



Nutritional Sciences News

Division of Nutritional Sciences University of Illinois at Urbana-Champaign

VOLUME 5 NUMBER 1 FALL 1992

A Word from the Editor

Once again, I have had the privilege to assemble the annual edition of *Nutritional Sciences News*. Many thanks to everyone who responded and contributed. Have a great year.

Enjoy,

Brent D. Flickinger

A Word from the Director

I hope you enjoy reading this issue of the *Nutritional Sciences News*. We hope to keep you up-to-date on the activities of the faculty and students here on campus as well as alumni achievements. This year we added a historical feature focusing on the classic amino acid work of Drs. Mitchell and Rose. Thanks go to Brent Flickinger who has done a great job editing this issue for the second year.

We continue to hear from a large number of our graduates. Next year I hope all of you will take the time to jot down your latest activities. It's nice to know what everyone is doing. Be sure to inform the Division office if you have an address or position change.

Over 75 present and past Illini attended the University of Illinois reception at the FASEB meeting last spring. Ed Ulman (Ph.D. - 1980) president of Research Diets, Inc. helped sponsor the event. At the Experimental Biology '93 meeting (new name for FASEB) in New Orleans, the format for University receptions will be a little different. The AIN Council has decided to mimic IFT where a large number of universities hold their receptions together in their own assigned area within a large room. It is expected that this combined reception will be held early Tuesday evening, March 30th. Check your program and join us there.

As many of you know most states, including Illinois, are going through financially difficult times. The University of Illinois has been reallocating and deallocating funds for several years, and prospects for the near future are no better. Despite the tough financial climate, Nutritional Sciences has been able to maintain and, indeed, slightly expand program support for student travel, student research and teaching assistance. Supporting Colleges value our program and continue to support the Division. It is our hope that we will not have to reduce program support in the future.

On September 19, 1992, the Division, in conjunction with the College of Agriculture, College of Medicine and Department of Food

Science, sponsored an exciting full-day symposium honoring Willard J. Visek, M.D., Ph.D. on his 70th birthday. A list of the speakers and topics of the symposium are found elsewhere in the newsletter. Numerous former students, postdocs and other research associates of Willard's returned to campus for this event. Over 180 people attended the symposium and 130 attended the dinner/roast that evening. It was an exceptional day. The proceedings of the symposium will be published as a special Agricultural Experiment Station publication. If you would like to receive a copy, once published, let our office know.

Former and current research associates of Willard's have instituted a Willard J. Visek Lectureship in Medical Nutrition. A fund raising campaign is in progress to create a yearly lectureship. If you would like to contribute, send a tax free donation to UIF - Willard Visek Lectureship Fund and mail to the University of Illinois Foundation, 224 Illini Union, 1401 W. Green Street, Urbana, IL 61801.

Best regards,

John W. Erdman, Jr.
Director

NS Participates in Vissek Symposium

On September 19, 1992, a symposium honoring Willard J. Vissek, M.D., Ph.D. entitled "From Ammonia to Cancer and Gene Expression" was held at the Chancellor Convention Center in Champaign, IL. The day was filled with lectures from colleagues and former students of Dr. Vissek's in honor of his influence and contributions to the field of human nutrition. The event was concluded with a roast which included the presentation of a plaque by the Nutritional Sciences Graduate Student Association and an announcement of the formation of an annual lectureship in Dr. Vissek's honor.

"From Ammonia to Cancer and Gene Expression"

Speakers

John A. Milner, Ph.D.

"Investigations of the Biological Effects of Ammonia: A Historical Perspective." Dr. Milner is Professor and Head, Department of Nutrition at The Pennsylvania State University.

Quinton R. Rogers, Ph.D.

"Species Variation in Arginine Requirements." Dr. Rogers is Professor of Physiological Chemistry in the School of Veterinary Medicine at the University of California-Davis.

Jordan Holtzman, M.D., Ph.D.

"The Role of Ammonia in Clinical Medicine." Dr. Holtzman is Professor in Departments of Medicine and Pharmacology and Director of Clinical Pharmacology at the University of Minnesota.

Gary E. Gibson, Ph.D.

"Age and Nutrition in Models of Neurological Disorders." Dr. Gibson is Professor of Neuroscience at Cornell University Medical College.

Steven K. Clinton, M.D., Ph.D.

"Diet, Nutrition and Cancer." Dr. Clinton is Clinical Oncologist at the Harvard Medical School and Dana-Farber Cancer Institute.

Alan E. Wakeling, Ph.D.

"How Did I Get from the Dog Prostrate to Breast Cancer Therapeutics." Dr. Wakeling is Research Associate in the Pharmaceutical Division of Imperial Chemical Industries in Cheshire, England.

James A. Kaput, Ph.D.

"Molecular Mechanism of Diet Regulated Gene Expression: Development of an Experimental Paradigm for Diet-Disease Interactions." Dr. Kaput is Visiting Research Specialist in the Department of Internal Medicine at the University of Illinois.

NS Welcomes Invited Lecturers

Nutritional Sciences Seminar was the forum for an outstanding series of invited guest lecturers from around the state, country and world. Here is a summary of the participants and their topics.

Edith Sternberg, Chief, Center for Health Promotion, Illinois Department of Public Health and Merryjo Ware, Executive Nutrition Services Coordinator, Illinois Department of Public Health-Nutrition Section presented "The Illinois Department of Health: Healthy People 2000." Walter Willett from the Harvard University School of Public Health spoke on the topic "Is Fat Intake a Major Cause of Human Breast Cancer?" Quinton Rogers, Professor in the School of Veterinary Medicine at the University of California-Davis addressed the subject "Taurine, Nutrition and Metabolism in the Cat." Helmut Sies, Professor of Physiological Chemistry at the Institute of Physiological Chemistry at the University of Dusseldorf (Germany) delivered "Recent Work on Oxidative Stress." Jesse Gregory from the Department of Food Science and Human Nutrition at the University of Florida-Gainesville presented the lecture entitled "Isotopic and Enzymatic Studies of Folate Bioavailability." David L. Topping, Senior Principal Research Scientist in the Division of Human Nutrition at the Glenthorpe Lab in Australia, spoke about "Foods, Fibre and Colonic Fermentation - Implications for Health."

