INTERAGENCY COMMITTEE ON HUMAN NUTRITION RESEARCH

DEFINITION OF HUMAN NUTRITION RESEARCH

Human nutrition research is the pursuit of new knowledge to improve the understanding of nutrition as it relates to human health and disease and, as here defined, encompasses studies in five major areas: biomedical and behavioral sciences, food sciences, nutrition monitoring and surveillance, nutrition education, and impact on nutrition of intervention programs and socioeconomic factors.

I. RESEARCH IN THE BIOMEDICAL AND BEHAVIORAL SCIENCES

Studies in the biomedical and behavioral sciences aspect of human nutrition research address factors that impact on or are affected by food or nutrient intake and those affecting utilization of food or nutrients by the intact organism (animal model or human being), and the metabolic and behavioral mechanisms involved. Studies found here include:

- Investigations of nutrient variables at the cellular and subcellular level.

- Dietary and nutrition studies relating to the health status or performance of humans, including but not limited to maintenance and promotion of health and prevention of disease. Such studies might take the form of clinical trials, epidemiological studies, or metabolic studies.

- Studies designed to explain the metabolic role or function of nutrients and other constituents of foods in humans and in animal or other biological models relevant to human nutrition.

- Studies concerned with genetic-nutrient-environmental interactions in humans, where a nutrient is an experimental variable.

- Studies of the interaction of diets and nutrients with other ingested substances, man-made or naturally occurring, including dietary supplements and drugs, as well as toxic materials and carcinogenic agents.

II. RESEARCH IN FOOD SCIENCES

Under the food sciences aspect of human nutrition research fall studies primarily concerned with the nutritional quality, content, or composition of foods, or with the bioavailability of nutrients in foods. Research activities related to the food sciences that are included in human nutrition research are:

- Studies on the nutritional characteristics of foods and diets for human use as influenced by various factors. Some factors are varietal and species differences, harvest and post-harvest technology, food processing, transportation, and retail food practices -- when such studies are designed specifically to increase knowledge of human nutrition.

- Studies on cost-effective methods that will improve the speed, accuracy and reliability with which food components of nutritional importance are analyzed.

III. RESEARCH ON NUTRITION MONITORING AND SURVEILLANCE OF POPULATIONS

This aspect of human nutrition research covers epidemiological and methodological studies that provide data on food consumption, dietary practices, nutritional status, and general health status as it may relate to nutrition. Some examples of such studies include:

- Epidemiological surveys of food consumption patterns and dietary practices.
- Methodological studies of food consumption survey techniques.
- Studies of trends in dietary habits and food consumption as they affect health or nutritional status.
- Studies that seek to relate dietary history, biochemical determinants, anthropometry data, clinical examination results, etc.

IV. RESEARCH IN NUTRITION EDUCATION

Nutrition education research employs methods from psychology, sociology, anthropology, communications, education, economics, consumer research, and social marketing. Its intent is to determine the most effective means of conveying information about the health impact of various dietary practices and advances in human nutrition science to the general public and to health professionals. Such studies include but are not limited to:

- Studies of factors that facilitate or impede information transfer and of those that mediate the translation of knowledge into behavioral change, as these factors relate to knowledge of good nutrition. These factors might include the public's comprehension of, interest in or concern for, and use of nutrition and diet/health relationship information.
- Studies that identify, develop, test and evaluate effective and efficient strategies for delivering nutrition information to various target groups under varying nutrition education objectives.
- Studies to identify those factors (technological, educational, sociocultural, motivational, etc.) that cause change in dietary habits, beliefs and food consumption behavior, and the development of theories, models and methods to study such factors.
- Surveillance studies of the marketplace to identify industry efforts to convey nutrition information to the public.

V. RESEARCH ON THE EFFECTS OF SOCIOECONOMIC FACTORS AND INTERVENTION PROGRAMS AND POLICIES ON FOOD CONSUMPTION AND HUMAN NUTRITION

Interventions, government policies, scientific advances, and other socioeconomic phenomena can and do influence food consumption and nutritional status. Thus, studies of the changes and trends relevant to nutritional health that occur as a consequence are appropriately included in human nutrition research.

HNRIM CLASSIFICATION SYSTEM

Projects included in the HNRIM system are selected and coded for submission by the sponsoring agency, based upon the classification system following. This classification system has its origins in the definition of human nutrition research developed by the NIH Nutrition Coordinating Committee (NCC) in 1977. The Joint Subcommittee on Human Nutrition Research, operating out of the Office of Science and Technology Policy in the Executive Office of the President, expanded the NIH definition to include the human nutrition research activities supported by participating Federal agencies, and developed a system of 34 data classification categories for human nutrition research. In FY 1985, Code 35, "Parenteral, Enteral, and Elemental Nutrition," was added under Section I, subsection B by the ICHNR, which now oversees operation of the database. In FY 1999, Code 36, "Dietary Supplements: Nutrient Ingredients," and Code 37, "Dietary Supplements: Botanical and Other Non-nutrient Ingredients," were added to Section I, subsections B and C.

