

**Ethel Austin Martin Program in Human Nutrition  
The First Decade  
Progress Report –1997-2006**

<b>History</b> .....	2
<b>Purpose</b> .....	2
<b>Introduction</b> .....	2
<b>Facilities</b> .....	2
<b>Ethel Austin Martin Nutrition Committee</b> .....	3
<b>Ethel Austin Martin Visiting Professors &amp; Distinguished Lecturers...</b>	3
<b>Research Highlights</b> .....	6
Introduction	
Ongoing Studies	
Previous Studies	
Collaborative Studies	
Research Funding	
<b>Teaching Highlights</b> .....	7
Introduction	
Speakers Brought to SDSU	
Student Involvement	
Formal Courses or Lectures at SDSU & in the Community	
<b>Multidisciplinary Accomplishments</b> .....	14
Introduction	
Pilot Projects Funded through the EAM Program	
<b>National and International Visibility</b> .....	15
Publications	
National & International Presentations	
Honors & Awards	

## History

Dr. Ethel Austin Martin graduated from SDSU in 1916 and went on to do graduate work at Columbia University and the University of Chicago. She taught at several institutions before joining the National Dairy Council in 1929, where she served as Director of Nutrition Services until her retirement. Dr. Martin was a distinguished nutritionist who was instrumental in developing research grant programs, instituting nutrition conferences, founding journals, and writing several nutrition textbooks.

Before her death in 1993 at age 100, she established an endowment at SDSU with the ultimate objective of providing for a permanent professorship to ensure continuing high-level instruction in the science of nutrition. Dr. Martin's goal was realized in 1997, when the Ethel Austin Martin Chair in Human Nutrition was established and subsequently filled by Dr. Bonny Specker.

## Purpose

The purpose of the E.A. Martin Program in Nutrition is to advance knowledge in the science of human nutrition through a multidisciplinary approach, to encourage practical applications in improving human health, and to offer professional enrichment in nutrition for all students, faculty and staff at SDSU.

## Introduction

The advancement of knowledge in the science of human nutrition is approached through both research and educational programs. There are active research projects initiated from within the E.A. Martin Program, as well as collaborative efforts with other investigators from SDSU and the region. Financial support in the form of pilot project awards is provided to faculty at SDSU who propose collaborative nutrition projects that utilize a multidisciplinary approach. Educational programs include formal courses, as well as support for invited seminar speakers. The annual E.A. Martin Distinguished Lecture in Human Nutrition has been a long standing tradition at SDSU, bringing in world-renowned speakers in the field of human nutrition. Both the research and educational programs have a multidisciplinary approach to human nutrition.

## Facilities

In 1999 extensive renovation of the former Biology Annex building located near Agriculture Hall and Dairy/Microbiology was completed. This building, renamed the Ethel Austin Martin Building, is one of the locations of the E.A. Martin Program and provides 3500 square feet of offices, laboratories and a conference room. In early 2008, the EAM Program expanded to the 3<sup>rd</sup> floor of Wecota Hall adding 16 offices, a conference room, and a general workroom.



1999 Renovation of the former Biology Annex.  
Before and after pictures of lab space (top), workroom (left bottom),  
and north entrance lobby (right bottom) of EAM Building.



*You can go anywhere from here!*

The E.A. Martin Program has a mobile research unit that moved the laboratory to the field. On board, state-of-the-art imaging equipment can be used for bone measurements and body composition analyses. This equipment includes a dual energy x-ray absorptiometer (DXA, Hologic Discovery/Apex) and two peripheral quantitative computed tomography for both arm and leg use (pQCT XCT 2000 & XCT 3000, Norland/Stratec).

### **Ethel Austin Martin Nutrition Committee**



*Ethel Austin Martin Building*

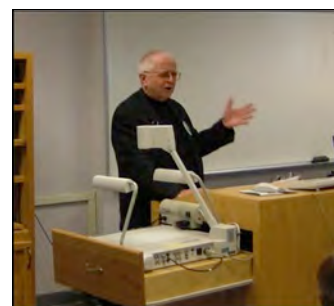
The E.A. Martin Nutrition Committee assists the Chair in the general plans and activities for implementing the different phases of the Human Nutrition Program and acts as an advisory group to the Chair. The committee recommends to the Chair and Vice President for Academic Affairs interdisciplinary credit courses for consideration and other educational experiences offered by the program. The committee also assists in planning the annual E.A. Martin Distinguished Lectureship program and engages in other duties related to the E.A. Martin Human Nutrition Program as requested by the Vice President for Academic Affairs, Vice President for Research, or the President. Members include faculty from numerous colleges (Colleges of Family & Consumer Sciences, Education & Counseling, Agriculture & Biological Sciences, Nursing, and Pharmacy).

### **Former Ethel Austin Martin Visiting Professors**

- 1979: **Sheldon Margen, M.D.**, University of California at Berkeley: "Nutrition in Action"
- 1981: **Merrill S. Read, Ph.D.**, University of Maryland: "Nutrition Health and Behavior"
- 1983: **Fergus M. Clydesdale, Ph.D.**, University of Massachusetts at Amherst: "A Critical Look at our Food Supply from a Nutritional Standpoint"
- 1985: **Louis Grivetti, Ph.D.**, University of California at Davis: "The Relation of Nutrition to Health in Young Adults"

## Ethel Austin Martin Distinguished Lecturers

- 1986 **Fergus M. Clydesdale, Ph.D.**, University of Massachusetts at Amherst: "Nutrition: Crucial Concerns in Diet and Disease"
- 1987: **Philip L. White, Ph.D.**, American Medical Association: "Crucial Concerns in Nutrition and Health"
- 1988 **Merrill S. Read, Ph.D.**, University of Maryland: "Nutrition and Behavior Revisited"
- 1989 **Wayne Callaway, M.D.**, George Washington University: "Nutrition and Health – The Next Era"
- 1990 **Jerry Gaff, Ph.D.**, University of Minnesota: "Beyond the Academic Disciplines"
- 1991 **Myron Winick, M.D.**, University of Health Sciences Chicago Medical School: "The Central Role of Nutrition in the Health Sciences – Focus on Mother and Child"
- 1992 **Jackie Barber, Pharm.D.**, University of Minnesota: "Nutrition in Action – Collaborative Concerns Among Health Professionals"
- 1993 **Elwood W. Speckmann, Ph.D.**, Shriners Hospitals for Crippled Children, Tampa, Florida: "Putting Nutrition in Perspective"
- 1995 **Robert M. Russell, Ph.D.**, Human Nutrition Research Center, Tufts University: "Nutritional Requirements in Aging"
- 1996 **Jacqueline R. Berning, Ph.D.**, University of Colorado at Colorado Springs: "Nutrition for Sport and Exercise - Eat to Compete"
- 1997 **Joanne Ikeda, M.A., R.D.**, University of California at Berkeley: "Health at Every Size: A New Paradigm for Weight Management"
- 1998 **Frederick H. Wolfe, Ph.D.**, University of Arizona at Tucson: "21st Century Technology Today: Changing the Way America Eats"
- 1999 **Barbara Schneeman, Ph.D.**, University of California at Davis: "Linking Science and Politics: Developing Dietary Guidelines"
- 2000 **Robert Heaney, M.D.**, Creighton University: "Why We Need Calcium"
- 2001 **Reginald Tsang, M.D.**, Cincinnati Children's Hospital Medical Center: "Vitamin D Deficiency Rickets – Is it a New Epidemic?"
- 2002 **Ekhard Ziegler, M.D.**, Fomon Infant Nutrition Unit, University of Iowa: "Iron in the Young: Deficiency Not Yet Conquered"
- 2003 **William H. Dietz, M.D., Ph.D.**, Director of the Division of Nutrition and Physical Activity Center for Chronic Disease Prevention and Health Promotion, Center for Disease Control: "National Trends/Issues in Obesity"
- 2004 **Zulf Mughal, MBChB**, St Mary's Hospital, University of Manchester, Manchester England: "Type 2 Diabetes in Children- an Evolving Epidemic?"
- 2005 **Theresa Nicklas, DrPH, MPH, LN**, Professor of Pediatrics, Baylor College of Medicine, Houston, Texas: "Navigating New Government Dietary Guidance"
- 2006 **Tom Baranowski, PhD**, Professor of Pediatrics (Behavioral Nutrition), Baylor College of Medicine, Houston, Texas: "Interactive Multimedia for Diet and Physical Activity Change among Children."



