 liter) of water to 1 degree C. (approximately the same as 4 cups of water to 2 degrees F)

Assessment of Nutrient Intake

- Dietary Reference Intakes (DRIs)
 - Reference values that are quantitative of nutrient intakes to be used for planning and assessing diets for healthy people.
- Recommended Dietary Allowance(RDAs)
 - Recommended nutrient intakes that meet the needs of essentially all people of similar age and gender.
- Estimated Average Requirement (EARs)
 - Estimated nutrient intakes that meet the needs of essentially all people of similar age and gender.

Assessment of Nutrient Intake, cont

- Adequate Intakes (AIs)
 - Adequate intake to maintain health
- Estimated Energy Requirements (EERs)
 - Set for daily energy requirements based on defined levels of activity (Different from RDA)
- Upper levels (ULs)
 - The maximum level of daily nutrient intake that is likely to pose no risk or adverse effects

Current American Dietary Guidelines

- Recommendations:
 - 55% of total kcals to come from carbohydrates
 - Sugars no more than 10%
 - 15% of total kcals to come from proteins
 - 30% or less to come from fat

Macronutrient recommendations for children ages 1-3

- Fat: 30-40% of total Kcals
- Protein: 1.10 grams/kg body weight/day or approximately 13 grams of protein/day
- Carbohydrate: 130 grams/day (45-65% total Kcals/day)
- Adequate fiber: AI = 14 grams of fiber/1000 Kcal or approximately 19 grams/day

Nutrition Concerns for children ages 1-3

- Vitamins A, C, and E (vegetables, fruit, grains)
- Calcium (milk) (AI=500mg/day)
- Iron (lean meats, eggs and iron fortified cereals)

Macronutrient recommendations for children ages 4-5 years

- Fat: 25-35% of total Kcals
- Protein: 0.95 grams/kg body weight or approximately 19 grams/day
- Carbohydrate: 130 grams/day or about 45-65% of total energy intake, kcals
- 14 grams/1000Kcals

Nutrition Concerns of children ages 4-5 years

- Vitamins A,C and E
- Calcium (AI = 800mg/day)
- Zinc
- Iron
- Fluid intake (1.7 liters or 7 cups)

Macronutrient Recommendations for children ages 6-13 years

- Fat: 25-35% total energy intake, Kcals
- Protein: 0.95 grams/kg body weight/day
- Carbohydrates: 45-65% total energy intake, Kcals
- Fiber: 14 grams/1000Kcal

Nutrition Concerns for children ages 6-13 years

- Vitamins A, C, and E
- Calcium {800 mg (ages 6-8)–
1300mg(ages 9-13)}
- Zinc (5-8 mg/day)
- Fluid (1.7-2.4 liters/day)
- Iron (10mg -8mg/day)

Macronutrient recommendations for Adolescents, ages 14-18 years

- Fat: 25-35% total energy intake, Kcals
- Protein: 0.85 grams/kg body weight
- Carbohydrate: 130 grams/day
- Fiber: 26 grams/day

Nutrition Concerns for adolescents ages 14-18 years

- Calcium (1300mg/day)
- Iron (boys=11 mg/day, girls = 15mg/day)
- Vitamin A (boys = 900µg/day, girls = 700µg/day)
- Fluid needs: 11 cups/day
 - Note: growth spurt needs begin
 - Males: 12-13 years
 - Females: 10-11 years

ADA exchange system

- Designed as a quick way to estimate total kcals, carbohydrate, protein, and fat intake.
- Six different categories:
 - milk
 - fruit
 - vegetables
 - starch/bread
 - meat
 - fat

Milk (serving size 1 cup)

Carbohydrate (grams)	Protein (grams)	Fat (grams)	Kcalories
12	8	Skim: trace	90
		Lowfat: 5	120
		Whole: 8	150

Fruit (serving size 1 small)

Carbohydrate (grams)	Protein (grams)	Fat (grams)	Kcalories
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15

60

Vegetable (serving size ½ -1 cup)

Carbohydrate (grams)	Protein (grams)	Fat (grams)	Kcalories
5	2		25

Starch/Bread (1 slice, $\frac{3}{4}$ c raw, $\frac{1}{2}$ cooked)

