WISHH

World Initiative for Soy in Human Health

Enhancing human well-being through soy

Nutrition 101: Protein in Health and Disease

Backgrounder

- 42 million people infected by HIV/AIDS
  - 8,500 die daily
- 14m children are orphaned by HIV/AIDS
- HIV/AIDS has become one of the most significant challenges ever to developmental efforts

Backgrounder

- 800 million people affected by malnutrition
  - 24,000 die daily
- Malnutrition is #1 reason for immune deficiency in the world today
- Addressing malnutrition is essential to addressing HIV and AIDS

Nutritional Priorities

- Fluids
- Calories
- Protein
- .
- .
- Micronutrients and other food substances

Role of Protein

- Protein through life cycle
- Role of protein to prevent and/or treat malnutrition
- Protein requirements in infectious disease

Lifecycle Nutrition

- General protein requirements
  - Based on high-quality, highly-digestible protein sources
  - Lower quality protein sources may increase general protein needs

Lifecycle Nutrition

- Pregnancy
  - Growth/development of fetus and other tissues
    - During third trimester protein requirements increase approximately 11 grams/day
- Lactation
    - +15 grams/day

Lifecycle Nutrition

- Infancy/Childhood/Adolescence
  - Growth
    - Body content starts at ~11% and grows to 15% during first year: 3-3.5 grams per day
    - 1.5 to 1.75 g/kg/day during first year
    - Eventually drops because of less growth, more maintenance

Lifecycle Nutrition

- Elderly
  - Balances change, but requirements are the same
    - The body may not use the protein as well
    - Muscle protein may be lost

Protein for Malnutrition

- Calories vs. protein: an old debate
  - Both are needed in the right amounts
  - Growth and maintenance levels should be covered
- Protein can be double-edged
  - Too much or too little causes problems

Protein for Malnutrition

- Types
  - Undernutrition
    - Starting out well → staying well
    - Especially essential for growth and catch-up growth periods
  - Overnutrition
    - The quick hop to obesity can be changed

Protein for Disease

- Disease changes protein needs
  - Increased protein needs during fever and diarrhea
  - Increased protein needs during infection
  - Changes in how the protein is used in the body

Protein for Disease

- If you increase calorie needs, you automatically increases protein needs
- To prevent the devastating malnutrition during disease requires enough (more) high-quality protein
- Recovery is a + protein balance

Conclusions

- Shore up deficient food supply
  - As ingredient
  - As fortificant
- Maintain body in health and disease
  - Growth/development
  - Disease management
  - Health maintenance

Experience: US and Europe

- Role of nutrition in disease
  - "Emergency" use: staying alive, staying alive
  - Maintenance: with/without medications
  - Supports medications to work
  - Roles for soy: no magic here!
    - "Integration" is key

Research Clips: clinical stuff

- Weight maintenance is important
- Lean body tissues (muscles and organs)
  - Linked to survival
  - Linked to protein intake in HIV and TB
- Micronutrient issues
  - Food sources are preferred

Nutrition Findings

- People who are malnourished are more likely to seroconvert (become HIV+)
- People who become HIV+ are more likely to become malnourished
- People who are HIV+ and/or malnourished get other, often life-threatening, disease
  - Malaria and TB present similar challenges

Nutrition Findings

- → MALNUTRITION IS **NOT** A PART OF THE NATURAL HISTORY OF HIV INFECTION
  - Unless it is allowed to happen
- MALNUTRITION DEBILITATES
  - AND HAS THE FINAL SAY ON LIVING OR DYING

What We Know

- People who start out malnourished are more prone to infection
- Infection increases nutrient needs
- Malnutrition that results from disease can reduce immune function and lead to infection and death in disease

Role of Soy in HIV Care

- Currently used products
  - Products and general recommendation for soy products and ingredients
- Impact of soy in HIV
  - Improved source of protein and therapeutic potential for patients at high risk for cardiovascular disease, osteoporosis, and kidney disease

To do:

Put nutrition into the food provision equation

WISHH Role: Resource

- Includes, but is not limited to:
  - Technical assistance, program development
  - Data gathering projects, problem solving support
  - Integration of soy as an ingredient to enhance the local food supply
  - Food product exploration and development
  - Collaboration and connection for private/public partnerships