*Dr. Louis Grivetti*

## Research Highlights

The E.A. Martin Program supports nutritional research involving a wide variety of disciplines. There are several ongoing research projects initiated from within the EAM Program, as well as collaboration on projects from outside the program. Active research projects provide SDSU faculty and students the opportunity to expand their knowledge base and participate in research.

South Dakota Rural Bone Health Study (SDRBHS): The aim of this study is to determine whether a rural lifestyle leads to high bone density in young adulthood and lowers the rate of bone loss later in life. Approximately 1,200 men and women aged 20 to 66 years with equal numbers of Hutterites, rural non-Hutterites, and non-rural non-Hutterites are being followed for 7.5 years. Yearly blood samples, bone measurements and quarterly assessments of activity levels and dietary intake are obtained. The goal of the project is to determine whether bone density during young adulthood and the rate of later bone loss, among the Hutterite population is similar to other populations, and whether greater activity levels and calcium intake can account for the high bone density observed among the Hutterites. We also are investigating genetic factors affecting bone strength. Further understanding of the role of genetics and lifestyle factors as determinants of bone density among Hutterites is necessary because they appear to be less likely to develop osteoporosis than the normal U.S. population. In addition to the 1,200 adults who are enrolled, an additional 800 Hutterites aged 8 years and older also are being followed with the same study protocol.

South Dakota Children's Health Study: The purpose of this study was to determine in a randomized controlled study whether calcium intake modifies the bone response to physical activity in preschool children. Over 200 young children were recruited from participating child care centers in eastern South Dakota. Calcium and activity interventions were done in the centers and changes in bone mass accretion over a 1-year intervention period were determined. A finding of beneficial effects of either calcium supplementation or physical activity either independent of each other, or in combination, will provide the groundwork to devise prevention strategies within the educational system for optimizing bone health beginning early in life. The study was funded by the National Institutes of Health (NIH/NIAMS).

Vitamin D Fortified Cheese and Vitamin D Status in the Elderly: The purpose of this study was to determine the effect of vitamin D-fortified cheese on bone health in an older population. Investigators were from *Dairy Sciences, E.A. Martin Program, and the Applied Physiology Laboratory*.

The Eastern South Dakota Normative Bone Study: The objective of this study was to establish a normative data set of bone measurements for the eastern South Dakota population and to test specific hypotheses related to geometric measurements of bone, as well as bone mass.

Effect of Jumping at Different Ages on Bone Parameters: This randomized trial was designed to determine whether bone response to loading was similar at ages with differing growth velocities and pubertal stages and to obtain estimates of bone parameter changes at different ages.

Effect of Supplemental Conjugated Linoleic Acid (CLA) on Body Composition in Healthy, Moderately Overweight Females: The purpose of this trial was to determine whether 6 months of CLA supplementation results in decreased percent body fat in young adult, moderately overweight female subjects compared to a similar placebo group. This study involved collaboration among the *E.A. Martin Program; Animal & Range Sciences; Nutrition, Food Science & Hospitality, and Applied Physiology Laboratory*.

### Collaborative & Multi-Center Research Studies:

Bone Mass Inheritance Study in collaboration with Creighton University Osteoporosis Research Center: The purpose of this study was to identify adults with a bone mineral density (BMD) that is either significantly higher or lower than those compared to the normal population. It was hypothesized that high or low BMD is predetermined by genetic factors.

Collection of Pediatric Reference Database for Bone Ultrasound-North America in collaboration with Sunlight Medical Ltd.: The purpose of the study is to establish reference values using quantitative ultrasound for bone measurements (speed of sound) by age in North American pediatric population for the Sunlight Omnisense™ 7000P for two skeletal sites; i.e. 1/3 distal radius and mid-shaft tibia.



Colony Visit for SDRBHS





SDSU Hobo Days 2005

Effects of Protein Supplementation on IGF-I, IGF Binding Proteins, and Markers of Bone Turnover in 18 to 25 Year Olds in collaboration with Dr. Matt Vukovich in the Applied Physiology Laboratory at South Dakota State University. The purposes of the study are to assess the effect of protein supplementation during physical activity on increases serum IGF-I concentrations and to determine if a daily protein supplement will change markers of bone formation and resorption, which favor an increase in BMD.

## Research Funding:

### 1997-2001

National Institutes of Health (R01-AR45310), "Calcium Modifies Bone Response to Activity in Children," Specker (principal investigator), 1997-2001, direct costs \$951,878

U.S. Department of Defense (Tri-Service Nursing Research Program). "Dietary and Exercise Intervention to Improve Readiness of Tri-Service Guard and Reserve Personnel," Specker & Binkley (co-investigators), 1999-2002, total direct costs to Augustana College \$406,171

South Dakota Beef Industry Council, "Effect of Supplemental Conjugated Linoleic Acid on Body Composition of Healthy, Moderately Overweight Females," Wosje (principal investigator), 1999-2000, \$42,367

South Dakota Agricultural Experiment Station, "Analysis of Factors that Regulate Energy Balance in Humans, Livestock, and Mice," Specker (co-investigator), N. Granholm (principal investigator), 1999-2000

U.S. Department of Defense, "Effects of Protein Supplementation on IGF-1, IGF-Binding Proteins and Markers of Bone Turnover in 18 to 25 Year Olds," Specker (co-investigator), Vukovich (principal investigator), 2001-2004, direct costs \$141,555

National Institutes of Health (R01-AR47852), "Bone Density and Later Bone Loss in Rural Populations," Specker-principal investigator, 2001-2006, direct costs \$1,045,000

Dairy Management Inc., "Effect of Process Cheese With and Without Vitamin D on Vitamin D Status, Parathyroid Hormone, and Bone Turnover in the Elderly," Specker & Binkley (co-investigators), Mistry (principal investigator), 2001-2002, \$51,099

### 2002-2006

South Dakota Beef Industry Council, "Human Body Composition and Dietary Protein Source," Specker (principal investigator), 2002-2003, \$16,820

National Institutes of Health (R01-AR47852), Minority Graduate Research Assistantship, 2002-2004, direct costs \$31,319

National Institutes of Health (N01-HD-6-3416), "National Children's Study – Vanguard Center," Specker (principal investigator), 2005-2010, direct costs \$8,693,938



Teresa Binkley ready to hit the road with the Bone Bus

## Teaching Highlights

### Introduction:

Formal courses and lectures at SDSU and in the surrounding communities provide only one aspect of the educational enrichment provided by the E.A. Martin Program. The E.A. Martin Program also brings nationally renowned speakers to SDSU, providing an educational enrichment for both faculty and students. Student involvement at both the undergraduate and graduate level is important to the goals of the E.A. Martin Program. Extramural grant funding allows students to participate in research projects, providing not only a financial resource but also an excellent learning experience.