Division Gains New Faculty

The Division welcomes three new faculty members. Robert D. Reynolds, a member of the Department of Nutrition and Medical Dietetics at the University of Illinois-Chicago (UIC) campus, specializes in vitamin B₆ nutrition and metabolism and high altitude nutrition. Roderick I. Mackie, Department of Animal Sciences, UIUC, studies anaerobic microbiology; gastrointestinal microecology; rumen microbiology, fermentation and metabolism; and comparative digestive physiology and metabolism. H. Rex Gaskins, Department of Animal Sciences, UIUC, focuses on many areas of research including the pathophysiology of the pancreatic beta-cell in diabetes, mouse models of genetic obesity and diabetes and the role of local hormones in tissue development and function.

International Lectures by NS Faculty

Dr. David H. Baker lectured on "Effects of Growth Rate, Sex and Heat Stress on Lysine Utilization by Broiler Chickens" at the Biokyowa Amino Acid Council held in Toronto, Ontario, Canada.

Dr. Jimmy H. Clark lectured on the topic of "Energy, Amino Acid Interactions in High Producing Dairy Cows" at the Ralston Purina International Scientific Advisory Board Meeting in Paris, France.

Dr. Sharon Donovan participated in the conference on Nutrient Regulation during Pregnancy, Lactation and Infant Growth in Stockholm, Sweden with a presentation on "Hormonal Treatment during Recovery from Neonatal Malnutrition: Effects on Body Weight, Body Composition and Organ Growth."

Dr. Robert A. Easter was an invited speaker at the Jamaican Swine Producers and the Dominican Republic Swine Producers Associations held in Kingston, Jamaica and Santiago, D.R., respectively. He also spoke at the Annual Meeting of Swine Nutritionists in Mexico City, Mexico and the Fourth Annual Biokyowa Amino Acid Meeting in Toronto, Ontario, Canada.

Dr. H. Rex Gaskins spoke on the topic "Pancreatic Beta Cell Destruction in the NOD Mouse: A Model of Insulin-Dependent Diabetes Mellitus" at the Institute of Physiology of the Czech Academy of Sciences in Prague, Czechoslovakia.

Dr. Keith W. Kelley presented invited seminars on "Neuroendocrine-Immune Interactions" at the USSR Academy of Medical Sciences in Moscow, Leningrad and Siberia. He was an invited speaker at a conference on Intestinal Inflammation in Florence, Italy.

Dr. Edward G. Perkins presented "Characterization of Linseed Oil Cyclic Fatty Acid Monomers" at the 1992 Joint AOCS/ISF Meeting in Toronto, Ontario, Canada.

Dr. Robert D. Reynolds delivered a lecture entitled "Energy Metabolism at High Altitude" at the Child's Health Centre in Warsaw, Poland.

Dr. James Robinson organized and presented a lecture at the international symposium "Recent Advances on Inherited Diseases in Cattle" held at the University of Illinois at Urbana-Champaign.

Binding Proteins" at the Endocrine Society Meeting in San Antonio, Texas.

Dr. James K. Drackley spoke on "Metabolic Effects of Long-Chain Fatty Acids in Dairy Cows" at the Department of Animal Science, University of Tennessee, Knoxville, TN.

Dr. Robert A. Easter presented lectures at the Arkansas Nutrition Conference in Little Rock, AK, and at the Carolina Nutrition Conference in Raleigh, NC.

Dr. John W. Erdman, Jr. presented seminars on beta-carotene metabolism at the Gordon Research Conference on Carotenoids, the University of Missouri-Columbia, the University of Florida-Gainesville and the University of Guelph (Canada). He delivered "Update on U.S. Nutritional Standards" at the Vitamin Nutrition Information Service Conference in Florida and "An Assessment of Current Joint Efforts Between Food Science and Nutrition" at the CSRS/USDA Workshop on Promoting Cooperation Between Food Science and Human Nutrition at Michigan State University.

Dr. George Fahey presented lectures at the Pacific Northwest Animal Nutrition Conference in Portland, OR, and the International Symposium on Forage Cell Wall Structure and Digestibility in Madison, WI. He was a guest speaker at North Carolina State University in Raleigh, NC.

Dr. H. Rex Gaskins was invited to the University of California-San Francisco, School of Medicine, Lung Biology Center to speak on "Unique Aspects of Stress Protein Gene Structure and Expression in Mouse Models of Diabetes."

Dr. Elizabeth Jeffery was an invited speaker at FASEB to discuss the interrelationship between nutrition, pharmacology and toxicology. In addition, Dr. Jeffery organized and chaired the Federation Symposium entitled "Drug Metabolism in Humans: From Molecular Biology to Man."

Dr. Neal R. Merchen presented "Manipulation of the Amino Acid Supply to the Growing Ruminant" at the Ruminant Nutrition Symposium at the Annual Meeting of the American Society of Animal Science in Laramie, WY.

Dr. Ralph A. Nelson was a focus of an article entitled "Hibernating Bears Emerge With Hints About Human Ills" featured in the Science Times section of The New York Times.

Dr. Jack Odle presented an invited lecture on "Taurine Nutrition of Cats" at the 1991 Waltham Symposium. He also spoke at the Illinois Pork Conference and Trade Show ("Unique Energy Supplements for Newborn Pigs"), the Midwestern Section Meeting of the American Society of Animal Science ("Improving Piglet Survival by Nutritional Means: Efforts to Enhance the Efficacy of Medium-Chain Triglycerides") and at the FASEB Meeting in Anaheim ("Effect of Epidermal Growth Factor (EGF) on Recovery of Piglet Small Intestine Following Infection with Rotavirus").

Dr. Robert D. Reynolds was the featured speaker of the American Chemical Society, Northeast Indiana Section Meeting in which he presented "On Top Everest '89 - Triumph and Tears." He also delivered lectures on high altitude energy metabolism at FASEB, University of Maryland-College Park and the U.S. Army Research Institute for Environmental Medicine.

Dr. Shelly Schmidt presented talks at the Institute of Food Technologists, American Chemical Society and American Institute of Chemical Engineering Annual Meetings in New Orleans, Washington, DC and Minneapolis, respectively.

Dr. Willard J. Visek presented invited lectures as Visiting Professor in Nutrition at North Dakota State University, Fargo, ND. He was also a National Dairy Council Visiting Lecturer at Texas A&M University in College Station, TX, and the Scott and White Clinic in Temple, TX.

Dr. Matthew Wallig delivered a presentation entitled "Selenium Repletion and Protection of Neonatal Rat Lung from Hyperoxia" at the Annual Meeting of the American College of Veterinary Pathologists.