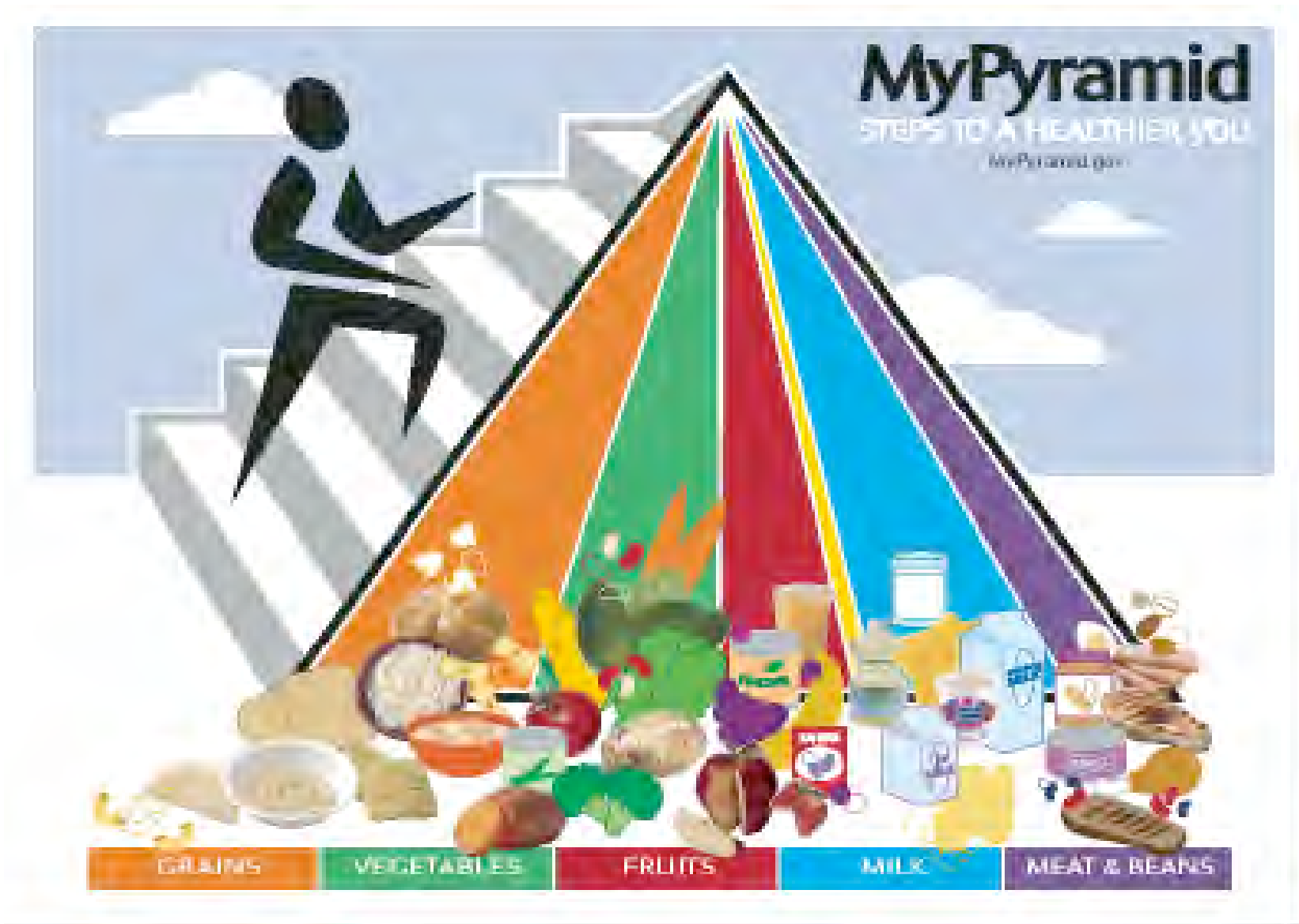
Carbohydrate (grams)	Protein (grams)	Fat (grams)	Kcalories
15	3	Trace	80

Fat (1 teaspoon)

Carbohydrate (grams)	Protein (grams)	Fat (grams)	Kcalories
		5	45

Exchange food patterns (total Kcals: 55% CHO, 30% fat, 15% protein)

