

## LECTURE OUTLINE Chapter 1: Food Choices and Human Health

### I The Science of Nutrition

- A. Definition of a "Nutrient"- a chemical substance in food that is required by the body to provide energy, give the body structure and/or help it work.

Which of the following is a nutrient- carrots, vitamin A or both \_\_\_\_\_

The 6 categories of nutrients for humans:

Which of these do you think should be first?

Which of the six categories of nutrients have energy that humans can use?

- B. **MACRONUTRIENTS** (not defined this way in our text): Be certain to know ALL of these.

1. carbohydrates (sugar, starch, fiber)
2. fat
3. protein
4. water

Which of these macronutrients can be broken apart to yield energy for the human body?

- C. **MICRONUTRIENTS**: vitamins and minerals

1. Vitamins. Examples:
2. Minerals. Examples:

Which of these micronutrients can be broken apart to yield energy for the human body?

- D. Is a potato a carbohydrate? \_\_\_\_\_ Why or why not?

Why is it NOT appropriate to call a potato a carbohydrate?

- E. What is the definition of a nutrient?

F. Definition of an **organic** nutrient-

A nutrient containing carbon to carbon bonds which can be broken apart (also called burned) to release energy. (A bond is a link between two elements).

An *element* is a substance that can't be separated into smaller parts. Examples of elements include carbon, hydrogen, iron and calcium.

According to this definition, is CO<sub>2</sub> an organic substance? \_\_\_\_\_ Why or why not? \_\_\_\_\_

Which of the 6 categories of nutrients are organic?

The vitamins in our food ARE organic and contain energy. Why can't our bodies release this energy that is in vitamins?

G. Definition of an **inorganic** nutrient- A nutrient without a carbon to carbon bond and it cannot be broken apart to release energy.

Which of the 6 categories of nutrients are inorganic? \_\_\_\_\_

Why is vitamin A considered organic while iron is considered inorganic?

Your Turkey Cheese Frank fell into the barbecue and is now nothing but ash. Which of the six categories of nutrients is this ash composed of? \_\_\_\_\_

What did the carbohydrates, proteins, fats & vitamins become?

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_

H. Definition of a Calorie (kcal)- used to measure the energy in foods. The text states that is a unit of heat also a unit of energy and is a measure of how much energy (or potential heat) is in a food

1 gram carbohydrate OR protein has \_\_\_Calories (kcal) 1 gram fat has \_\_\_Calories (kcal)

(a gram is about the weight of a \_\_\_\_\_)

## II Placebo Effect

(Definition of placebo- NOT a real treatment but it might induce body's natural healing process from the ACT of treatment, not the treatment itself.)

Consider the following: 500 women were divided into 2 groups. One group took 1200 mg of calcium a day and the other took a placebo. After 3 menstrual cycles, the calcium group reported a nearly 50 percent drop in 4 major PMS symptoms: mood swings, pain, water retention and food cravings. The placebo group saw a 30% decrease (*Newsweek*, Special Issue)

Why is this an example of the placebo effect? \_\_\_\_\_

What can we learn from the placebo effect? \_\_\_\_\_

From Brody, H. (2000, August). Tapping the Power of the Placebo. *Newsweek*. Retrieved from [http://www.uri-geller.com/placebo\\_article.htm](http://www.uri-geller.com/placebo_article.htm)

The mind can heal the body when bolstered by \_\_\_\_\_ and \_\_\_\_\_

Breast-cancer patients assigned to a support group lived an average of 18 months longer than those receiving standard care, even though their breast cancer had metastasized before the study began. What were the group's activities?

1. support group members \_\_\_\_\_ to each other
2. support group members \_\_\_\_\_ for each other
3. support group members worked to \_\_\_\_\_ their symptoms
4. support group members worked to \_\_\_\_\_ their symptoms

The above activities seem to stimulate the immune system.

What is the definition of a "quack remedy"?

What is the difference between a quack remedy and the placebo effect?

### III Identifying Valid Nutrition Info in the News: Scientific Research

Why do we want to know how to identify valid nutrition info in the news?

A. Has Characteristics of GOOD Scientific Research.

1. Researcher (who might not be the author) has good credentials Usually done by someone with a doctorate (PhD) or a master's (MS) in nutrition or another related field or an MD who has advanced training in nutrition. You can usually identify PhDs or MDs with nutrition training by their place of work (a major university with a strong nutrition program or a government agency for nutrition or health).

It's important to ask- Who paid for the research?

2. When possible, double blind with a placebo and a reasonable number of subjects were used for a long period.

Definition of placebo- NOT a real treatment but it might induce body's natural healing process.

Double blind: neither the receiver of the treatment or the \_\_\_\_\_ of the treatment know what the person is getting.

Reasonable number: \_\_\_\_\_

3. Study results reported so others can replicate (duplicate) and reported in respected, refereed (articles evaluated by persons with nutrition credentials) scientific journals.

Where in a publication can you find credentials for "referees"?

A journal usually is a *primary* source of information, while a magazine is a *secondary* source).

What does this mean? \_\_\_\_\_

4. Broad generalizations NOT made
5. If research on animals, findings not applied directly to humans
6. If research done on specific segments of population or people living in a clinical setting, it's not applied to ALL people.

A 1990 study published by an MD in *The New England Journal of Medicine* found that after 6 months of thrice-weekly injections of human growth hormone (HGH), compared with untreated controls, participants had a significant 1. *increase in lean body mass* 2. *increase in bone density* and 3. *a decrease in body fat*. After the release of this study, sales of HGH skyrocketed.

What questions would you ask about this study?