Faculty Give National Lectures

Dr. David H. Baker presented "Bioavailability of Vitamins - Natural vs. Synthetic" as part of the Bioavailability of Nutrients Symposium at FASEB in Anaheim, CA.

Dr. Jimmy H. Clark gave a presentation at the American Dairy Science Association Annual Meeting entitled "Influence of Intake and Diet Composition on Microbial Protein Synthesis and Flows of Nitrogen Fractions to the Small Intestine." He also spoke at the Upjohn Company Symposium on Somatotropins and Nutrition concerning "Factors Affecting Amino Acid Availability in Ruminant Animals."

Dr. Sharon M. Donovan presented a lecture entitled "Effect of Neonatal Malnutrition and Growth Hormone Treatment on Growth, Serum IGFs and Intestinal Development" at FASEB in Anaheim, CA. She also spoke about "Hormonal Therapy during Recovery from Malnutrition: Effects on Body Weight, Organ Growth and IGF

Professional Activities

Dr. David H. Baker was appointed to the Editorial Board of *Annual Reviews of Nutrition* and continues to serve as an Associate Editor for the *Journal of Nutrition*. He chaired the AIN Graduate Student Research Paper Competition at the 1992 FASEB Meeting. On the university level, Dr. Baker is a member of the UIUC Budget Strategies Committee and Search Committee for Selection of Vice Chancellor for Research and Dean of the Graduate College.

Dr. Jimmy H. Clark is active in the American Dairy Science Association. He is Chairman of the Internal Affairs Committee while holding membership in the Program, Executive, Management Services Policy and Award Selection committees. He is also representative to IDF Committee Group A22 on Bovine Somatotropin. Dr. Clark serves on the Editorial Board for the *Journal of Dairy Science*.

Dr. Robert A. Easter serves on the editorial board of *Livestock Production Science*.

Dr. John W. Erdman, Jr. is Chairman of the American Institute of Nutrition Annual Program Committee for the 1992 and 1993 AIN Meetings. He also participates on four National Academy of Sciences Committees including the current position of vice chair of the Committee on Opportunities in Nutrition and Food Science. Dr. Erdman serves on several Editorial Boards including the *Journal of Nutrition*.

Dr. George Fahey is a member of the National Research Council (NRC) Subcommittee on Laboratory Animal Nutrition, Steering Committee for the National Conference on Forage Quality Evaluation and Utilization and Subcommittee on Nutrient Requirements of Laboratory Animals. Dr. Fahey holds a position on the Editorial Board for the *Journal of Dairy Science* and is an Associate Editor for the *Journal of Nutrition*.

Dr. H. Rex Gaskins was an ad hoc reviewer for *Molecular and Cellular Biology* and continues to serve as an ad hoc reviewer for *Endocrinology*.

Dr. Elizabeth Jeffery is an Editor of the *Drug Metabolism Newsletter* of the American Society for Pharmacology and Experimental Therapeutics; in addition, Dr. Jeffery serves on the

Editorial Board of the *Journal of Pharmacology and Experimental Therapeutics*. She is also on the Board of Directors for Associated Universities for Toxicological Research and Education.

Dr. Keith W. Kelley serves on the editorial boards of *Animal Biotechnology*, *Progress in NeuroEndocrin-Immunology* and *Brain, Behavior and Immunity*. Dr. Kelley is a NIH site visit and ad hoc study section member.

Dr. Barbara P. Klein is an Associate Scientific Editor of the *Journal of Food Science*. She is responsible for nutrition, sensory evaluation and food service manuscripts.

Dr. Donald Layman has been appointed as the Director of the School of Human Resources and Family Studies at UIUC. Dr. Layman is an Associate Editor for the *Journal of Nutrition*.

Dr. Neal Merchen is a member of the Editorial Board of the *Journal of Animal Science*.

Dr. William O'Brien serves as treasurer of the World Federation of Ultrasound in Medicine and Biology. He is also a member of the NIH Radiology Study Section and Program Director of the NIH Radiation Biophysics and Bioengineering in Oncology Training Program. He is Editor-in-Chief and Associate Editor of *IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control*. Dr. O'Brien is a member of the Editorial Boards for the *Journal of Diagnostic Medical Sonography*, *Journal of Ultrasound in Medicine*, *Journal of Cardiovascular Technology* and *Journal of Maternal-Fetal Investigation*. Additionally, he serves on the Steering Committee for IEEE Transactions on Image Processing.

Dr. Jack Odle was appointed to a three-year term on the Editorial Board of the *Journal of Animal Science*.

Dr. Edward G. Perkins is an Associate Editor for the *Journal of American Oil Chemists' Society* (AOCS).

Dr. Susan Potter holds membership in the American Institute of Nutrition and the American Dietetic Association.

Dr. Robert D. Reynolds is Chairman of the Publications Management Committee and the Tellers Committee in the American Society for Clinical Nutrition.

Dr. Willard J. Visek continues his work as Editor-In-Chief of the *Journal of Nutrition*. Dr. Visek also served as an examiner of candidates for specialization in Clinical and Human Nutrition for the American Board of Nutrition.

Dr. Matthew A. Wallig is a member of the Processing and Co-Products and Management Subcommittees for USDA-CSRS, Office of Critical Materials, High Erucic Acid Development Effort (HEADE). Dr. Wallig serves as a member of the Editorial Board for *Veterinary Pathology*. He was also a participant in the Developing Industrial Uses from Agricultural Products Workshop sponsored by USDA-CSRS as part of the Great Plains Strategic Planning Consortium.

Faculty Grants and Research Support

Federal Grants

NIH

Drs. Sharon Donovan and Jack Odle will receive support to investigate "Insulin-like Growth Factors in Neonatal Intestinal Development."

Dr. Keith W. Kelley was awarded a three-year renewal to continue research on "Hormonal Restoration of a Functional Thymus During Aging."

Dr. William O'Brien will receive funding to investigate "Acoustic Properties of Wound Healing."

Dr. Robert D. Reynolds received support as a co-investigator for work to study "Vitamin B₆ Status in Pregnancy, Lactation and Infancy."

Dr. Keith Singletary was awarded a five-year grant from the National Institute on Alcohol Abuse and Alcoholism to study "Ethanol Intake and Chemical Carcinogenesis."

USDA

Drs. John W. Erdman, George Fahey and Neal A. Merchen were awarded a two-year renewal from the USDA to continue study on "Evaluation of Beta-Carotene Metabolism using Animal Models."