### Speakers Brought to SDSU:

In addition to the Ethel Austin Martin Distinguished Lecturers (see above), the EAM Program has sponsored numerous other national and internationally renowned speakers:

#### 1997-2001

**Steve Abrams**, M.D., USDA Children's Nutrition Research Center, "Ancient Religious Influences on Nutritional Practices," SDSU 15<sup>th</sup> Annual Nutrition Seminar, March, 1998

**Roger Clemens**, Sc.D., Scientific Advisor, Nestle USA, "Infant Feeding Around the World: Concepts and Controversies" to NFS111 (Food and People), April, 1998 & 1999

**Joe Neu**, M.D., University of Florida, "Glutamine in Health and Disease," seminar open to public and SDSU students and faculty, September, 1998

**Heidi Kalkwarf**, Ph.D., Children's Hospital Medical Center, Cincinnati, Ohio, "Calcium and Iron Needs During Pregnancy and Lactation," SDSU 16<sup>th</sup> Annual Nutrition Seminar, March, 1999

**Harry Greene**, M.D., Vice President & Medical Director, Slim-Fast Foods, "Meal Replacements for Weight Loss," SDSU 16<sup>th</sup> Annual Nutrition Seminar, March, 1999



*EAM "Bone Bus" as an entry in the Hobo Day parade*

**James Heubi**, M.D., Professor and Director of Nutrition & Clinical Research Center, Children's Hospital Medical Center, Cincinnati, Ohio, "Role of Nurses in Nutrition and Clinical Research," April, 1999

**Zulf Mughal**, M.B.B.S., Director, Department of Pediatrics, St. Mary's Hospital, Manchester, England, "A Community Based Approach to the Treatment of Pediatric Asthma," College of Nursing (also met with Harriet Swedlund on the international exchange program with Manchester and with Odette Four Bears (diabetes coordinator) and individuals at the Buffalo Cooperative on Cheyenne River Reservation), April, 1999

**Robert Recker**, M.D. & **Mark Johnson**, Ph.D., Creighton University Osteoporosis Research Center, "Identification of a Family with the High Bone Mass Gene," E.A. Martin Seminar, June 1999

**John Erdman**, Ph.D., Professor, Public Health Nutrition, University of Illinois, "Tomatoes and Cancer: What Are We Learning About Lycopene" and "The Soy and Cholesterol Connection," SDSU Annual Nutrition Seminar, March, 2000

**Vernon Young**, M.D., Massachusetts Institute of Technology, Boston, MA, "Nutrient Requirements: From Cells to People," SDSU Annual Nutrition Seminar, March, 2000

**Lawrence Kushi**, D.Sc., Columbia University, "Diet and Cancer." Presented at SDSU and open to the public, April, 2000

**Zulf Mughal**, M.B.B.S., Director, Department of Pediatrics, St. Mary's Hospital in Manchester, England, "The Maltreated Child" and "Asthma: An Outreach Program," Presented lectures of the SDSU College of Nursing, May, 2000

**Scott Smith**, Ph.D., NASA, Houston, TX “Nutritional Requirements during Space Flight” keynote lecture at SDSU Research Appreciation Days, “Nutrition in Space” at Brookings High School, “Food Production in Outer Space” at local Hutterite colony, September, 2000

**Buford Nichols**, M.D., Director Emeritus, Department of Pediatrics, USDA/CNRC, Baylor School of Medicine, “The Art & Science of Infant Feeding” keynote lecture at SDSU 2001 Research Appreciation Days; “Of Maize and Men” lecture in NFSH 660 - Maternal & Child Nutrition, 2001

## **2002-2006**

**Michael Mahaney**, Ph.D., Scientist, Department of Genetics, Southwest Foundation for Biomedical Research, San Antonio, TX, “Genotype by Diet Interactions in the Regulation of Serum Lipoprotein Levels in a Pedigreed Baboon Model for Atherosclerosis”, SDSU Annual Nutrition Seminar, 2002

**Scott Smith**, Ph.D., Director, Nutritional Biochemistry Laboratory, NASA Johnson Space Center, Houston, TX, “Space Flight Nutrition: Implications for Earth, the International Space Station, and Beyond”, SDSU Annual Nutrition Seminar, 2002

**Karen Wosje**, M.S., doctoral candidate at SDSU, “South Dakota Rural Bone Health Study: Background & Design,” SDSU Annual Nutrition Seminar, 2002

**Michelle Dexter**, Doctoral candidate, Temple University, “Bone Response to Lactation in Different Populations”, October, 2002

**Connie Weaver**, PhD, Chair, Department of Foods and Nutrition, Purdue University, “Dairy Products & Weight- Research Determinants of Calcium Retention” SDSU 20<sup>th</sup> Annual Nutrition Seminar, 2003

**Buford Nichols**, M.D., Director Emeritus, Department of Pediatrics, USDA/CNRC, Baylor School of Medicine, “The Art and Science of Infant Feeding” and “Maize, Mice & Men: The Evolution of Starch Digestion”, SDSU 20<sup>th</sup> Annual Nutrition Seminar, 2003

**Stephanie Atkinson**, PhD, Member of the Standing Committee for the Dietary Reference Intakes, National Academy of Sciences, and Professor of Pediatrics, McMaster University “The new DRI’s for Macronutrients”, SDSU 20<sup>th</sup> Annual Nutrition Seminar, 2003

**Sandra Bartholmey**, PhD, Quaker Oats, “Fiber/Grains & Obesity”, SDSU 20<sup>th</sup> Annual Nutrition Seminar, 2003

**Roger Clemens**, Dr.PH, Director, USC School of Pharmacy, Laboratory for Research and Services in Complementary Therapeutics, “Assessing the Safety of Functional Foods Used in the Management of Type 2 Diabetes”, SDSU 21<sup>st</sup> Annual Nutrition Seminar, 2004

**Martin Bloem**, MD, PhD, Senior VP, Chief Medical Officer, Regional Director for Asia Pacific, “Micronutrient Deficiencies and Poverty”, SDSU 22<sup>nd</sup> Annual Nutrition Seminar, 2005

**Johanna Dwyer**, DSc, RD, Senior Nutrition Scientist, Office of Dietary Supplements, National Institutes of Health, “Dietary Supplement Use in the Elderly: The Good, The Bad and the Ugly” and “Wonderful World of Flavonoids”, SDSU 22<sup>nd</sup> Annual Nutrition Seminar, 2005

**Roger Clemens**, PhD, Director, USC School of Pharmacy, Laboratory for Research and Services in Complementary Therapeutics, Los Angeles, CA, “Revealing and Diagnosing Food Allergies and Intolerances”, SDSU 23<sup>rd</sup> Annual Nutrition Seminar, 2006

**Jerry Combs, Jr.**, PhD, Center Director, Grand Forks Human Nutrition Research Center, ARS, USDA, “Selenium and Cancer”, SDSU 23<sup>rd</sup> Annual Nutrition Seminar, 2006

**Louis Grivetti**, PhD, University of California, Davis, “Chocolate in North America: From 16<sup>th</sup> Century Spanish Florida to 21<sup>st</sup> Century South Dakota”, October, 2006



*Drs. Rucker & Grivetti (UC Davis) visiting for Hobo Days ~ 2006*



## Student Involvement:

### Undergraduate:

Michael Adler (PreMed): orthopedic surgeon at Orthopedic Institute, Sioux Falls

Polly Ahrens (Nursing): public health nurse for the State of Minnesota

Ashley Allcock (Pharmacy): completed her Pharm.D.

Nicole Anderson (Early Childhood Education)

Lacey Arneson McCormack (Nutrition): SDSU faculty

Brooke Barhite (Advertising)

Tianna Beare (Business Economics): Program Manager, EAM Program

Rick Bitterman (Engineering)

Mona Boone (Early Childhood Education)

Kristine Cassen (Health Promotions)

Elizabeth Englert (Nutrition): attended graduate school at the Colorado State University (M.S. Exercise Science)

Virginia Englert (Dietetics): obtained M.S. in Nutrition & Exercise Science at Colorado State University. She is coordinator for the Coalition for Activity and Nutrition to Defeat Obesity.

Hanna Fetzer attended graduate school in California

Justin Firme

Carolyn Gilbertson (Biology/PreMed): completing residency in family medicine

Rae Granbois-O'Leary (Respiratory Therapy): working at Missouri Breaks Research on Cheyenne River Reservation conducting clinical & epidemiological research

Brittany Gorres-Martens (Nutrition): on faculty at Augustana College

Ashley Huls (Dietetics)

Tami Hogie- Lorenzen (Nursing): nurse for Urban Indian Health/IHS in Pierre, SD

Neil Johannsen (Chemistry): on faculty at Louisiana State University

Darci Johannsen (Nutrition): research position at Pennington Research Labs at Baton Rouge, LA

Toni Kenzy (Human Development)

Katie Klein (Nursing)

Cory Koenig (PreMed): completing residency program

Alissa Lambertz (Nutrition)

Ann Maher (Nutrition and Food Science): dietitian for Prairie Community Health & site manager for the Family Health Center in Eagle Butte, SD

Jason Melcher (Physical Education): in business in Brandon, SD

Abha Mistry (Architectural Sciences): architect

Justin Moe (Engineering)

Greg Neiderauer (PreMed): practicing anesthesiologist in Sioux Falls, SD

Jen O'Connor (Nursing)

Veronica O'Leary (Dietetics): IHS dietitian in Eagle Butte, SD

Doug Olson (Biology/PreMed): family practice physician in Sioux Falls, SD

Emily Parupsky (Mechanical Engineering)

Sarah Riedell (Graphic Design)

Sarah Sachen (Human Development)

Laurie Schmidt (Early Childhood Education)

Mike Smith (Biology): practicing chiropractor in Luverne, MN.

