

Chapter 1
The Food on Your Plate


Hewlings/Medeiros

PowerPoint presentation created by
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What is nutrition science?

- A young science
- Integration of several sciences



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Why study nutrition?

- Evolved from discoveries of disease treatment
- Not just to treat deficiencies anymore
- Prevent and treat disease
- Age of lifestyle diseases
- Part of overall wellness



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How do we define nutrition?

- Nutrients
- Essential
- Non-essential

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Nutrient Classes

Substances that provide energy

- Carbohydrates provide energy
- Lipids or fats provide energy, store energy
- Proteins promote growth and maintenance
- Alcohol provides energy, little nutrient value

Nutrients that support metabolism

- Vitamins biochemical reactions
- Minerals biochemical reactions, structural
- Phytochemicals antioxidants, numerous other functions
- Water temperature regulation, lubrication

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Energy Nutrients

- Carbohydrates – 4 kcal/g
- Protein – 4 kcal/g
- Fats – 9 kcal/g
- Alcohol – 7 kcal/g

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Calculating Energy Distribution

If a meal has 700 calories and is 50% carbohydrates, 30% fat, and 20% protein, how many grams of each macronutrient does it contain?

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The Micronutrients

- Vitamins
 - Fat soluble
 - Water soluble
- Minerals
 - Macro
 - Micro

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Fat-Soluble Vitamins

- Vitamin A
- Vitamin D
- Vitamin E
- Vitamin K

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Water-Soluble Vitamins

- Thiamin or vitamin B₁
- Riboflavin or vitamin B₂
- Niacin or vitamin B₃
- Pyridoxal or vitamin B₆
- Vitamin B₁₂
- Folic acid
- Pantothenic acid
- Biotin
- Vitamin C

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Minerals

- Macrominerals: Those required by the body in 100 mg to gram amounts daily
- Microminerals: Those required in less than 100 mg amounts down to microgram amounts

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Macrominerals

- Electrolytes
 - Sodium
 - Potassium
 - Chloride
- Calcium
- Phosphorus
- Magnesium
- Sulfur

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Micro or Trace Minerals

- Iron
- Zinc
- Copper
- Iodine
- Selenium
- Manganese
- Molybdenum
- Chromium
- Vanadium
- Boron
- Nickel

*Many of these minerals act as regulators of metabolism.

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Water and Alcohol

- Water
 - 70-80 percent of body
- Alcohol
 - Provides 7 kcal/g
 - Not a nutrient

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Phytochemicals

- Compounds that have powerful health benefits
- Combat heart disease, cancer, diabetes, and other serious degenerative diseases
- More than 100 plant chemicals have been identified that possibly have a function in promoting health.

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Why We Choose Certain Foods

Factors Affecting Food Selection

- Environment
- Culture
- Likes and dislikes
- Family
- Finances
- Convenience
- Media
- Age
- Health issues



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Organic Foods

- Food grown without using specific pesticides, herbicides, or other synthetic products listed under USDA organic standards
- Meats, poultry, and eggs that come from animals that are not given hormones or antibiotics

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USDA Organic Seal

- "100% Organic" – All ingredients are organic, and the USDA Organic logo may be used on the packaging.
- "Organic" – A minimum of 95% of the ingredients are organic, and the USDA Organic logo may be used on the packaging.
- "Made with organic ingredients" – 70% to 94% of the product is organic, and the USDA Organic logo CANNOT be used on the packaging.
- Ingredient panel only – The food has less than 70% organic ingredients, and the word "Organic" can ONLY be used on the ingredient panel.



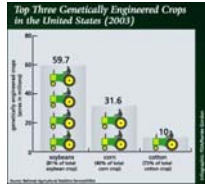
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Genetically Engineered Foods (GMO)

- Foods whose DNA has been altered to bring about a desired trait
- May be found in 70-75 percent of all processed foods
- Regulated by
 - FDA
 - USDA
 - EPA



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How do the food choices we make influence our health?

- The obesity epidemic
- An expensive consequence



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The American Diet

- 16% kcal from protein, 50% carbs, 33% fats
 - 2/3 of protein from animal sources
 - 50% carbs from simple sugars
 - 60% fat from saturated fat
- We meet most of our nutrient needs BUT need to choose more foods rich in iron, calcium, vitamin A, vitamin B, zinc, fiber, and vitamin C.
- Less: Total energy, saturated fat, alcohol, sodium

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How do we know this?

- From large surveys
 - Continuing Survey of Food Intake of Individuals (CSFII) USDA
 - National Health and Nutrition Exam Survey (NHANES) USDHHS
 - Examination of health status of Americans as related to nutrient intake

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What to do about it?

- Nutrition education
- Government's role
- Healthy People 2010



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World Nutrition Issues

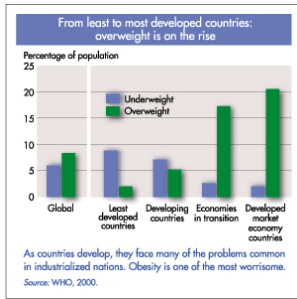


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Obesity: A Worldwide Issue



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Nutrition: A Young Science

- Epidemiology
 - Study of how disease rates vary among different populations
 - Serves to suggest hypotheses about the role of diet in various health problems
 - Then uses controlled experiments for particular components
- Animal Studies
- Human Studies
 - Double blind
 - Peer review
 - Follow up

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Where do you get your nutrition information?



OR



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Reliable Nutrition Information

- PhD Nutrition or RD
 - Peer-reviewed journals
 - Well-controlled studies
 - No magic claims
 - Stick with websites of well-known health organizations
- BEWARE OF:
- Testimonials
 - Strange procedures (hair analysis; blood type)
 - Quick fixes

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