Dr. Matthew Wallig has been granted two, three-year awards from HEADE, USDA-CSRS, and the Office of Critical Materials for "Crambe Meal as a Feed Supplement in Broiler Chicks — Evaluation of Immersion-Extracted

Meal" and "Preliminary Studies to Assess the Cancer Chemoprotection Properties of Crambe Meal."

FDA

Dr. Edward G. Perkins received continued support in conjunction with the FDA and the National Center for Food Safety and Technology in Chicago to study "Formation and Determination of Isomeric and Cyclic Fatty Acid Components in Processed Menhaden Oil."

Other Major Institutional Grants

Dr. Sharon M. Donovan was awarded an ILSI Future Leader grant to investigate "Hormonal Therapy during Recovery from Malnutrition: Effects on Growth, Body Composition and the GH-IGF Axis."

Dr. H. Rex Gaskins has received a one-year grant from the University of Illinois at Urbana-Champaign Campus Research Board to study "Mucosal Macrophage and Mast Cell Responses to Intestinal Insults in the Pig."

Dr. Li Li Ji continues work on a three-year grant from the American Heart Association, Inc., to investigate "Post-Ischemic Free Radical Injury in Hypertrophied Rat Heart."

Dr. Keith Singletary was awarded a one-year grant from the American Institute for Cancer Research to "Identify and Evaluate Anticarcinogenic Chemicals from the Spice Rosemary."

Dr. Robert D. Reynolds was granted support from the UIC Campus Research Board and UIC Clinical Research Program to investigate "Parenteral Vitamin B₆ and Hemoglobin Oxygen Affinity in Premature Infants."

Private Industry Support

Dr. David H. Baker received support from Ross Laboratories to investigate "Tryptophan Bioavailability in Enteral Products." Dr. Baker has also received support this year from Mark Morris Associates, NutriQuest, Inc., Zinpro Corp. and Kyow Hakko KK.

Dr. Jimmy H. Clark received a research grant from Ajinomota Co., Inc. to study "Degradable (soluble) Crude Protein for Lactating Dairy Cows." He and Dr. James K. Drackley will investigate "Niacin and Fat for Dairy Cows" with support from Lonza, Inc.

Dr. James K. Drackley has received support for work focusing on "Lipid Metabolism in Dairy Cows" by Milk Specialties Company and Lonza, Inc.

Dr. Robert A. Easter received research funding from the following companies: Sugartree Products Company, Nutri-Quest, Finn Sugar, Archer Daniels Midland, E.I. DuPont de Nemours and Viobin.

Dr. John W. Erdman received industry support from Procter and Gamble to evaluate "Factors Affecting Beta-Carotene Bioavailability" and from Kraft to study "Nutrient Retention during the Processing of Foods" in collaboration with Drs. Ricardo Villota and William Artz of the UIUC Department of Food Science.

Drs. Susan M. Potter and John W. Erdman, Jr., with continued support from the American Soybean Association and Protein Technologies International, will further investigate "The Effects of Soy Protein on Cholesterol Depression in Man."

Dr. George Fahey received grants from Ross Laboratories to investigate the "Oligosaccharide Fermentation by Humans" and "Supplemental Fiber Sources in Enteral Human Formulas." In addition, the NutriBasics Company will support Dr. Fahey's work on "Ruminal Utilization of Proteinated Trace Minerals" and the Iams Company will support Dr. Fahey's research of "Fiber Systems for Dogs and Cats."

Dr. Keith W. Kelley was awarded a research grant from Pfizer, Inc.

Dr. Donald Layman received support from The Quaker Oats Company to study "The Effects of Breakfast Cereals on Physical Performance."

Drs. Roderick Mackie and H. Rex Gaskins received a collaborative grant from Ross Laboratories to investigate "Colonization Resistance and Intestinal Immune System Responses to Clostridium Difficile in Cefoxotin-Treated Mice Fed Fermentable Fiber Sources."

Dr. William O'Brien along with Dr. Jan Novakofski will study "Ultrasound

Grading" with support from the National Livestock and Meat Board.

Dr. Jack Odle received two, one-year grants from the National Pork Producers Council for "Enhancement of Medium-Chain Triglyceride Utilization by Neonatal Piglets" and "Development of Hepatic Ketogenesis in Neonatal Piglets." He also obtained funding for "Quantitative Evaluation of Medium-Chain Triglyceride Utilization by Neonatal Piglets" from the Illinois Pork Producers Association.

Dr. James L. Robinson has been awarded continued support from the Holstein Association of America to study "Incidence and Inheritance of DUMPS among Holstein Cattle."

Faculty Awards and Honors

Schmidt Garners National Awards

Dr. Shelly J. Schmidt was the recipient of several distinguished awards from various scientific organizations. She received the Samuel Cate Prescott Award from IFT, a Young Scientist Award from the American Chemical Society (ACS) and an Excellence in Teaching in Food and Agricultural Sciences Award from USDA. Dr. Schmidt was also recognized with a University of Illinois Extramural Teaching Award.

Birch Recipient of AIN Lederle Award in Human Nutrition and Paul A. Funk Award

Dr. Leann L. Birch was honored with the AIN Lederle Award and UIUC Paul A. Funk Award. The Funk award is given for outstanding professional achievement and major contributions to the betterment of agriculture.

Institute of Food Technologists Honors Erdman as Fellow

Dr. John W. Erdman, Jr. was named an Institute of Food Technologists Fellow. The recognition of Fellow is conferred on individuals who have distinguished themselves through outstanding contributions to the fields of food science and/or food technology.

Fahey Chosen as Wellcome Visiting Professor

Dr. George C. Fahey, Jr. was selected as a Wellcome Visiting Professor in the Basic Medical Sciences. This program, which is sponsored by The Burroughs Wellcome Fund and administered by the Federation of American Societies for Experimental Biology, is intended to stimulate interest and encourage careers in the basic medical sciences. Dr. Fahey lectured at North Dakota State University while visiting and interacting with medical students, faculty and staff. The highlight of his visit was the Wellcome Lecture.

Other Awards

Dr. Jimmy H. Clark received the American Cyanamid Award at the 1992 American Dairy Science Association Annual Meeting for significant contributions in research and education in the field of milk production.

Dr. Sharon Donovan received the International Life Sciences Institute Future Leader in Nutrition Award for 1992-93.

Drs. James Drackley, Donald Layman, Neal Merchen, Toshiro Nishida, Susan Potter, James Robinson, Shelly Schmidt and Arthur Siedler were included in the Incomplete List of Teachers Ranked as Excellent by Students at UIUC.