I. Research in the Biomedical and Behavioral Sciences

A. Research on Normal Nutritional Requirements Throughout the Life Cycle

The following five categories are included because of the importance to health promotion of establishing normal nutritional requirements throughout the life cycle, and the differing needs of individuals at various stages of the life cycle.

Research activities relevant to normal nutrition at specific stages of the human life cycle should be assigned to classifications 1-5.

1. **Maternal Nutrition**

2. **Infant and Child Nutrition (0-12 years)**
   (includes the low birth weight infant)

3. **Adolescent Nutrition (13-18 years)**

4. **Adult Nutrition (19-65 years)**

5. **Nutrition of the Elderly (65 + years)**

B. Diseases and Conditions

Research on the role of nutrition in the prevention, amelioration, and treatment of diseases and conditions should be assigned to categories 6-16, 35-37. Because of the importance of appropriate nutritional support of the patient in the treatment of disease, the category of "parenteral, enteral and elemental nutrition" has been added in this subsection as code 35. Codes 36 and 37 have been added to reflect definitions of dietary supplements resulting from The Dietary Supplement Health and Education Act (DSHEA).

6. **Cardiovascular Disease and Nutrition**

7. **Cancer and Nutrition**

8. **Other Diseases and Nutrition**
   (e.g., osteoporosis, diabetes, etc.)

9. Trauma (Including Burns) and Nutrition

10. Infection --Immunology and Nutrition

11. Obesity, Anorexia, and Appetite Control

12. Genetics and Nutrition

13. Nutrition and Function
(Includes mental, psychomotor, and work performance; environmental stress; physiological and behavioral effects)

* **14. Nutrient Interactions**
(Includes nutrient-nutrient interactions, nutrient-drug interactions, nutrient-dietary supplement interactions, nutrient-toxicant interactions, and nutrient toxicity)

15. Other Conditions and Nutrition

* **16. Nutritional Status**
(Includes research on methods for the determination of nutritional status and surveillance: dietary history and food consumption, biochemical determinants, anthropometry, and clinical examination)

35. Parenteral, Enteral, and Elemental Nutrition

* **36. Dietary Supplements: Nutrient Ingredients**
(Includes all essential and non-essential nutrients and other food constituents that are typically described in standard nutrition reference texts or that fall within the review parameters of the Food and Nutrition Board, National Academy of Sciences in consideration of Dietary Reference Intakes (DRI's). Thus, this category would include substances recognized as essential nutrients -- i.e., iron, vitamin C, essential amino acids, etc. -- and substances not generally recognized as being essential but that have or may have a dietary or nutrient role in humans)

* **37. Dietary Supplements: Botanical and Other Non-nutrient Ingredients**
(Includes all plant-derived materials whether fresh, preserved, or dried full plants, plant parts, plant species mixtures, plant extracts, "herbs" or "herbal products," regardless of whether they meet the dictionary definition of herb[1] or that are comprised of parts, extracts**,** or preparations of woody plants will be included as botanical ingredients. Other Dietary Substances comprise a broad and diverse group of substances that are neither of plant origin nor alone could be viewed as "nutrients" within the common-sense meaning of the term. For example, such substances could include animal or plant metabolites or constituents, microorganisms and certain of their constituents, etc. The substances subject to inclusion in this category are limited by the statutory definition of "dietary supplement" in the DSHEA -- i.e., not an approved or investigational drug, not a conventional food or meal replacement, and intended to be used to supplement the diet, etc.)

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[1] Herb- a flowering plant whose stem above ground does not become woody.

* Codes marked by an asterisk are applicable to more than one class.

C. Nutrient Metabolism and Metabolic Mechanisms at the Cellular and Subcellular Levels

Categories 17-25, 14, and 27 classify research by nutrient variables; these categories should be used to indicate the nutrient variables in research classified elsewhere; and classify biochemical, subcellular, cellular, and animal research, such as studies of nutrient mechanisms and metabolism not related to specific diseases, conditions, or stages of the life cycle.