Kcal/day	1200	1600	2000	2400	2800
Exchange group					
Milk (lowfat)	2	2	2	2	2
Vegetables	2	2	3	3	3
Fruit	5	4	5	8	8
Starch/Bread	4	8	11	11	15
Meat (medfat)	2	2	3	5	5
Fat	4	7	8	9	12



GRAINS Make half your grains whole	VEGETABLES Vary your veggies	FRUITS Focus on fruits	MILK Get your calcium-rich foods	MEAT & BEANS Go lean with protein
<p>Eat at least 3 oz. of whole-grain cereals, breads, crackers, rice, or pasta every day</p> <p>1 oz. is about 1 slice of bread, about 1 cup of breakfast cereal, or 1/2 cup of cooked rice, cereal, or pasta</p>	<p>Eat more dark-green veggies like broccoli, spinach, and other dark leafy greens</p> <p>Eat more orange vegetables like carrots and sweetpotatoes</p> <p>Eat more dry beans and peas like pinto beans, kidney beans, and lentils</p>	<p>Eat a variety of fruit</p> <p>Choose fresh, frozen, canned, or dried fruit</p> <p>Go easy on fruit juices</p>	<p>Go low-fat or fat-free when you choose milk, yogurt, and other milk products</p> <p>If you don't or can't consume milk, choose lactose-free products or other calcium sources such as fortified foods and beverages</p>	<p>Choose low-fat or lean meats and poultry</p> <p>Bake it, broil it, or grill it</p> <p>Vary your protein routine – choose more fish, beans, peas, nuts, and seeds</p>

For a 2,000-calorie diet, you need the amounts below from each food group. To find the amounts that are right for you, go to MyPyramid.gov.

Eat 6 oz. every day	Eat 2 1/2 cups every day	Eat 2 cups every day	Get 3 cups every day; <small>for kids aged 2 to 8, it's 2</small>	Eat 5 1/2 oz. every day
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Find your balance between food and physical activity

- Be sure to stay within your daily calorie needs.
- Be physically active for at least 30 minutes most days of the week.
- About 60 minutes a day of physical activity may be needed to prevent weight gain.
- For sustaining weight loss, at least 60 to 90 minutes a day of physical activity may be required.
- Children and teenagers should be physically active for 60 minutes every day, or most days.



Know the limits on fats, sugars, and salt (sodium)

- Make most of your fat sources from fish, nuts, and vegetable oils.
- Limit solid fats like butter, stick margarine, shortening, and lard, as well as foods that contain these.
- Check the Nutrition Facts label to keep saturated fats, trans fats, and sodium low.
- Choose food and beverages low in added sugars. Added sugars contribute calories with few, if any, nutrients.



U.S. Department of Agriculture
 Center for Nutrition Policy and Promotion
 April 2005
 CNPP-15



MyPyramid

Food Intake Patterns

The suggested amounts of food to consume from the basic food groups, subgroups, and oils to meet recommended nutrient intakes at 12 different calorie levels. Nutrient and energy contributions from each group are calculated according to the nutrient-dense forms of foods in each group (e.g., lean animalized fat-free cuts). The table also shows the discretionary calorie allowance that can be accommodated within each calorie level, in addition to the suggested amounts of nutrient-dense forms of foods in each group.

Daily Amounts of Food from Each Group												
Calorie Level	1,000	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,200
Grains ¹	1 cup	1 cup	1.5 cups	1.5 cups	2 cups	2 cups	2 cups	2 cups	2 cups	2.5 cups	2.5 cups	2.5 cups
Vegetables ²	1 cup	1.5 cups	1.5 cups	2 cups	2.5 cups	2.5 cups	3 cups	3 cups	3 cups	3.5 cups	4 cups	4 cups
Meat ³	2 oz eq	2 oz eq	3 oz eq	3 oz eq	4 oz eq	4 oz eq	5 oz eq	5 oz eq	6 oz eq	6 oz eq	7 oz eq	7 oz eq
Beans and Eggs ⁴	2 oz eq	2 oz eq	3 oz eq	3 oz eq	4 oz eq	4 oz eq	5 oz eq	5 oz eq	6 oz eq	6 oz eq	7 oz eq	7 oz eq
Fruit ⁵	1 cup	1 cup	1 cup	1 cup	1 cup	1 cup	1 cup	1 cup	1 cup	1 cup	1 cup	1 cup
Dairy ⁶	1 cup	1 cup	1 cup	1 cup	1 cup	1 cup	1 cup	1 cup	1 cup	1 cup	1 cup	1 cup
Discretionary Calorie Allowance ⁷	100	110	120	130	140	150	160	170	180	190	200	210

1. Calorie levels are not fixed; a wide range is accommodated for needs of different individuals. The attached table "Suggested Daily Calorie Intake" can be used to help assign individuals to the food intake pattern at a particular calorie level.