Dr. Robert Easter was honored with an American Feed Industry Association Nutrition Research Award in Nonruminant Nutrition.

Dr. John W. Erdman, Jr. was elected Councilor for the American Institute of Nutrition for a three-year term and served as Co-Chairman for the International Conference on Antioxidants in Tarrytown, NY.

Dr. H. Rex Gaskins was recognized by American Men and Women of Science. He also received an Upjohn Pharmaceutical Travel Fellowship for the 14th International Diabetes Federation Congress.

Dr. Elizabeth Jeffery received the inaugural Nutritional Sciences Graduate Student Association Faculty Award.

Dr. Keith W. Kelley was a recipient of a Paul A. Funk Award from the University of Illinois College of Agriculture.

Dr. Neal Merchen was honored with the H.H. Mitchell Award for Excellence in Graduate Teaching and Research from the Department of Animal Sciences, UIUC.

Dr. William O'Brien was honored as Charter Fellow by the American Institute of Medical and Biological Engineering. He also received the 1992 American Institute of Ultrasonic Medicine Presidential Recognition Award.

Dr. Edward G. Perkins was awarded the Samuel H. Baldwin award for distinguished service in positions of responsibility from the American Oil Chemists' Society.

Dr. Robert D. Reynolds was honored as the presenter of the State-of-the-Art Lecture at the annual American Society for Clinical Nutrition Meeting. His topic was "Nutrition at the Edge of the Earth: Lessons from 'On Top Everest '89'."

Dr. Keith Singletary was recognized with a First Independent Research Support and Transition (F.I.R.S.T.) Award from the National Institute on Alcohol Abuse and Alcoholism.

Dr. Willard J. Visek was selected as a member of the American Board of Nutrition Directors.

"Branching Out"

As with all other forms of human endeavor, faculty research ebbs and flows into different areas of interest. Here is an incomplete list of NS professors branching out into new topics within their realm of expertise.

Dr. David H. Baker

- ◆ Effects of bile on absorption efficiency of copper
- ◆ Effects of environmental stress and bacterial challenge on the dietary needs for arginine and cysteine

Dr. Robert A. Easter

- ◆ Nutrition and environment for young pigs

Dr. George C. Fahey

- ◆ Fiber inclusion in enteral formulas for humans
- ◆ Fermentative activity of colonic microflora of infants
- ◆ Fermentative activity of colonic microflora of cats and dogs

Dr. H. Rex Gaskins

- ◆ The intestinal immune system
- ◆ Diarrheal diseases

Dr. Elizabeth Jeffery

- ◆ Osteoporosis and metal toxicology using mouse calvarial bone culture

Dr. James Robinson

- ◆ Factor XI deficiency in cattle

External Advisory Committee

Each year, the Division of Nutritional Sciences undergoes a review by an External Advisory Committee. The committee members are selected by the Division from various industrial and academic positions around the country to provide an outside opinion on the quality and focus of the NS program. We would like to thank the members for their time and effort in helping Nutritional Sciences continue to grow and improve. Here is a list of this year's committee participants.

Dr. David Anderson

Senior Research Scientist
Lilly Research Laboratories

Dr. Sandra J. Bartholmey

Manager of Nutrition
Gerber Products Company
Research Division

Dr. Myrtle L. Brown

Professor of Biochemistry
Professor of Nutrition
Virginia Polytechnical Institute
(Retired)

Dr. Robert J. Collier

Dairy Research Director &
Senior Fellow
Monsanto Agricultural Company

Dr. David A. Cook

Vice President, Food Research
& Development
Mead Johnson Research Center

Dr. Arthur L. Hecker

Director, Medical Nutrition
Ross Laboratories

Dr. Gilbert Leveille

Vice President, Research &
Technical Services
Nabisco Biscuit Company,
Technology Center

Dr. Doris Lennon-Thompson
Associate Director
Nutrition & Health Services
Kraft-General Foods

Hon. Helen Satterthwaite
Illinois State Representative

Dr. Kenneth T. Smith
Associate Director
Food, Beverage & Technical
Division
The Procter & Gamble Company

Miscellaneous

Dr. and Mrs. George Fahey are the proud parents of daughter Bridget born on August 30, 1991.

Dr. Elizabeth "Leadfoot" Jeffery received an official citation from the Fraternal Order of Police for having too much fun in her little, red Miata.

Dr. Robert D. Reynolds welcomed the arrival of his first grandchild. Bailey Lynn Rose was born March 14, 1992 to daughter Sara and husband Blaine.

NS Admits New Graduate Students

Five new graduate students joined the Division over the past year. They are Manuel Baldeon (Dr. Margaret Weigel), Joy Campbell (Dr. George Fahey), Mimi Chan (Dr. Karen Chapman), Michael Cristel (Dr. Elizabeth Jeffery) and Jason Emmert (Dr. David Baker). Welcome and good luck with your graduate studies.

Class of 1992

The Division granted advanced degrees to 7 students during the 1992 year. Some are in industrial or governmental settings while others couldn't escape the campus life as either professors or students continuing onward in their education. We wish them success in their endeavors.

James Burns (M.S.) - Dietetic Internship, University of Indiana Medical School, Indianapolis, IN.

Joan Ham (M.S.) - Doctoral Candidate, Nutritional Sciences, University of Illinois at Urbana-Champaign.

Hye-Young Kim (Ph.D.) - Research Associate, Department of Veterinary Pathobiology, University of Illinois at Urbana-Champaign.

Connie Krashoc (M.S.) - Clinical Dietitian, University of Tennessee Medical Center, Knoxville, TN.

Wendy Markham (M.S.) - Dietitian, County General Hospital, Milwaukee, WI.

Stacy Scardefield (M.S.) - Dietetics Internship, St. Francis Hospital, Peoria, IL.

Gregory Wibert (Ph.D.) - Scientist, Nutritional Sciences, Mead Johnson Research Center, Evansville, IN.

NSGSA Activities

The Nutritional Sciences Graduate Student Association (NSGSA) had a very active year. NSGSA hosted the Fall 1991 New Student Orientation reception and the annual fall picnic for NS faculty and students.