Sarah Stence (Elementary Education)

David Stevens (Biology)

Joe Stolp (Biology/PreMed): internal medicine physician in Omaha

Jamie Tanata (Journalism)

Christy Wey (Biology/Statistics): PhD Epidemiology program, University of Colorado/Denver Health Sciences

Louis Whitehead (Journalism): investment management

Kentz Willis (Dietetics): extension dietitian for the state of Wyoming

Leah Wolkow (Human Development)

Corey Wulf (PreMed): orthopedic/sports medicine surgeon in Minnesota



Annual EAM Canoe Days at Oakwood Lakes

### *Graduate (Advisees):*

Melissa Elder, M.S. Student in Nutrition & Food Science, graduated June 1999: "Variety and Frequency of Foods Present in Diets of 12 Month Old Infants and Their Translation to the Presence of a Variety and Frequency of Foods at 36 Months of Age"

Mona Rosene, M.S. Student in Nutrition & Food Science, graduated June 1999: "Effects of Glutamine Supplementation on Lean Body Mass in Wrestlers During Weight-Loss". Mona won the regional 1999 American College of Sports Medicine graduate student competition and the 1999 SDSU Sigma Xi M.S. Paper Award. She is a nutrition research scientist at WhiteWave Foods

Karen Wosje, M.S. Student in Nutrition & Food Sciences, graduated June, 2000: "Relationship Between Bone Mass and Lifelong Calcium Intake and Activity Levels in the Female Hutterite Population". Karen won numerous awards including SDSU Sigma Xi M.S. Proposal Award, SDSU Sigma Xi M.S. Paper Award, and SDSU Sigma Xi Ph.D. Proposal Award. She also was the recipient of the Phi Upsilon Omicron Educational Foundation's Geraldine Clewell Doctoral Fellowship. PhD. in Biological Sciences 2003: "Leptin and Regional Bone Mass and Body Composition". She was Assistant Professor Pediatrics at the University of Cincinnati/Children's Hospital Medical Center.

Darcy Hefty, M.S. Student in Nutrition and Food Science, graduated June, 2001: "The Relationship of Childhood Adiposity to Parental Eating Behaviors". She completed her Ph.D. at Iowa State University and is currently completing a post-doc at Pennington Research Labs in Baton Rouge, LA.

Deb Ekanger, M.S. Student in Nutrition and Food Science, graduated June, 2002: "The Timing of the Introduction of Solid Food to the Infant Diet and Its Relationship to the Development of Allergy Precursors". She is currently a dietitian in Dickinson, N.D.

Jana Johnson, M.S. Student in Biological Sciences (Nutrition Emphasis), graduated May 2003: "Bioavailability of Vitamin D from Fortified Process Cheese & Effects on Vitamin D Status in the Elderly". She currently works in food science in the dairy industry.

Annette Snyder, M.S. Student in Nutrition and Food Science (FCS), graduated May 2003: "Seasonal Comparisons of Bone Density among Rural and Non-Rural Populations in South Dakota". She is a clinical dietitian at Wright Medical Center in Iowa where she serves on the Osteoporosis Awareness Committee.

Connie Niederauer, M.S. Student in Nutrition and Food Science (FCS), graduated May 2004: "Effect of Lifestyle and Truncal Adiposity on Plasma Lipids and Lipoprotein Concentrations". She is a clinical dietitian.

Maurin Fisher, M.S. Student in Nutrition and Food Science (FCS), graduated August 2005: "The Influence of IGF-I and Dietary Protein Source on Human Body Composition". She is a clinical dietitian.

### *Other Graduate Involvement:*

Neeraj Kulkarni, MS Student in Industrial Management

Michi Nakai, PhD Student in Statistics

Jami Petersek, MS Student in HPER

Jay Pottala, MS Student in Statistics

Manju Rangaswamy, MS Student in Electrical Engineering

Peter Samai, MS Student in Biological Sciences

## **Lectures at SDSU & In the Community:**

### **1997 - 2001:**

Lectures in formal courses including Maternal and Infant Nutrition (NFS 660), Epidemiology (HSC 440), Applied Exercise Physiology (PE 750) and Sociocultural Aspects of Nutrition (NFS662), 1997 (Specker)

Seminars in Dairy Sciences and Chemistry Department, SDSU, 1997 (Specker)

“The Role of Today’s Youth in Eradicating Osteoporosis in the Next Millennium.” Presented at the Northern Plains Osteoporosis Seminar in Sioux Falls, SD, May 1998 (Specker)

Lecture in “Nutrition and Society” course at SDSU, July 1998 (Specker)

Summer 2+2+2 Class for Native American students, Summer 1998 (Binkley)

Lecture on “Interaction between Calcium and Physical Activity on Bone Health in Children”, 1998 (Specker)

Presentation to Senior Biology Seminar class at SDSU, Fall 1998 (Binkley)

“Strategies in Science Teaching,” SDSU, Fall, 1998 (Binkley)

Keynote Speaker: College of Pharmacy Research Day, SDSU, November 1998 (Specker)

“Bone Mass among the Hutterite Population.” Presented at USD (1998) & Creighton University (1999) (Wosje)

“Research Methods” at Rutland High School, Rutland, South Dakota, January, 1999, (Binkley)

“Calcium Metabolism and Lactation” lectures to SDSU Maternal & Infant Nutrition class, 1999 (Specker)

EA Martin Program, Mini-Conference on Infant Feeding, NFS660, February 1999

- Overview on the timing of the introduction of solids and affect on growth and body composition at one year of age (Specker)
- Introduction of solids and sleeping through the night (Wermers)
- No effect on growth of consumption of lowfat milk during the second year of life (Wosje)
- Iron and zinc status in 2 and 3 year old children (Kattelman)
- Total body bone mass accretion during the first year of life (Specker)
- Effect of palm olein on bone mass accretion (Wulf)

“SD Children’s Health Study: An Overview.” Presented at South Dakota Association for the Education of Young Children in Sioux Falls, SD, April, 1999 (Wermers)

Present health effects of lead at the Flandreau Santee Tribal Council, October 1999 (Specker & Howard Wey)

“Pediatric Approach to Osteoporosis Prevention.” Brookings Hospital, November 1999 (Specker)

Speaker at Sewrey Colloquium at SDSU, February 2000 (Specker)

Lecture in Graduate Radiation class at SDSU, March 2000 (Binkley)

Science Day at Brookings High School, March 2000 (Binkley, Niederauer, Specker, Wosje)

Series of mini-lectures in Nutrition & Human Performance, SDSU, April 2000 (Specker, Binkley, Johannsen, Wermers, Wosje)

Two lectures in HPER department at SDSU, April 2000 (Specker)

Presented talk on Selenium to the South Dakota Beef Industry Council at SDSU, May 2000 (Specker)

Lecture, “What a Scientist Does” at Brookings Middle School Career Days, May 200 (Binkley)

Lecture, “Bones” at a local Hutterite colony to grades K-8, May 2000 (Binkley)

Judged at the South Dakota Regional Science Fair at SDSU, April 2001 (Binkley, Specker, Wosje)

Coached at the South Dakota State Science Olympiad at University of South Dakota, April 2001 (Binkley)

Speaker at Avera McKennan ice cream social “Nutrition and Osteoporosis”, June 2001 (Specker)