17. Carbohydrates

18. Lipids (Fats and Oils)
(Includes essential fatty acids, lipo- and apoproteins)

19. Alcohols
(Includes ethanol, sorbitols, and other alcohols used as components in synthetic and semisynthetic foods)

20. Proteins and Amino Acids
(Includes essential as well as nonessential amino acids such as taurine and carnitine)

21. Vitamins
(Includes vitamin A, C, B_6, B_{12}, D, E, K, thiamin, riboflavin, niacin, folacin, biotin, and pantothenic acid in foods, dietary supplements or drugs)

22. Minerals and Essential Trace Elements
(Includes calcium, phosphorus, magnesium, iron, zinc, iodine, copper, manganese, fluoride, chromium, selenium, and molybdenum in foods, dietary supplements or drugs)

23. Water and Electrolytes
(Includes sodium, potassium, and chloride)

24. Fiber

25. Other Nutrients in Food
(Such as cobalt, nickel, vanadium, silicon, tin, arsenic, cadmium, choline, lecithin and various growth factors) (see also # 37)

* **14. Nutrient Interactions**
(Includes nutrient-nutrient interactions, nutrient-drug interactions, nutrient-dietary supplement interactions, nutrient-toxicant interactions, and nutrient toxicity)

* **27. Bioavailability of Nutrients**
(Includes methods for the determination of bioavailability of nutrients or of dietary supplement constituents)

* Codes marked by an asterisk are applicable to more than one class.

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II. Research in Food Sciences

Categories 26-29 should be used for research in the nutritional aspects of food sciences.

26. Food Composition

(Includes nutritional quality, nutrient content, and research on methods of analysis for nutrients, including dietary supplements and fiber)

* **27. Bioavailability of Nutrients**

(Includes methods for the determination of bioavailability of nutrients or of dietary supplement constituents)

28. Effects of Technology on Acceptability and Nutritional Characteristics of Foods and Diets

(Includes the beneficial and adverse effects of varietal and species differences, harvest and post-harvest technology, retail food practices, food processing, fortification or supplementation, handling, preservation, and home cooking)

29. Other Research in Food Sciences

[1] Herb- a flowering plant whose stem above ground does not become woody.

* Codes marked by an asterisk are applicable to more than one class.

III. Research on Nutrition Monitoring and Surveillance of Populations

30. Food Consumption Surveys
(Includes research on methods for determination of food consumption and its trends, and research utilizing data derived from such surveys)

31. Studies of Dietary Practices, Food Consumption Patterns, and Their Determinants

* **16. Nutritional Status**
(Includes research on methods for the determination of nutritional status and surveillance: dietary history and food consumption, biochemical determinants, anthropometry, and clinical examination)

IV. Research in Nutrition Education

Categories 32-33 encompass research in nutrition education.

32. Studies on Methods for Informing and Educating the Public About Nutrition, Health, and Dietary Practices and for Countering Nutrition Misinformation
(Includes marketing research and studies on methods for informing and educating professionals in these areas)

33. Other Research in Nutrition Education

V. Research on the Effects of Government Policy and Socioeconomic Factors on Food Consumption and Human Nutrition

34. Effects of Government Policy and Socioeconomic Factors on Food Consumption and Human Nutrition

* Codes marked by an asterisk are applicable to more than one class.

NUTRITION CODES/NAMES (short form)

01 Maternal Nutrition
02 Infant and Child Nutrition (0-12 years)
03 Adolescent Nutrition (13-18 years)
04 Adult Nutrition (19-65 years)
05 Nutrition of the Elderly (65 + years)
06 Cardiovascular Disease and Nutrition
07 Cancer and Nutrition
08 Other Diseases and Nutrition
09 Trauma (Including Burns) and Nutrition
10 Infection -- Immunology and Nutrition
11 Obesity, Anorexia, and Appetite Control
12 Genetics and Nutrition
13 Nutrition and Function
14 Nutrient Interactions
15 Other Conditions and Nutrition
16 Nutritional Status R&D
17 Carbohydrates
18 Lipids (Fats and Oils)
19 Alcohols
20 Proteins and Amino Acids
21 Vitamins
22 Minerals and Essential Trace Elements
23 Water and Electrolytes
24 Fiber
25 Other Nutrients In Food
26 Food Composition R&D
27 Bioavailability of Nutrients
28 Effects of Technology on Foods and Diets
29 Other Research in Food Sciences
30 Food Consumption Survey R&D
31 Dietary Practices, Food Consumption, & Determinants
32 Studies of Methods for Informing & Educating the Public
33 Other Research in Nutrition Education
34 Effects of Government Policy & Socioeconomic Factors
35 Parenteral, Enteral, and Elemental Nutrition
36 Dietary Supplements: Nutrient Ingredients
37 Dietary Supplements: Botanical and Other Non-nutrient Ingredients

(38-50 Reserved)

51 Prevention and Nutrition
52 International Nutrition Research
53 Epidemiological Nutrition Research
54 Nutrition Education for Professionals
55 Nutrition Education for the Public
56 Clinical Trials of Nutrients/Nutrition