The 1991-92 academic year was productive for NSGSA. Under the direction of officers Minnie McNary (co-chair), Cathi Peterson (co-chair), Pat Miers (treasurer) and Deborah Kern (secretary), the association began many new functions and projects. Foremost, NSGSA created the NSGSA Faculty Award to be given annually to a student-chosen Nutritional Sciences faculty member in recognition of their dedication to graduate education and support of and involvement in student activities. NSGSA was proud to present the award to Dr. Elizabeth Jeffery. The end of the fall semester also brought a change of NSGSA officers. The new officers were Cathi Peterson (co-chair), Brent Flickinger (co-chair), Nicole deLeeuw (treasurer) and Marcia Monaco (secretary).

In the spring semester, the first annual student-faculty nutrition bowl was held in Bevier Hall's Spice Box. Four teams consisting of 1 faculty member and 5 graduate students squared off in a battle of nutritional wits. The winning team of Jack Odle, Sean Adams, Frantzie Balmir, Joan

Ham, Mary Larson and Greg Paul received NS tee-shirts for their victory. Mock FASEB was held prior to the 1992 annual Federation meeting in April. Graduate students Les Bourquin, Theo van Kempen, Minnie McNary and Cathi Peterson were presented travel awards by the Division for their outstanding poster presentations at the Mock event.

Student Presentations

NS graduate students presented their research data at various scientific meetings during the past year.

FASEB

Sean Barnes — Effect of Ethanol and Acetaldehyde on In Vivo Formation and Repair of Rat Mammary DMBA-DNA Adducts.

Les Bourquin — Fermentation of Vegetable Cell Walls by Human Colonic Bacteria.

Sarah Jaw — The Effect of Caffeine on Acetaminophen Bioactivation in the Mouse.

Theo van Kempen — Quantification of Acyl-Carnitine by HPLC.

Hye-Young Kim — Dietary Selenium Affects Normal Development of Neonatal Rat Lung from Hyperoxia.

Mary Larson — Effects of Dietary Casein: Whey Ratios on Plasma Lipids and Lesion Development in Rabbits; Cholesterol Metabolism in Rabbits as Influenced by Dietary Casein: Whey Ratios.

Minnie McNary — Effect of Ethanol Consumption on Structural Development and DNA Synthesis of Female Rat Mammary Gland.

Marcia Monaco — The Effect of Food Restriction during Pregnancy on Insulin-like Growth Factor and IGF Binding Proteins.

Catherine Peterson — Histologic and Histochemical Analysis of Vertebrae from Aged Rats Fed Diets of Varied Calcium Bioavailability.

Christopher Poor — Bioavailability of Beta-Carotene from Raw and Cooked Carrots by the Preruminant Calf.

Gregory Wibert — Effects of Branched-Chain Amino Acids and Insulin on Skeletal Muscle Protein Synthesis.

Society of Toxicology

Barbara Fulton — Aluminum Lactate Increases Hepatic Heme Oxygenase Activity in Mice.

American Oil Chemists' Society/ International Society for Fats

Brent Flickinger — Characterization of Linseed Oil Cyclic Fatty Acid Monomers by Matrix Isolation FTIR and GC/MS.

NS Graduate Student Awards

Marcia Monaco was presented a Young Investigator Award by the International Society for Research on Human Milk and Lactation during the Sixth International Conference in Stockholm, Sweden.

Fellowships and Scholarships

Lee Alekel: University of Illinois Graduate College Fellowship; Ruth A. Wardall Fellowship in Foods and Nutrition;

Sean Barnes: Illinois Minority Graduate Incentive Program Fellowship;

Leslie Bourquin: Procter and Gamble Fellowship;

James Burns: Wright Fellowship;
Susan Johnson: University of Illinois Graduate College Fellowship;

Courdo Lamboni: Fulbright Fellowship;

Mary Larson: Summer Research Grant from School of Human Resources and Family Studies;

Greg Sunvold: Wright Fellowship and National Feed Ingredients Association Scholarship;

Jinrong Zhou: University of Illinois Graduate College Fellowship

Graduate Student Notes

Lois Steinberg was named to the List of Teachers Ranked as Excellent for her instruction in Kinesiology 100.

Grandma's Breaks .500 Mark, Again

Grandma's Mustache, a hearty group of Food and Nutritional Sciences recreational softball players, finished the 1992 softball season with a winning record. This year's squad compiled an 8-6 record in the Urbana Park District "C" league and was included in the bracket of the top four teams for the season-ending three games of intergroup play. This group of players consisted of: Steve Hill (Captain), John Erdman, Bill Artz, Tom Tiffany, Russ McDuffee, Eric Myers, Eric Gugger, Ali Ahmed, Brent Flickinger, Jarod Lemper, Sean Adams, Tim Lone, Dave Campbell and Bill Krueger with special guest appearances from numerous other fill-ins. Congratulations and keep on improving!

Alumni News

1969

Ching Kuang Chow (Ph.D.) is a Professor in the Department of Nutrition and Food Science at the University of Kentucky in Lexington. He served as editor of "Fatty Acids in Foods and Their Health Implications," a Marcel Dekker publication released in May 1992.

1975

Kailash Mathur (Ph.D.) is a Professor of Nutrition and Graduate Program Advisor in Nutritional Sciences at South Carolina State College in Orangeburg. He has been honored with the Governor's Distinguished Professor Award and the Endowed Distinguished Faculty Award by S.C. State College. He serves on the Board of Directors and as chairman for the Licensing and Legislative Network for the South Carolina Dietetic Association along with being on the Board of Directors for the South Carolina Heart Association-Orangeburg Chapter and the Orangeburg/Calhoun Technical College. His community activities include: Board of Directors for Rotary Club of Orangeburg and Chairman for the World Community Service.

1978

Steven K. Clinton (Ph.D.) is an Associate Professor at the Dana-Farber Cancer Institute of the Harvard Medical School in Boston, MA. He has received a five-year NIH Preventive Oncology Academic Award to define molecular markers of nutrient intake. He and his wife, Sandra, have a new son, Evan Michael Clinton.

1979

Larry Lawson (Ph.D.) works as a research scientist in pharmacology at Murdock Health Care in Springville, Utah. His research focuses on the biological activities of compounds in garlic.

Dan Schaefer (Ph.D.) is a Professor in the Department of Meat and Animal Science at the University of Wisconsin-Madison. He served as chairperson of the committee which designed and constructed the new Livestock Laboratory on the Madison campus. His son Jeremy and daughter Mary are 13 and 6 years old, respectively.

