

# Introduction to Nutrition

The science of nutrition

# What is nutrition?

- A branch of science that studies
  - Foods
  - Nutrients
  - Other substances
    - And their influence on the human body
      - As it relates to health and disease.

# Why study nutrition?

- To discover the link between
  - foods we eat and our health

Goal is optimum health:

- Highest level of physical and mental well-being and not merely the absence of disease.

# Foods

- Contain nutrients that are essential for:
  - Body Growth
  - Body Function
  - Body Repair
  - Reproduction
  - Energy
  - Good mental health

# Nutrients in foods

Foods contain varying amounts of:

## **Macronutrients**

- Protein
- Carbohydrates
- Fat

## **Micronutrients**

- Vitamins
- Minerals

# Macronutrients in foods

- Carbohydrates
  - Needed for energy for body
- Protein
  - Needed for repair of body
  - Needed for growth of body
  - Needed to maintain body tissues

# Macronutrients in food

- Fat
  - Synthesize hormones
  - Help absorption of vitamins A,D,E,K
  - Become part of our cell membranes

# Micronutrients in food

- Vitamins
  - Help body and mind to function
- Minerals
  - Help body and mind to function



# Foods contain other substances for good health

- Phytochemicals
- Dietary Fiber
- Probiotics

# Foods contain other substances for good health

- Phytochemicals
  - Chemicals found in all plants that contribute to good health
  - Different plants contain different phytochemicals
  - When we eat a variety plants, we get an assortment of health benefits from the phytochemicals.

# All plants contain phytochemicals

- Examples of plants in our diet
- Fruits
- Vegetables
- Whole grains
- Legumes and beans
- Nuts and seeds
- Herbs and spices

# Examples of phytochemicals with health benefits

- Carrots, broccoli, sweet potatoes contain carotenoids that may inhibit cancer growth.
- Cherries and the herb rosemary contain terpenes which may protect cells from becoming cancerous
- White and green tea contain ECGC which may be protective against diabetes.
- Red and yellow onions, kale, hot peppers contain quercetin which may reduce risk of heart disease.

# Other substances in food that contribute to good health

- Dietary Fiber
  - Found in carbohydrate foods
  - Humans lack the enzymes in the small intestines to digest it
  - Dietary fiber moves from small intestines to large intestines
  - In the large intestines, bacteria breaks it down

# Other substances in foods that contribute to good health

- Dietary Fiber
- Please read about dietary fiber and its health benefits:
- [https://www.accessdata.fda.gov/scripts/InteractiveNutritionFactsLabel/factsheets/Dietary\\_Fiber.pdf](https://www.accessdata.fda.gov/scripts/InteractiveNutritionFactsLabel/factsheets/Dietary_Fiber.pdf)

# Other substances the contribute to good health

- Probiotics
  - “Healthy bacteria” found in foods that improve health of digestive tract.
  - Research is ongoing to into other health benefits of probiotics

# Probiotics

- Which foods contain the probiotics or “healthy bacteria”?
  - Foods that are fermented contain “healthy bacteria”.
  - Yogurt, kefir, sauerkraut, kimchi are examples of fermented foods that contain probiotics.



# Probiotics

- Read more about probiotics here:
- <https://nccih.nih.gov/health/probiotics/introduction.htm>

# Quality of American Diet is poor

- Foods in American Diet
  - Lack vitamins and minerals
  - Lack phytochemicals
  - Lack dietary fiber
  - Lack probiotics
  - Lack healthy fats
  - Lack plants
  - Lack variety of foods

# Why is American diet poor?

Americans are eating too much

Processed foods

Fast Foods

# Why is American Diet poor?

- Americans eating too few fresh foods

# American Diet

- Processed foods and fast foods are unhealthy food choices because they are:
  - High in added sugar and other sweeteners
  - Contain unhealthy fats
  - Contain poorly tested artificial ingredients
  - Contain hormones, antibiotics
  - Are cheap so can easily overeat

# Quality of American Diet: Poor

- Low in:
  - Fresh foods in their whole, natural state which contain a variety of:
    - Phytochemicals
    - Vitamins
    - Minerals
    - Fiber

# Nutrition and Health

Nutrition plays a role in your health.

Are you overeating on unhealthy foods?

Are you under eating on healthy foods?

Are you eating enough vitamins and minerals to remain healthy?

Are you eating enough dietary fiber, phytochemicals and probiotics to remain healthy?

# Nutrition Research

- Guidelines as to what is healthy to eat created from nutrition research.
- Nutrition information may change as new research becomes available.
- Nutrition research conducted by:
  - Government
  - Private industry
  - Organizations



# Nutrition Research

- Some reasons why nutrition research leads to conflicting results:
- Who funded the research?
  - Do they have a vested interest in the results?
  - Is there a conflict of interest?

# Nutrition Research

- People are biochemically unique
  - One man's meat is another man's poison
- Was research conducted on humans or animals?
  - Research result on animals may not be true for humans

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