“Strategies for Science Teaching” course at SDSU, September 2001 (Binkley)

Lecture, “Reference Centile Curves for Bone Measurements in Healthy 5-22 year Olds” at SDSU Research Appreciation Days, September 2001 (Binkley)

Poster presentation, “Effect of Jumping at Different Pubertal Stages on Bone”, SDSU Research Appreciation Days, September 2001 (Johannsen)

Poster presentation, “Minimal Effect of CLA Supplementation on Body Composition in Overweight Females”, SDSU Research Appreciation Days, September 2001 (Wosje)

Lecture to nutrition interns at USD School of Medicine on Nutritional Research for the SD Center for Pediatric Disabilities, October 2001 (Specker)

Talk on osteoporosis at Bethel Baptist Church Health Fair, Brookings, SD, November 2001 (Specker)

## **2002 - 2006**

Judged at the Flandreau Science Fair, March 2002 (Binkley, Ekanger, Olson, Smith, Specker)

Judged at the South Dakota Regional Science Fair at SDSU, April 2002 (Binkley, Kulkarni, Olson, Smith, Rangaswamy, Specker, Wosje)

Presented at Brookings High School Science Days, April 2002 (Specker)

Presented at USD School of Medicine Annual Cystic Fibrosis Days, April 2002 (Specker)

Lectured at University Women's Week, June 2002 (Specker)

"South Dakota Rural Bone Health Study", Brookings Hospital, July 2002 (Wosje)

"SD Rural Bone Health Study" at the Eminent Farmers and Homemakers meeting, September 2002 (Specker)

"SDSU Bone Studies" for spouses of SDSU Foundation Board, October 2002 (Specker)

Lecture for the Strategies in Science Teaching Class at SDSU, September 2002 (Binkley)

"Osteoporosis" to the United Methodist Men, November 2002 (Specker)

"Nutritional Research" to the University of South Dakota Dietetic Internship Program, November 2002 (Specker)

"Osteoporosis" at the Beadle County Family and Community Extension Leaders Meeting in January 2003 (Specker)

"South Dakota Rural Bone Health Study" to Altrusa, January 2003 (Specker)

"Calcium Modifies the Bone Response to Physical Activity in Young Children" at Pediatric Grand Rounds, University of South Dakota Medical School, January 2003 (Specker)

"South Dakota Rural Bone Health Study" for the Brookings District Nurse's Association Meeting, February 2003 (Specker)

"Strong Bones- A Result of Good Living" at the University Week for Women, SDSU, June 2003 (Specker)

"South Dakota Rural Bone Health Study Results" to the Brookings SD Rotary Club, February 2004 (Specker)

"Influence of Vitamin D and Calcium Status on Bone of Young Children" at the Dairy Science Departmental Seminar, SDSU, February 2004 (Specker)

"Effect of Sleep Deprivation on Bone", Avera McKennan Hospital, March 2004 (Specker)

"Strong Bones- What's New with the Research?" at the University Week for Women, SDSU, June 2004 (Specker)

"Ethel Austin Martin Program in Human Nutrition" to the Brookings Kiwanis Club, September 2004 (Beare)

Symposium on Health Management Research, "South Dakota Rural Bone Health Study," Avera Research Institute, Brookings SD, October 2004 (Specker)

North Central Cheese Industries Association, "Bone Health", Brookings SD, October 2004 (Specker)

Pediatric Grand Rounds, University of South Dakota School of Medicine, "Assessing Bone Health in Children", December 2004 (Specker)

"South Dakota Rural Bone Health Study – Current Findings" for the Biological Sciences Seminar at SDSU, February 2005 (Specker)

"National Children's Study" at the Sigma Xi Seminar at SDSU, February 2005 (Specker)

"National Children's Study" at the Avera Symposium – Health Research at Sioux Falls, SD, February 2005 (Specker)

"South Dakota – the Strong Bone State" for the College of Pharmacy at SDSU, February 2005 (Specker)

"Is Lactation and Pregnancy Bad for Bones?" as the Invited Speaker for the SDSU 22<sup>nd</sup> Annual Nutrition Seminar, March 2005 (Specker)

"Childhood Obesity: Cause & Consequence" as the Invited Speaker for Public Health Day at the University of South Dakota, April 2005 (Specker)

"South Dakota – the Strong Bone State" as the Invited Speaker for Women and Giving, at South Dakota State University, June 2005 (Specker)

"Bone Density through a Lifetime" as the Invited Speaker for the South Dakota Public Health Conference in Pierre, SD, June 2005 (Specker)

"Calcium and Your Bones" to the Brookings High School Nutrition and Foods class, December 2005 (Specker)

Hosts for the National Children's Study, BYPL Vanguard Center Local Event Day in Brookings, SD, December 2005 (Specker, Beare, Binkley, McCormack)

Speaker, University Women's Week, "Life on a Hutterite Colony", June 2006 (Beare and Specker)



*Bonny Specker & Brittany Gorres discussing correct lab procedures*



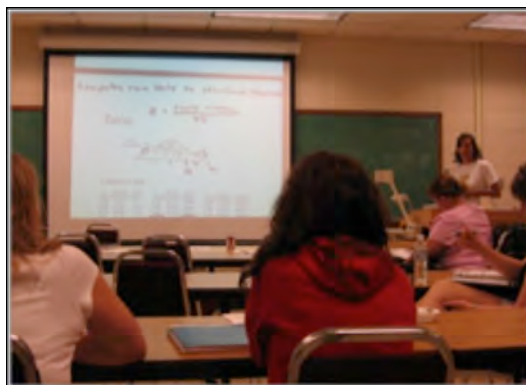
1<sup>st</sup> Annual Children's Environmental Health Seminar, SDSU, Brookings, SD, July 2006 (Specker)

"Research Methods" for University Affiliated Program USD (1-day lecture), summer 2006 (Binkley)

Speaker (live) on Homespun Medicine, WBRK Radio, Brookings, "National Children's Study Update & the SDSU Children's Environmental Health Seminar" June & October, 2006 (Specker)

Speaker, Sioux Falls Rotary Club, "National Children's Study", November 2006 (Specker)

Recorded two shows for Homespun Medical Tips, to be broadcasted throughout South Dakota later in 2006: "National Children's Study Update" and "Importance of Vitamin D during South Dakota Winters." (Specker)



*Teresa giving a lesson on research methods for the USD LEND program*

## Interdisciplinary Accomplishments

### Introduction:

One of the primary purposes of the E.A. Martin Program in Human Nutrition is to advance knowledge in the science of human nutrition through an interdisciplinary approach. The current ongoing educational and research programs incorporate interdisciplinary approaches to human nutrition through the participation of other departments, faculty, and staff. In addition, the E.A. Martin Program also provided pilot project research awards in 1998-2000 to SDSU faculty who proposed collaborative nutrition projects that utilize a multidisciplinary approach. The educational components of the E.A. Martin Program are evident in many of the colleges at SDSU and at other institutions throughout the region.

### Pilot Projects Funded through the E.A. Martin Program:

#### 1998

Effects of Glutamine Supplementation on Lean Body Mass and Performance in Wrestlers during a Weight Loss Program. Drs. Finn, Rosene, Kattelmann (Departments of HPER/Athletics and Nutrition & Food Sciences)

Changes in Isoflavone Characteristics During Extrusion Processing. Drs. Muthukumarappan, Julson, Wang and Krishnan (Departments of Agricultural Engineering and Nutrition & Food Sciences)

Beef, Cattle Production and Leafy Spurge. Drs. Kronberg, Evenson, Halaweish and Rice (Departments of Animal & Range Sciences and Chemistry/Station Biochemistry)

#### 1999

Obesity and Infertility – The Relationship of Body Fat and Fertility. Drs. Diggins and Granholm (Augustana College and Biology & Microbiology at SDSU)

Effects of Dietary Mustard Oil on the Development of Colon Cancer. Drs. Dwivedi and Mistry (Departments of Pharmaceutical Sciences and Dairy Sciences)

Application of Ozone Technology in Beef Processing. Drs. Muthukumarappan, Halaweish, Wulf and Henning (Departments of Agricultural & Biosystems Engineering, Chemistry & Biochemistry, Animal & Range Sciences, Dairy Sciences)

Mass Spectroscopic Measurement of Folic Acid and Its Derivatives in Food and Biological Fluids (Drs. Krishnan, Kattelmann and Muthukumarappan. Departments of Nutrition & Food Sciences and Agricultural Engineering)

Female Friendly Food Systems. Drs. Rickerl and Swanson (Agroecology and Department of Nutrition & Food Sciences)

#### 2000

Assessing Antibiotic Resistance in Cattle Using a Microbial Population Approach, Drs. Epperson and Pritchard (Departments of Veterinary Science and Animal & Range Sciences)

The Effect of Soy Phytochemicals on Human Cortical Neuronal Cells, Drs. Mukerhee, Sonee, Guan and Wang (Departments of Pharmaceutical Sciences and Nutrition, Food Science & Hospitality).