2. Fruit Group includes all fresh, frozen, canned, and dried fruits and fruit juices. In general, 1 cup of fruit or 100% fruit juice or 1/2 cup of dried fruit can be considered as 1 cup fruit from this group.

3. Vegetable Group includes all fresh, frozen, canned, and dried vegetables and vegetable juices. In general, 1 cup of raw or cooked vegetables or vegetable juice, or 3 cups of raw leafy greens can be considered as 1 cup fruit from vegetable group.

Vegetable Subgroup Allotments per Week												
Calorie Level	1,000	1,200	1,400	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000	3,200
Dark-green veg.	1 cup	1.5 cups	1.5 cups	2 cups	2 cups	2 cups	2 cups	2 cups	2 cups	2 cups	2 cups	2 cups
Orange veg.	0 cups	1 cup	1 cup	1.5 cups	2 cups	2 cups	2 cups	2 cups	2 cups	2 cups	2 cups	2 cups
Light veg.	0 cups	1 cup	1 cup	1.5 cups	2 cups	2 cups	2 cups	2 cups	2 cups	2 cups	2 cups	2 cups
Starchy veg.	1.5 cups	2.5 cups	2.5 cups	3.5 cups	4 cups	4 cups	4 cups	4 cups	4 cups	4 cups	4 cups	4 cups
Other veg.	1.5 cups	4.5 cups	4.5 cups	5.5 cups	6.5 cups	6.5 cups	7 cups	7 cups	7 cups	7 cups	7 cups	7 cups

4. Grains Group includes all foods made from wheat, rice, oats, cornmeal, barley, such as bread, pasta, cereal, breakfast cereals, hot/cold flake, and grits. In general, 1 slice of bread, 1 cup of ready-to-eat cereal, or 1/2 cup of cooked rice, pasta, or cooked cereal can be considered as 1 ounce equivalent from the grains group. At least half of all grains consumed should be whole grains.

5. Meat & Beans Group (in general) 1 ounce of lean meat, poultry or fish, 1 egg, 1 tbsp. peanut butter, 1/4 cup cooked dry beans, or 1/2 ounce of nuts or seeds can be considered as 1 ounce equivalent from the meat and beans group.



Sample Menus for a 2000 Calorie Food Pattern

Average diet is based on 48% women. Diet menus do not provide all of the recommended amounts of nutrients and food from each food group. (Selected foods are part of the diet.) (U.S. Department of Agriculture)