1981

Thomas Edes (M.S.) continues work as Associate Professor of Medicine at the University of Missouri School of Medicine in Columbia. He remains Associate Chief of Staff for Geriatrics and Extended Care and also is Director of Hospital Nutrition Support Service at the Harry S. Truman Memorial VA Hospital. He was granted fellowship in the American College of Nutrition.

Frank W. Kari (Ph.D.) is a research toxicologist at NIEHS in Research Triangle Park, NC. His research activities include elucidation of serum factors responsible for mediating nutritional modulation of leukemia in rats and the effects of environmental chemicals on lactation and the nursing neonate. He also serves as Adjunct Assistant Professor in the Department of Nutrition at the University of North Carolina at Chapel Hill. Dr. Kari will be taking sabbatical leave to work with Drs. Clark Grovener and Mary Francis Picciano at The Pennsylvania State University on the role of milk-borne growth factors on landmarks of neonate development.

1982

Gilbert A. Boissonneault (Ph.D.) is an Associate Professor in the Department of Clinical Sciences at the University of Kentucky in Lexington. He serves as Director of Graduate Studies for the Clinical Nutrition Masters program.

Lisa A. Reich (M.S.) works as Senior Product Manager in the Cardiac Arrest Division of St. Jude Medical, Inc.

1983

Edward J. Basgall (Ph.D.) continues to hold the position of Senior Microscopist at the University of Massachusetts Electron Microscopy Facility in Amherst, MA. He is a member of the Electron Microscopy Society of America, the Midwest Society of Electron Microscopists, the Central States Electron Microscopy Society and the New England Society for Electron Microscopy.

1984

Michael Keenan (Ph.D.) received a promotion to Associate Professor in the Department of Human Nutrition and Food at Louisiana State University in Baton Rouge. He was a participant and session chairperson at the Biological Aspects of Boron Research meeting held at the University of California-Irvine. Dr. Keenan's research involves the role of boron for vitamin D deficient rats.

JoAnn Daehler-Miller (M.S.) is working on a special project for the Minnesota Department of Health WIC program.

Kenneth A. Poirier (Ph.D.) works as an Environmental Health Scientist at the E.P.A.'s Environmental Criteria and Assessment Office in Cincinnati, OH. He has been appointed Director of the Superfund Health and Risk Assessment Technical Support Center and co-chairperson of the USEPA Reference Dose/Reference Concentration Work Group. He presented two papers at the "Workshop on Risk Assessment of Essential Elements" sponsored by USEPA, ATSDR and ILSI.

1985

Sharon L. Hoerr (Ph.D.) continues work as Associate Professor with the Department of Food Science and Nu-

trition at Michigan State University. She is a member of the New Members Committee for AIN. She served as co-chairperson for the FASEB workshop in Atlanta on "Managing Dual Career Tracks and Family."

1986

Chris Hatlestad (M.S.) is in the third year of a family practice residency at the University of Minnesota, Riverside Hospital Unit in Minneapolis, MN, and holds the position of chief resident. Chris and family are expecting a second child in December 1992 to join Erin, 2 years old.

Kathryn K. Harden (Ph.D.) continues as an Assistant Editor for the Journal of Nutrition in Urbana, Illinois.

Lynn M. Janas (Ph.D.) was recently promoted to Clinical Research Manager of Pediatric Nutrition Research and Development at Ross Laboratories in Columbus, OH.

Lisa M. Olson (Ph.D.) is an Assistant Professor at the Washington University Medical School in Saint Louis, MO.

Anne M. Smith (Ph.D.) is an Assistant Professor in the Department of Human Nutrition and Food Management at the Ohio State University in Columbus. She serves as Treasurer of the Columbus Dietetic Association in 1991.

1987

Yu-Tsyr Li (M.S.) is a NIH Postdoctoral Research Associate in Equine Drug Testing and Toxicology at Cornell University in Ithaca, NY. She gave birth to her second son on January 27, 1992.

1988

Kevin L. Fritsche (Ph.D.) is an Assistant Professor in Animal Sciences at the University of Missouri in Columbia. He was voted an active member of the American Institute of Nutrition. He was selected as part of the MU representatives to attend the 3rd annual Wakonse Conference on College Teaching. Dr. Fritsche continues work on his USDA project "Effect of Omega-3 Fatty Acids on Vitamin E Requirements: A Rat Immune Cell Model" and will see everyone at FASEB 1993 with results from the first year's research.

He was an invited speaker at an American Oil Chemists' Society Short Course on "Modern Applications of Marine Oils." His wife, Lisa, and the kids, Carrie (7), Peter (5) and Sally (1), are doing great.

Melissa Meredith (M.S.) is an Endocrinology Fellow at the University of Wisconsin at Madison. She also received Board Certification in Internal Medicine in the Fall of 1991.

Melissa Hendrix Olken (Ph.D.) is a lecturer in the Department of Internal Medicine and an Adjunct Assistant Professor for the Program in Human Nutrition, School of Public Health, at the University of Michigan in Ann Arbor. She and her husband welcomed second child Charles Andrew (02/07/92) to the family.

Melanie Shuran (Ph.D.) serves as Associate Director of the MS/MD Program in Clinical Nutrition at The Chicago Medical School. She is enjoying the comforts of her new home in Grayslake, IL.

Ray Yedinak (M.S.) is Manager of Quality and Technical Services at the Viobin Corporation in Monticello, IL. He is a member of the American Oil Chemists' Society, the Association of American Cereal Chemists and the Institute of Food Technology. He and his wife Colleen have a daughter Mallory, age 4.

1989

Denise L. King (Ph.D.) is Assistant Professor in the Department of Human Nutrition and Food Management and Adjunct Assistant Professor in the Department of Food Science and Technology at The Ohio State University in Columbus, OH. She serves on the Executive Committee of the Ohio Valley Institute of Food Technologists and is a member of the Ohio Food Safety Task Force. Dr. King was co-chair of three sessions at the annual IFT meeting in New Orleans in addition to delivering oral and poster presentations. Her son Ryan is two years old.

Debbie O'Connor (Ph.D.) received tenure to become an Associate Professor in the Division of Applied Human Nutrition at the University of Guelph, Guelph, Ontario, Canada. During 1992, she travelled to India upon the invitation of the Indian Ministry of Agriculture to present a lecture on goat milk consumption and

infant nutrition and delivered the paper entitled "Folate Status during Pregnancy and Lactation" at the conference on Nutrient Regulation during Pregnancy, Lactation and Infant Growth in Stockholm, Sweden.