*The Bone Bus likes to stop at those fun places.*

## National and International Visibility

Peer-reviewed scientific articles provide national and international visibility for SDSU. This is also important not only for faculty, but for staff and students as well.

### Publications:

#### 1997-2001

- Kalkwarf HJ, Specker BL, Bianchi DC, Ranz J, Ho M. Randomized trial of calcium supplementation on bone changes during lactation and after weaning. *New England Journal of Medicine* 337:523-8, 1997
- Henderson C, Cawkwell G, Specker B, Sierra R, Wilmott R, Campaigne B, Lovell D. Predictors of total body bone mineral density in non-corticosteroid treated pre-pubertal children with JRA. *Arthritis and Rheumatology* 40:1967-1975, 1997
- Dellert SF, Farrell MF, Specker BL, Heubi JE. Bone mineral content in children with short bowel syndrome after discontinuation of parenteral nutrition. *Journal of Pediatrics*, 132:516-519, 1998
- Mehta KC, Specker BL, Bartholmey S, Giddens J, Ho ML. Trial on timing of introduction and food type on infant growth. *Pediatrics* 102:569-573, 1998
- Mulligan L, Specker BL, Buckley D, O'Connor LS, Ho M. Environmental factors affecting motor development, activity, and body composition in infants in child care centers. *Journal of Pediatric Physical Therapy* 10:156-161, 1998
- Mughal MZ, Wilmschurst S, Ward K, Adams JE, Specker BL. Broadband ultrasound attenuation at the calcaneum in children with cerebral palsy –relationship to mobility status and dietary calcium intake. IN: *Paediatric Osteology. Prevention of Osteoporosis – A Paediatric Task?* Shonau and Matkovic, eds. Elsevier Publishers, 1998, pp203-207.
- Specker BL. Factors affecting bone mass in infants and toddlers. IN: *Nutrition and Bone Development*, edited by JP Bonjour and RC Tsang. Nestle Nutrition Workshop Series, Vol 41, Lippincott-Raven Publishers, Philadelphia, 1999.
- Specker BL. The vegetarian family. IN: *Answers to More than 500 Questions You're Likely to Hear About Infant Nutrition*, edited by RC Tsang. Wyeth Nutritionals, Philadelphia, 1999.
- Specker BL. Why does my baby need vitamin D?. IN: *Answers to More than 500 Questions You're Likely to Hear About Infant Nutrition*, edited by RC Tsang. Wyeth Nutritionals, Philadelphia, 1999.
- Kalkwarf HJ, Specker BL, Ho ML. Effects of calcium supplementation on calcium homeostasis and bone turnover in lactating women. *Journal of Clinical Endocrinology and Metabolism* 84:464-470, 1999
- Specker BL, Mulligan L, Ho M. Longitudinal study of calcium intake, physical activity and bone mineral content in infants 6 to 18 months of age. *Journal of Bone and Mineral Research* 14:569-576, 1999
- Specker BL. Should there be a Dietary Guideline for calcium intake? No. *American Journal of Clinical Nutrition* 71:661-664, 2000.
- Henderson CJ, Specker BL, Sierra RI, Campaigne BN, Lovell DJ. Total body bone mineral content in non-corticosteroid-treated postpubertal females with juvenile rheumatoid arthritis. *Arthritis & Rheumatism* 43:531- 540, 2000
- Binkley T, Specker B. pQCT measurement of bone parameters in young children: Validation of a technique. *Journal of Clinical Densitometry* 3:9-14, 2000.
- Whitaker RC, Deeks CM, Baughcum AE, Specker BL. The relationship of childhood adiposity to parent body mass index and eating behavior. *Obesity Research* 8:234-240, 2000.
- Wosje KS, Binkley TL, Fahrenwald NL, Specker BL. High bone mass in a female Hutterite population. *Journal of Bone and Mineral Research* 15:1429-1436, 2000.
- Finn K, Specker B. Comparison of Actiwatch motion sensor and Children's Activity Rating Scale. *Medicine and Science in Sports and Exercise* 32:1794-1797, 2000.
- Wosje K, Specker B. Role of Calcium in Bone Health during Childhood. *Nutrition Reviews* 58:253-268, 2000.
- Wosje KS, Specker BL, Giddens J. No difference in growth or body composition from age 12 to 24 months in 2% versus whole milk users. *Journal of the American Dietetic Association*, 101:53-56, 2001
- Morrison JA, Guo SS, Specker B, Chumlea WC, Yanovski SZ, Yanovski JA. Assessing the body composition of 6-17 year-old black and white girls in field studies. *American Journal of Human Biology*, 13:249-254, 2001
- Kattelman K, Ho M, Specker B. Effect of timing of introduction of solids on iron and zinc status at 12, 24 and 36 months of age. *Journal of the American Dietetic Association*, 101:443-447, 2001.
- Specker BL, Namgung R, Tsang RC. Bone Acquisition *In Utero* and During Infancy and Childhood (Chapter 24). IN: *Osteoporosis*, edited by R Marcus, D Feldman, J Kelsey. Academic Press, San Diego, 2001, pg 599-620
- Wosje KS, Binkley TL, Specker BL. Comparison of bone parameters by dual-energy x-ray absorptiometry and peripheral quantitative computed tomography in Hutterite versus Non-Hutterite females ages 35-60 years. *Bone* 29:192-197, 2001.



*EAM Staff & Students ~ 2000*

Specker B, Johannsen N, Binkley T, Finn K. Total body bone mineral content and tibial cortical bone measures in preschool children. *Journal of Bone and Mineral Research* 16:2298-2305, 2001.

Specker B, Wosje K. A critical appraisal of the evidence relating calcium and dairy intake to bone health early in life. IN: *Nutritional Aspects of Osteoporosis*, edited by Burkhardt, Dawson-Hughes, Heaney. Academic Press, San Diego, pg 107-123, 2001.

Specker, B. Editorial: The significance of high bone density in children. *Journal of Pediatrics* 139:473-475, 2001.

Adler M, Specker B. Atypical diets in infancy and early childhood. *Pediatric Annals* 30:693-680, 2001.

## **2000-2006**

Finn K, Johannsen N, Specker B. Factors associated with physical activity in preschool children. *Journal of Pediatrics* 140:81-85, 2002.

Chesney RW, Specker BL, McKay CP. Mineral metabolism during pregnancy and lactation. IN: *Disorders of Bone and Mineral Metabolism*, 2<sup>nd</sup> edition. Coe and Favus, eds. Lippincott, Williams & Wilkins: New York, pp. 347-359, 2002.

Specker BL. Are Activity and Diet Really Important for Children's Bone?" *Nutrition Today* 37:44-49, 2002.

McKay CR, Specker BL, Chesney RW. Bone and mineral metabolism during childhood. IN: *Disorders of Bone and Mineral Metabolism*, 2<sup>nd</sup> edition. Coe and Favus, eds. Lippincott, Williams & Wilkins: New York, pp. 360-380, 2002.

Kalkwarf HJ, Specker BL. Bone mineral changes during pregnancy and lactation. *Endocrine* 17:49-53, 2002.