Day 1	Day 2	Day 3	Day 4
<p>BREAKFAST</p> <p>Breakfast Burrito: 1 flour tortilla (7 1/2" diameter) 1 scrambled egg (in 1 tsp soft margarine) 1/2 cup fat-free beans 2 tbsp salsa 1 cup orange juice 1 cup fat-free milk</p> <p>LUNCH</p> <p>Roast Beef Sandwich: 1 whole grain sandwich bun 2 ounces lean roast beef 2 slices tomato 1/4 cup shredded romaine lettuce 1/2 cup sliced mushroom (in 1 tsp oil) 1 1/2 ounces part-skim mozzarella cheese 1 tsp yellow mustard 3/4 cup baked potato wedges 1 tbsp ketchup 1 unsweetened beverage</p> <p>DINNER</p> <p>Grilled broiled salmon: 3 ounces salmon fillet 1 ounce bread stuffing mix 1 tbsp chopped onion 1 tbsp dried celery 2 tsp canola oil 1/2 cup saffron (white) rice 1 ounce sliced almonds 1/2 cup steamed broccoli 1 cup soft margarine 1 cup fat-free milk</p> <p>SNACKS</p> <p>1 cup strawberry</p>	<p>BREAKFAST</p> <p>Hot cereal: 1/2 cup cooked oatmeal* 2 tbsp raisins 1 cup soft margarine 1/2 cup fat-free milk 1 cup orange juice</p> <p>LUNCH</p> <p>Taco Salad: 2 ounces tortilla chips 2 ounces ground turkey, sautéed in oil 2 tsp taco sauce 1/2 cup sliced onion 1/2 cup shredded lettuce 2 slices tomato 1 ounce low-fat shredded cheese 2 tbsp salsa 1/2 cup avocado 1 cup fruit juice 1 unsweetened beverage</p> <p>DINNER</p> <p>Spinach Lasagna: 1 cup sausage, mozzarella, ricotta (2 oz dry) 3/2 cup cooked spinach 1/2 cup ricotta cheese 1/2 cup tomato sauce (tomato bits) 2 ounces part-skim mozzarella cheese 1 ounce whole wheat dinner roll 1 cup fat-free milk</p> <p>SNACKS</p> <p>1/2 ounce dry-roasted almonds* 1/4 cup pineapple 2 tbsp vanilla</p>	<p>BREAKFAST</p> <p>Cold cereal: 1 cup bran flakes 1 cup fat-free milk 2 small bananas 1 slice whole wheat toast 1 cup soft margarine 1 cup prune juice</p> <p>LUNCH</p> <p>Yogurt Rice Sandwich: 2 slices rice bread 2 ounces low-fat part-skim ricotta (drained) 2 tsp mayonnaise 1 tbsp dried celery 1/4 cup shredded romaine lettuce 2 slices tomato 1 medium pear 1 cup fat-free milk</p> <p>DINNER</p> <p>Roasted chicken breast: 2 ounces boneless skinned chicken breast* 1 large baked sweet potato 1/2 cup peas and onions 1 cup soft margarine 1 ounce whole wheat dinner roll 1 cup soft margarine 1 cup leafy greens salad 2 tsp canola oil and vinegar dressing</p> <p>SNACKS</p> <p>1/4 cup dried apricots 1 cup low-fat flavored yogurt</p>	<p>BREAKFAST</p> <p>1 whole wheat English muffin 2 cup soft margarine 1/2 cup jam or preserves 1 medium grapefruit 1 hard-cooked egg 1 unsweetened beverage</p> <p>LUNCH</p> <p>White Bean vegetable soup: 1 1/4 cup chunky vegetable soup 1/2 cup whole wheat* 1 ounce breadstick 1 hard-boiled egg 1 cup fat-free milk</p> <p>DINNER</p> <p>Burgers with meat sauce: 1 cup ripe tomato (2 ounces dry) 1/2 cup tomato sauce (tomato bits) 2 ounces extra lean cooked ground beef (sautéed in 2 tsp vegetable oil) 3 cups grated cheddar cheese Split-top bun: 1 cup fatty spread* butter 1/2 cup ketchup sauce 1/2 ounce chopped onion 2 tsp mayonnaise 1 cup dressing 1 cup fat-free milk</p> <p>SNACKS</p> <p>1 cup low-fat flavored yogurt</p>

Food Guide Pyramid

Food Group	Serving	Major contributions	Foods/ Serving sizes
Milk, yogurt, And cheese	2 adult 3 children, Pregnant or lactating women	Carbohydrate Calcium Riboflavin Protein Potassium Zinc	1 C milk 1 1/2 oz cheese 1 c yogurt 2 cups cottage cheese

Food Guide Pyramid, cont

Food Group	Serving	Major contributions	Foods/ Serving sizes
Meat, poultry, fish, dry beans, eggs, nuts	2 -3	Protein Niacin, Iron Vitamin B6, B12 Zinc Thiamin	2-3 oz cooked meat 1-1 ½ c cooked dry beans 2 T peanut butter 2 eggs ½ -1 c nuts

Food Guide Pyramid, cont

Food Group	Serving	Major contributions	Foods/ Serving sizes
Fruits	2 - 4	Carbohydrate Vitamin C Dietary Fiber	$\frac{1}{4}$ c dried $\frac{1}{2}$ c cooked $\frac{3}{4}$ cup juice 1 small 1 melon wedge

Food Guide Pyramid, cont

Food Group	Serving	Major contributions	Foods/ Serving sizes
Vegetables	3 - 5	Carbohydrate Vitamin A Vitamin C Folate Magnesium Dietary fiber	$\frac{1}{2}$ c raw or cooked 1 c raw leafy