5 QUESTIONS	BRIEF ANSWERS from the article

B. If research studies are discussed, they're usually one of the several types of Scientific Research Studies:

1. **Case Study**- studying ONE INDIVIDUAL.  
What is the difference between a case study and a testimonial?
  
2. **Observational Study**- simply monitoring and/or collecting information. No treatment given so NO PLACEBO. COLLECTING INFO
  
3. **Epidemiological Study** (a type of Observational Study)- examines a particular large (maybe hundreds or thousands) population to determine what people's health patterns or risk factors have been OR are over time and then this is linked with incidence of disease or other health problems. These people were/are NOT given a treatment. (often \_\_\_\_spective).
  
4. **Laboratory Study**- study done under tightly controlled conditions. Since it's difficult to tightly control conditions for humans, these studies are usually done on \_\_\_\_\_or in \_\_\_\_\_.
  
5. **Intervention Study**- (often called "clinical trials") \_\_\_\_\_ARE given a treatment and the results are observed (\_\_\_\_spective). Definition of treatment:  
\_\_\_\_\_

	Epidemiological Study	Intervention Study	Observational Study
SIZE of group	_____group	can be large group but not always	can be large group but not always
TREATMENT?	_____ relate results to _____ usually collect info over _____ /	a treatment (pill, advice, therapy) often with a control group who might be given a placebo	_____

What kinds of scientific research studies or results are each of these? **Note:** *I would recommend trying to fill in these blanks on your own, and then watch the video in lecture 1B to check your answers. If you have questions, post them in the FORUM so we can discuss them.*

1. \_\_\_\_\_. For 3 weeks, 11 healthy men and women were given oils from the equivalent of 4-8 cups of coffee. Their LDL (the "bad" lipoprotein with cholesterol) levels rose 12 percent and triglycerides rose 58 percent. (*J. Internal Med.* 237:543, 1995.)

What does this study suggest? \_\_\_\_\_

2. \_\_\_\_\_. A group of Thai women and a group of Swedish women ate a simple Thai dish of rice and vegetables spiced with chili paste, fish sauce, and coconut cream. The Thai women, who enjoyed the meal, absorbed significantly more iron from the food than a group of Swedish women, who considered the meal "very spicy," according to the investigators. (*Tufts University Health & Nutrition Letter*, October, 2000)

What does this study suggest? \_\_\_\_\_

3. \_\_\_\_\_. 64 pregnant women completed 3-day diet records each month during their pregnancy. Intakes of iron and magnesium were suboptimal. (*Journal of the American Dietetic Association*, April, 2003)

What does this study suggest? \_\_\_\_\_

4. \_\_\_\_\_ Researchers tracked for 3 years the eating habits of a group of 459 healthy, largely middle-age people in Baltimore. Some preferred foods made with refined grains like white bread; others favored whole grains, fruits and vegetables. At the end, the white bread group had three times the fiber group's gain at the gut. (*The Register-Guard*, June 20, 2004. By Ira Dreyfus. *The Associated Press.*)

What does this study suggest? \_\_\_\_\_

## IV Identifying Nutrition Info that is unreliable (not valid) & that should make you suspicious p. 23 in book

### "Earmarks" (markers) of unreliable nutrition info:

<ol style="list-style-type: none"> <li>1. Too good to be true</li> <li>2. Suspicious about food supply</li> <li>3. Only Testimonials</li> <li>4. Fake credentials</li> <li>5. Unpublished studies</li> <li>6. Persecution claims</li> <li>7. Authority not cited (Nutrition training not defined)</li> </ol>	<ol style="list-style-type: none"> <li>8. Motive: Personal gain</li> <li>9. Advertisement</li> <li>10. Unreliable publication (Unrefereed) OR unreliable Internet site</li> <li>11. Half truths (logic without proof; in other words part is true &amp; part is false, not known or misleading)</li> </ol>
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EXAMPLE from [http://www.wp.com/queen\\_bee](http://www.wp.com/queen_bee) (This site no longer exists)

What is Royal Jelly? According to this site, "Royal jelly is the exclusive food of the queen bee. The diet of royal jelly transforms a worker bee into a queen bee. For centuries royal jelly has been used for its extraordinary benefits to strengthen the defense system. "

Rochelle Harris, Nutritionist says "I have been a natural food enthusiast for more than 30 years during which time I have used royal jelly for energy, stamina, and strength. The Queen Bee royal jelly has made such a dramatic difference that I now recommend it to all my clients."

*Why is the information about Royal Jelly an example of a half truth?*

In other words, what half is true?

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and what half is false, unproven or misleading?

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Royal Jelly info: Give at least 3 reasons why it is unreliable nutrition information. (Use "Earmarks" previously listed.)

## V 4 Guidelines for Evaluating Nutrition Info on the Web

(from the LCC library)

1. AUTHORITY. To help determine, look for \_\_\_\_\_ credentials.

What does "recognized" mean? An outside organizations with rigorous standards (especially for curriculum) recognize that credential is reliable.

Is this a recognized credential? NTP (Nutritional Therapy Practitioner) \_\_\_\_\_

Given by Nutritional Therapy Association

<http://www.nutritionaltherapy.com/>

Cost of tuition: \_\_\_\_\_

Hours of Instruction: \_\_\_\_\_

Credentials of Instructors: \_\_\_\_\_

Who evaluates their curriculum? \_\_\_\_\_

Any other info you found out: \_\_\_\_\_

2. **OBJECTIVITY.** Does there appear to be bias? Sometimes a web address that ends in .org is very biased, but not always.
3. **ACCURACY.** Are there misspelling? Does it appear to be hastily developed?
4. **CURRENCY.** When was the site created?