1990

Timothy S. Elliott (Ph.D.) continues work as a toxicologist for laundry and cleaning products safety at The Procter and Gamble Company in Cincinnati, OH.

1991

Jana Bryant (M.S.) recently accepted a position with Hoffmann-LaRoche, Inc. in Nutley, NJ, as a Clinical Research Associate. She will be working with a drug which will be used to treat obesity.

Karen Dotson (M.S.) works as an analytical chemist for Eli Lilly & Company in Indianapolis, IN. She is a member of the National Association of Science Writers.

Alice Fly (Ph.D.) is an Assistant Professor of Nutrition at Indiana University in Bloomington, IN. She presented "Iron Bioavailability from Diets Containing High Fiber Breakfast Cereals and Crackers" at the 1992 IFT meeting. Her family welcomed a new addition: John Fly Wagner born April 6, 1992.

Connie Krashoc (M.S.) works as a Clinical Dietician at the University of Tennessee Medical Center at Knoxville. She also accepted a two-year appointment as Editor of the Knoxville District Diet Manual for the Knoxville District Dietetic Association. She and her husband Dan are expecting their first child this autumn.

Matthew Kuchan (Ph.D.) continues work in the Department of Chemical Engineering at The Pennsylvania State University, University Park, PA. He was awarded a NIH Training Postdoctoral Fellowship for 1992-1993. He and his wife, Sandy, are proud parents of a new daughter Cassandra Reilly Johanna Kuchan.

Tracy Tasker (M.S.) began her dietetic internship at Rush-Presbyterian-St. Luke's Hospital in Chicago, IL. She was working part-time as Nutrition Education Lecturer at the Sportsmed Center for Fitness in Carol Stream, IL and teaching aerobics.

Ann Trusk (M.S.) is completing her second year as a Nutrition Resident at the Brookfield Zoo in Brookfield, IL.



The following article is a historical look at the pioneering amino acid research done by Drs. Mitchell and Rose at the University of Illinois. We thought you might enjoy the article and it sets the tone for next year's 25th anniversary of the Division of Nutritional Sciences. The Division would like to thank the staff of Inside Illinois for permission to reprint this article.



Two Scientists Began to Unlock Mysteries of Amino Acids at UI

By: Larry Bernard
Reprinted, with permission,
from *Inside Illinois*, 12/05/91

Nutrition ranks with politics and religion as one of the most debated topics of our times.

The issues range from meat-eating vs. vegetarianism to the merits of low-fat, low-cholesterol diets.

About 45 years ago, the focus was on something one newspaper headline referred to as acid food.

Acid food was an oversimplified and not very accurate description of amino acids, the building blocks that form protein. Essential to life and growth, amino acids are found in virtually all body parts, including hair, skin, nails, blood, muscle, organs, enzymes and hormones.

Among those doing important research leading to an understanding of how amino acids sustain human and animal life were two UI scientists.

"In the '20s, '30s and '40s, William C. Rose in biochemistry and Harold H. Mitchell in animal sciences did more work in identifying amino acid limitations in proteins than any group in the world," said David H. Baker, professor of comparative nutrition in the department of animal sciences.

"Mitchell's 'biological value' emerged as the international system to evaluate the capacity of dietary protein sources to meet requirements for amino acid," Baker said. "Mitchell is considered a giant and one of the founding fathers in the field of comparative nutrition of man and domestic animals."

Mitchell joined the UI faculty in 1911 and headed the department of animal nutrition from 1928 until 1954. He earned all three of his academic degrees from the university.

Mitchell's early work on protein metabolism was documented in his 1915 doctoral thesis, which described experiments substituting amino acids for protein in the diets of laboratory animals. Neither mice on the protein-free diet nor those whose diets were supplemented with amino acids survived. Nonetheless, Mitchell's experiments led him to conclude that similarities existed in the amino acid requirements of humans and the experimental animals.

Twenty years later, UI biochemist Rose was able to fill in some of the blanks left in Mitchell's early work.

In 1935, Rose was credited with the discovery of threonine, which he subsequently determined to be essential to human nutrition. In later studies, Rose identified eight of the 22 known amino acids then considered essential elements in the human diet. The others, he concluded, can be manufactured by the body.

Robert Switzer, current head of the department of biochemistry, said "a couple hundred" amino acids were later identified, but "now that we understand how proteins are made, we now know there are 20" considered basic to human health.

Rose's early work in determining which amino acids were necessary to sustain life involved experiments with laboratory rats. The animals were placed on protein-free diets, supplemented with each of the amino acids known at the time. The rats eventually died, leading Rose to conclude that they were lacking some unknown component found naturally in protein.

After isolating threonine as the missing link, Rose included it and the other 21 amino acids in the still protein-free diet of the lab animals. The result was normal growth and good health.

Rose followed up his extensive animal research with a 10-year series of nutrition studies on humans, beginning in 1942. Male graduate students were fed a protein-free diet, enhanced by a mixture of amino acids, vitamins, starch, corn oil and salt.

Switzer said he has talked to some of the participants, whose primary

memories of the tests are how unpalatable the diets were.

"People fantasized about food the way prisoners in prison camps do," he said.

In the test, various amino acids were removed, one by one, from the diets. The result? When those previously deemed "essential" in the rat experiments were withheld, tests showed the human subjects to have a negative nitrogen balance. They also demonstrated signs of malnutrition - lack of appetite, fatigue and irritability. Normal health returned when the amino acid was again added to the diet.

Although his experimentation with

animals and humans yielded quite similar results, he did discover that two amino acids necessary to the animals' diets - arginine and histidine - were not needed by adult humans.

Subsequent research by Rose and his associates determined the minimum daily amounts of amino acids required to maintain good health in adult humans. His recommendation, in grams: lysine, 1.6; tryptophan, 0.5; phenylalanine, 2.2; threonine, 1.0; valine, 1.6; methionine, 2.2; leucine, 2.2; and isoleucine, 1.4.

Rose explained in a 1952 story in the *Champaign-Urbana Courier* that the average person's required amino acid intake is quite small. Said Rose:

"The possibility that anyone in this country would experience an amino acid deficiency is very remote, unless it be among some of the many groups of dietary faddists."

"The tradition of excellence in protein and amino acid nutrition established by Mitchell and Rose continues today," Baker said. "Nowhere in the world is more being done than at the UI with chemically defined diets built around pure amino acids."

"Today, however, pure L-amino acids can be purchased at a reasonable cost, whereas Mitchell, Rose and their colleagues had to synthesize most of the amino acids used in their research."

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