

Nutrition and Medicine, 2006
Tufts University School of Medicine
Macronutrients / Carbohydrates:
Lecture Outline

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- I. Review of Nutrition Assessment: What you need to know and why.
- II. Nutrition Mind Map: How to use it.
- III. The philosophical and ethical question: How important is nutrition in the prevention and treatment of my patients? DO NO HARM.
 - A. Designing the study that would provide the answer
 - B. One study with some pertinent data
- IV. Overall outline of Nutrition
 - A. Macronutrients:

Protein, carbohydrate, fat, type of fat (saturated, monounsaturated, polyunsaturated, n-6 fatty acids, n-3 fatty acids, trans fatty acids) dietary fiber, and dietary cholesterol. The total of the protein, carbohydrate and fat of the diet provides the total CALORIC CONTENT of the diet = kcalories/day.
 - B. Micronutrients:
 1. Vitamins
 - a) Water soluble (vitamin C, niacin, thiamin, riboflavin, folate, B6, B12)
 - b) Fat soluble (vitamin A (plus carotenoids), E, D, and K)
 2. Minerals
 - a) Major Minerals (iron, calcium, potassium, magnesium, phosphorous, sodium)
 - b) Trace Minerals (selenium, chromium, nickel, zinc)
- V. Macronutrients: Do we know the ideal percent of each of the macronutrients (fat, protein, carbohydrate)?
- VI. The Ideal Ratio of Each Macronutrient: What experiment would you design to determine this?
- VII. Current % calories from the three macronutrients in different countries around the world.
- VIII. Macronutrients: The issue of AMOUNT and TYPE
 - A. Types of Fat – essential, non-essential, sat, mono, poly, n-6, n-3, trans

- B. Types of Protein – essential amino acids, non-essential AA, complete, non-complete, animal and vegetable
 - C. Components of Carbohydrate – processed, unprocessed, simple, complex, fiber content, type of fiber, Glycemic Index, nutrient density, non-digestible
- IX. What Food Groups contain high amounts of carbohydrate?
– Vegetables, fruits, beans, grains, and dairy (lactose)
- X. Quality of Carbohydrate: Factors to Consider
TYPE
- A. Processed and unprocessed
 - B. Simple/Complex
 - C. Fiber Content and type of fiber
 - D. Glycemic Index and Glycemic Load
 - E. Nutrient Density
 - F. Non-digestible
- XI. The “Modified DASH Diet,” a high carbohydrate (55-60% of calories) diet: Discuss the use of this diet as the basic clinical approach to nutrition counseling.