Food Guide Pyramid, cont

Food Group	Serving	Major contributions	Foods/ Serving sizes
Bread, Cereal, Rice, Pasta	6-11	Carbohydrate Thiamin Riboflavin Iron, Niacin Folate, Zinc Magnesium Dietary Fiber	1 sl bread 1 oz dry cereal ½-¾ c cooked cereal, rice,pasta 3-4 small crackers

Food Guide Pyramid, cont

Food Group	Serving	Major contributions	Foods/ Serving sizes
Fats, Oils, And Sweets	Based on individual energy needs.	Foods from this group should not replace any from the other groups.	Use sparingly

Food Guide Pyramid vs ADA Exchange List

- Food Guide Pyramid
 - recommendations based on approximately 2,500 kcal intake/day
 - based on nutrient needs (vitamins/minerals)
- ADA Exchange List
 - lists based on total kcal intake
 - based on modulating carbohydrate, protein, and fat intake

Image of
“Digestion in
Process” cartoon
removed

Mark Parisi’s Nov. 23, 1992
cartoon on digestion

Original source: www.offthemark.com

Carbohydrate Recommendations

- RDA: 130 g/day for adults
- 50-100 g/day to prevent ketosis
 - 1 orange juice = 25g, 1 apple = 20
- DRI: 45-60% from total Carbohydrate
- Fiber: general recommendation 20-35 grams/day
 - New guidelines:
 - Under 50 yrs old: Men 38 g/day, Women 25 g/day
 - Over 50 yrs old: Men 30g/day, Women 21 g/day

Example of a 25-gram Fiber Diet (1500 Kcal)

	Fiber g
■ Breakfast	
■ Orange Juice, 1 c	
■ Wheaties, $\frac{3}{4}$ c	3.0
■ 1% Milk, $\frac{1}{2}$ c	
■ Whole Wheat toast, 1 sl	1.9
■ Coffee	
■ Lunch	
■ Lean turkey	
■ Whole Wheat bread, 2 sl	3.8
■ Baked Beans, $\frac{1}{2}$ c	3.5
■ Mayonnaise, 2 tsp	
■ Lettuce, $\frac{1}{4}$ c	0.2
■ Pear, with skin	4.3

25 g Fiber Diet, cont

■ Dinner	Fiber g
■ Broiled chicken (no skin), 3oz	
■ Baked Potato, with skin, 1 lg	3.6
■ Margarine/butter, 1 1/2tsp	
■ Green Beans, 1 c	2.0
■ 1% milk, 1 c	
■ Apple, with peel, 1 med	<u>3.0</u>
■ Total fiber grams =	25

Calculation of Dietary Intake of Carbohydrate Kcals

- 1). Calculate total grams of Carbohydrate intake.
 - Note: did you meet the RDA?
 - Note: did you consume 50-100 g and prevent ketosis?
- 2). Multiply total grams of carbohydrate x 4 = total kcals of carbohydrate intake



Cathy Guisewite's cartoon on
low-carb diets

Examples of Low-Carbohydrate Diets

- Dr. Atkins, Dr. Stillman, Calories don't Count, Scarsdale Diet, Drinking mans diet,
- Four day wonder diet, Air Force diet, Sugar Busters, The zone, etc.

Historical Low-Carbohydrate Diet

- William Banting
 - Letter on Corpulence, 1864.
 - William Harvey's 1872 publication "On corpulence in relation to disease, with some remarks on diet."

Typical Menu

- Breakfast: 4-5 ounces of beef, mutton, kidneys, broiled fish, bacon, or cold meat of any kind but pork.
 - 1 small biscuit or 1 ounce of dry toast, 1 large cup tea without milk or sugar.
 - Lunch: 5-6 ounces of any fish except salmon, any meat except pork, any vegetable except potato
 - Any kind of poultry or game. 1 ounce of dry toast. Fruit 2-3 glasses of good claret, or sherry. 2-3 ounces of fruit. 1-2 rusks (cut from bread and re-baked). 1 cup tea without milk or sugar.
 - Supper: 3-4 ounces of any meat except pork, any fish except salmon, 1-2 glasses of claret.
 - Night-cap: 1 tumbler of grog(gin, whiskey or brandy without sugar added) or 1-2 glasses of claret or sherry.