Binkley TL, Specker BI, Wittig TA. Centile Curves for Bone Densitometry Measurements in Healthy Males and Females Ages 5-22 Yr. *Journal of Clinical Densitometry* 5:343-353, 2002.

Specker BL. The role of calcium in bone health during childhood. IN: *Osteoporosis Japan*, 10:11-16, 2002.

Specker BL. Determinants of bone mineral content in children. IN: *Calcium in childhood*. *Annales Nestle'*, Vol. 60, 2002.

Specker BL, Binkley TL. Randomized trial of physical activity and calcium supplementation on bone mineral content in 3-5 year old children. *Journal of Bone and Mineral Research* 18:885-892, 2003.

Dwivedi C, Muller LA,, Goetz-Parten DE. Chemopreventative effects of dietary mustard oil on colon tumor development. *Cancer Letters* 2003: 196:29-34. NOTE: Paper by Dr. Dwivedi acknowledged support via pilot project funding: "This investigation was supported by Ethel Austin Martin Nutrition Program of South Dakota State University."



*Hobo Days ~ 2006*

Johannsen N, Binkley T, Englert V, Niederauer G, Specker B. Bone response jumping is site-specific in children: a randomized trial. *Bone* 33: 533-539, 2003.

Specker BL. Role of physical activity on bone mineral content in young children. *Journal of Musculoskeletal Neuronal Interactions*, 3:338,340, 2003.

Wosje K, Binkley TL, Kalkwarf H, Specker B. Relationships between bone mass and circulating leptin concentrations in Hutterites. *Bone* 34:1017-1022, 2004.

Specker, BL. Nutrition in pregnancy and lactation. IN: *Nutrition and Bone Health*. Holick and Dawson-Hughes, eds. Humana Press Inc: Totowa, 2004, pp. 139-156.

Specker BL. Impact of micronutrient deficiencies on bone growth and mineralization. IN: *Micronutrient Deficiencies during the Weaning Period and the First Years of Life*, edited by S Zlotkin and J Pettifor. Nestle Nutrition Workshop Series, Vol. 54, Krager Publishing; Basel Switzerland, 153-172, 2004.

Specker BL. Nutritional influences on bone development from infancy through toddler years. *Journal of Nutrition* 134:691S-2695S, 2004.

Specker BL. Vitamin D requirements during pregnancy. *American Journal of Clinical Nutrition* 80:1740S-1747S, 2004.

Binkley T, Specker B. Increased periosteal circumference remains present 12 months after an exercise intervention in preschool children. *Bone* 35:1383-1388, 2004.



- Specker B, Binkley T, Fahrenwald N. Rural vs. non-rural differences in BMC, volumetric BMD, and bone size: a population-based cross-sectional study. *Bone* 35:1389-1398, 2004.
- Ballard TLP, Clapper A, Specker B, Binkley T, Vukovich M. Effect of protein supplementation during a 6-mo strength and conditioning program on insulin-like growth factor I and markers of bone turnover in young adults. *American Journal of Clinical Nutrition* 81:1442-1448, 2005.
- Johnson J, Mistry V, Vukovich M, Hogi-Lorenzen T, Hollis B, Specker B. Bioavailability of vitamin D from fortified process cheese and effects on vitamin D status in the elderly. *Journal of Dairy Sciences* 88:2295-301, 2005.
- Specker B, Schoenau E. Quantitative bone analysis in children: Current methodologies and recommendations. *Journal of Pediatrics* 146:726-731, 2005.
- Vukovich M, Specker B. Influence of physical activity on calcium and bone. IN: *Calcium and Bone Health*. Weaver and Heaney, eds. Humana Press Inc: Totowa, 227-246, 2005.
- Schroder BG, Griffin IJ, Specker BL, Abrams SA. Human intestinal calcium absorption from a carbonated dairy soft drink is greater than absorption from fat free milk and calcium-fortified orange juice. *Nutrition Research* 25:737-742, 2005.
- Klein GL, Fitzpatrick LA, Langman CB, Beck TJ, Carpenter TO, Gilsanz V, Holm IA, Leonard MB, Specker BL. The state of pediatric bone: Summary of the ASBMR pediatric bone initiative. *Journal of Bone and Mineral Research* 20:2075-2081, 2005.
- Specker B, Binkley T. High parity is associated with increased bone size and strength. *Osteoporosis International* 16:1969-1974, 2005.
- Kalkwarf H, Specker B. Vitamin D metabolism in pregnancy and lactation. IN: *Vitamin D*, 2nd ed. Feldman, Pike and Glorieux, eds. Elsevier, Inc: 2005.
- Binkley T, Johnson J, Vogel L, Kecskemethy H, Henderson R, Specker B. Bone measurements by peripheral quantitative computed tomography (pQCT) in children with cerebral palsy (CP). *Journal of Pediatrics* 147:791-796, 2005.
- Niederauer CM, Binkley TL, Specker BL. Effect of truncal adiposity on plasma lipid and lipoprotein concentrations. *J Nutrition in Health and Aging* 10:154-160, 2006.
- Specker B. Influence of rapid growth on skeletal adaptation to exercise. *Journal of Musculoskeletal Neuronal Interactions* 6:147-153, 2006.
- Ballard TL, Specker BL, Binkley TL, Vukovich MD. Effect of protein supplementation during 6-month strength and conditioning program on areal and volumetric bone parameters. *Bone* 38:898-904, 2006.
- Johannsen D, Johannsen N, Specker B. Influence of parent's eating behaviors and child-feeding practices on children's weight status. *Obesity Research* 14:431-439, 2006.
- DeJongh E, Binkley T, Specker B. Fat mass gain is lower in calcium-supplemented than in un-supplemented preschool children with low dietary calcium intakes. *American Journal of Clinical Nutrition* 84:1123-1127, 2006.

## **Presentations** (only the presenter's name is given)

### **1997-2001**

- Specker: "Do Human Milk-Fed Infants Require Supplemental Vitamin D?" Academy for Breastfeeding Medicine in Boston, Massachusetts, October 1997
- Specker: "Reducing Stress Fracture in Physically Active Young Servicemembers." Food and Nutrition Board, Institute of Medicine, National Academy of Sciences, December 1997
- Specker: "The New Calcium Recommendations for Children." National Dairy Council Annual Writers Workshop in St. Louis, MO, April 1998
- Specker: Symposium co-chair, "Calcium and Bone Metabolism." American Society for Nutritional Sciences, Annual Experimental Biology Meeting in San Francisco, April 1998
- Kattelman: "Effect of timing of introduction of solids on Fe and Zn status at one year of age." Presented at the American Society for Nutritional Sciences, Annual Experimental Biology Meeting in San Francisco, April 1998
- Specker: "The Dietary Recommended Intakes: Just What Are They?" Presented at the Minnesota Dietetic Association Annual Meeting in Brainerd, May 1998
- Wermers: "Sleeping is affected by gender and weight and not the timing of the introduction of solids." Presented at the Society for Pediatric Research Annual Meeting, May 1998
- Binkley: "Measurement of Cortical Bone using pQCT in 3 and 4 year old children." Presented at the Annual Hard Tissue Meeting in Sun Valley, ID, July 1998
- Specker: LJ Filer, Jr. Memorial Lecture at University of Iowa College of Medicine, December 1998

Binkley: "Bone parameters in 3 and 4 year old children as measured by peripheral quantitative computed tomography." Presented at the American Society for Nutritional Sciences, Annual Experimental Biology Meeting in Washington, D.C., April 1999

Wosje: "Bone mineral content and lifelong calcium intake and activity in a Hutterite population." Presented at the American Society for Nutritional Sciences, Annual Experimental Biology Meeting in Washington, D.C., April 1999

Rosene: "Trial of glutamine supplementation of lean body mass in wrestlers." Presented at the American Society for Nutritional Sciences, Annual Experimental Biology Meeting in Washington, D.C., April 1999

Specker: "Year 2000 Dietary Guidelines: New Thoughts for a New Millennium." American Society for Nutritional Sciences/American Society for Clinical Nutrition Public Information Committee Symposium in Washington, D.C., April 1999