Dietary Guidelines for Americans, 2005

- Food Groups to Encourage:
 - 2 cups of fruit and 2 1/2 cups of vegetables/day (based on 2000 kcal/day)
 - Choose a variety from all 5 subgroups:
 - Dark green, orange, legumes, starchy vegetables, and other vegetables)
 - Consume 3 or more ounce equivalents of whole-grain products/day
 - Consume 3 cups /day of fat-free milk or equivalent milk products.

Fruits and Vegetables

- =9 servings/day
 - Recommended weekly
 - Dark green vegetables 3 cups/week
 - Orange vegetables 2 cups/week
 - Legumes 3 cups/week
 - Starchy Vegetables 3 cups/week
 - Other vegetables 6 1/2 cups/week

DASH Diet

- Dietary Approaches to Stop Hypertension
- Recommended in Dietary Guidelines for Americans, 2005

The DASH eating plan shown below is based on 2,000 calories a day. The number of daily servings in a food group may vary from those listed, depending on your caloric needs. Use this chart to help you plan your menus or take it with you when you go to the store.

FOOD GROUP	DAILY SERVINGS (EXCEPT AS NOTED)	SERVING SIZES	EXAMPLES AND NOTES	SIGNIFICANCE OF EACH FOOD GROUP TO THE DASH EATING PLAN
Grains and grain products	7-8	1 slice bread 1 oz dry cereal* 1/2 cup cooked rice, pasta, or cereal	Whole wheat bread, English muffin, pita bread, bagel, cereals, grits, oatmeal, crackers, unsalted pretzels and popcorn	Major sources of energy and fiber
Vegetables	4-5	1 cup raw leafy vegetable 1/2 cup cooked vegetable 6 oz vegetable juice	Tomatoes, potatoes, carrots, green peas, squash, broccoli, turnip greens, collards, kale, spinach, artichokes, green beans, lima beans, sweet potatoes	Rich sources of potassium, magnesium, and fiber
Fruits	4-5	6 oz fruit juice 1 medium fruit 1/4 cup dried fruit 1/2 cup fresh, frozen, or canned fruit	Apricots, bananas, dates, grapes, oranges, orange juice, grapefruit, grapefruit juice, mangoes, melons, peaches, pineapples, prunes, raisins, strawberries, tangerines	Important sources of potassium, magnesium, and fiber
Lowfat or fat free dairy foods	2-3	8 oz milk 1 cup yogurt 1 1/2 oz cheese	Fat free (skim) or lowfat (1%) milk, fat free or lowfat buttermilk, fat free or lowfat regular or frozen yogurt, lowfat and fat free cheese	Major sources of calcium and protein
Meats, poultry, and fish	2 or less	3 oz cooked meats, poultry, or fish	Select only lean; trim away visible fats; broil, roast, or boil, instead of frying; remove skin from poultry	Rich sources of protein and magnesium
Nuts, seeds, and dry beans	4-5 per week	1/3 cup or 1 1/2 oz nuts 2 Tbsp or 1/2 oz seeds 1/2 cup cooked dry beans peas	Almonds, filberts, mixed nuts, peanuts, walnuts, sunflower seeds, kidney beans, lentils,	Rich sources of energy, magnesium, potassium, protein, and fiber
Fats and oils†	2-3	1 tsp soft margarine 1 Tbsp lowfat mayonnaise 2 Tbsp light salad dressing 1 tsp vegetable oil	Soft margarine, lowfat mayonnaise, light salad dressing, vegetable oil (such as olive, corn, canola, or safflower)	DASH has 27 percent of calories as fat, including fat in or added to foods
Sweets	5 per week	1 Tbsp sugar 1 Tbsp jelly or jam 1/2 oz jelly beans 8 oz lemonade	Maple syrup, sugar, jelly, jam, fruit-flavored gelatin, jelly beans, hard candy, fruit punch, sorbet, ices	Sweets should be low in fat



* Equals 1/2 - 1 1/4 cups, depending on cereal type. Check the product's Nutrition Facts Label.

† Fat content changes serving counts for fats and oils: For example, 1 Tbsp of regular salad dressing equals 1 serving; 1 Tbsp of a lowfat dressing equals 1/2 serving; 1 Tbsp of a fat free dressing equals 0 servings.

Additional Source Information

for more information see: <http://open.umich.edu/wiki/CitationPolicy>

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