Specker: National Institutes of Health, National Nutrition Month Lecture

Rosene: "The Effects of Glutamine Supplementation on Lean Body Mass and Performance in Wrestlers During a Weight Reduction Program" at the American College of Sports Medicine, May 1999

Finn: "Comparison of Actiwatch sensors and CARS on assessment of physical activity in children." Presented at the American College of Sports Medicine in Seattle, May 1999

Binkley: Abstracts presented at the American Society for Bone and Mineral Research Annual Meeting in St. Louis, September/October 1999

Specker: Invited Speaker, "Interaction between Calcium and Exercise in Children." Capitol Hill Briefing Series on Women's Health in Washington, D.C., April 2000

Specker: Invited Speaker, "The Effect of Activity and Diet on Pediatric Bone" and "The Interaction of Activity and Diet during Childhood and the Prevention of Osteoporosis." Northland Chapter American College of Sports Medicine in St. Cloud, MN, April 2000

Johannsen: "Total body bone mineral content and bone size of 3 and 4 year old children." Presented at the American Society for Nutritional Sciences, Annual Experimental Biology Meeting in San Diego, CA, April 2000

Binkley: "Anthropometric measurements, gender, activity level, calcium intake and bone measurements in healthy children age 5-12 years." Presented at the American Society for Nutritional Sciences, Annual Experimental Biology Meeting in San Diego, April 2000

Wosje: "Bone geometry and density in Hutterite females." Presented at the American Society for Nutritional Sciences, Annual Experimental Biology Meeting in San Diego, April 2000

Specker: Organized nutrition symposium and presented at the Tristate Academy of Sciences Meeting in Morehead, MN, April 2000

Specker: Presented "A critical appraisal of the evidence relating calcium and dairy intake to bone health early in life" and was chair for "Trace elements, vitamin D, vitamin K and varia" session at the 4th International Symposium on Nutritional Aspects of Osteoporosis in Lausanne, Switzerland, May 2000

Specker: Moderator and speaker, "Exercise & Nutrition as Modulating Factors in Skeletal Development of Children in Health & Disease." Pre-ASBMR Meeting on Pediatric Bone in Toronto, Canada, September 2000

Wosje: Poster presentation at American Society for Bone and Mineral Research Meeting in Toronto, Canada, September 2000

Wosje, Teresa Binkley: Posters at "Exercise & Nutrition as Modulating Factors in Skeletal Development of Children in Health & Disease" in Toronto, Canada, September 2000

Specker: Speaker, "The Biology and Genetics of Nutrition: The Impact of Early Nutrition on Health and Development." Annual Biologic Basis of Pediatric Practice Symposium in Deer Valley, UT, September 2000

Specker: Participant in the "Third Party Review of the Evidence for Food and Supplement Claims" at the Life Sciences Research Office in Washington, D.C., November 2000

Specker: Speaker at the Avanelle Kirksey Lecture Series at Purdue University, February 2001

Wosje: Oral presentation, "No benefit of CLA supplementation on body composition in overweight females" at the American Society for Nutritional Sciences, Annual Experimental Biology Meeting, April 2001

Englert: Oral presentation, "Effect of Calcium on Serum Triglyceride and Free Fatty Acid Concentrations Following a High Fat Meal" at the American Society for Nutritional Sciences, Annual Experimental Biology Meeting, April 2001

Wosje: Presentation, "Minimal Effect of CLA Supplementation on Body Composition in Overweight Females" at the North Dakota/South Dakota EPSCoR Conference, September 2001

Specker: Invited speaker, "Role of Calcium in Bone Health" at the 3rd Annual Meeting of the Japanese Society of Osteoporosis in Osaka, Japan, September 2001

Specker: Presentation, "Vitamin D Supplementation of Breastfed Infants" at the Center for Disease Control Meeting, October 2001

## **2002-2006**

- Wosje: Presentation, "CLA Supplementation, IGF-I, and Body Composition in Overweight Females" at the American Society for Nutritional Sciences, Annual Experimental Biology Meeting, April 2002
- Specker: Presented Ground Rounds on "Peak Bone Mass in Children" at the State University of New York in Syracuse, May 2002
- Binkley: Presentation, "Centile Curves for Bone Measurements in Healthy Males and Females Age 5-22 Years" at the pQCT Users Meeting in Sun Valley, Idaho, August 2002
- Specker: Poster Presentation at the Annual American Society for Bone and Mineral Research in San Antonio, TX, September 2002
- Wosje: Poster Presentation at the Annual American Society for Bone and Mineral Research in San Antonio, TX, September 2002
- Specker: Presentation, "Randomized trial of physical activity and calcium supplementation on BMC in 3-5 year old healthy children" at the American Society for Bone and Mineral Research Annual Meeting in San Antonio, TX, September 2002.
- Specker: Presentation, "Calcium Modifies Bone Response to Activity in Young Children" at the USDA Grand Forks Human Nutrition Research Center, October 2002
- Mahaney MC: Presentation, "Effects of genotype-by-sex, -age, and -physical activity interactions on bone phenotypes in a human genetic isolate" at the 17<sup>th</sup> International Puijio Symposium on Physical Activity and Health: Gender Differences Across the Lifespan in Kuopio, Finland, June 2003. (Awarded the Paffenbarger Award).
- Specker: Presentation, "South Dakota Rural Bone Health Study: Gender differences in bone vary by age and are not due to body size of activity" at the 17<sup>th</sup> International Puijio Symposium on Physical Activity and Health: Gender Differences Across the Lifespan in Kuopio, Finland, June 2003.
- Specker: Invited Speaker, "Bone Health in Childhood" at the 12<sup>th</sup> World Congress of Food Science and Technology, Feeding the World... Opportunities without Boundaries, Symposium on Feeding the Children, Chicago, July 2003.
- Specker: Invited Speaker, "Role of Physical Activity on Bone Mineral Content in Young Children" at the 33<sup>rd</sup> International Sun Valley Hard Tissue Workshop in Idaho in August, 2003.
- Specker: Invited Speaker as chair of Working Group on Optimal Clinical Trial Design in Pediatric Bone Disease, American Society for Bone and Mineral Research Annual Meeting, Minneapolis, September 2003
- Binkley: Poster Presentation, "Increases in bone area and periosteal circumference are greater with gross motor vs. fine motor exercise in preschool children: a persistent effect 12 months post-intervention." at the American Society for Bone and Mineral Research annual meeting, Minneapolis, September 2003.
- Specker: Symposium Chair, Concurrent State-of-the-Art Lecture on Optimizing Peak Bone Mass, American Society for Bone and Mineral Research Annual Meeting, Minneapolis, September 2003
- Specker: Invited Speaker, Nutrition and Bone Health Working Group "Factors Influencing Bone Development from Infancy through Toddler Years", American Society for Bone and Mineral Research Annual Meeting Minneapolis, September 2003
- Specker: Invited Speaker, "Vitamin D Requirements during Pregnancy", presented at an NIH Conference "Vitamin D and Health in the 21<sup>st</sup> Century: Bone and Beyond", Washington DC, October 2003
- Specker: Invited speaker "Impact of Micronutrient Deficiencies on Bone Growth and Mineralization," 54<sup>th</sup> Nestle Nutrition Workshop, Sao Paulo, Brazil, October 2003
- Specker: Presentation, "Increased bone size and strength with high parity" at the 1<sup>st</sup> Black Forest Forum for Musculoskeletal Interactions. Bad Liebenzell, Germany, April 2004
- Binkley: Presentation, "Total body bone mineral content per lean mass ratio and 20% distal radius cortical density are higher in estrogen replete females vs. males in a Hutterite population" at the 1<sup>st</sup> Black Forest Forum for Musculoskeletal Interactions. Bad Liebenzell, Germany, April 2004.
- Ballard: Presentation, "The effect of protein supplementation during a six month strength and conditioning program on markers of bone geometry measured by peripheral quantitative computed tomography. Presented at the 1<sup>st</sup> Black Forest Forum for Musculoskeletal Interactions. Bad Liebenzell, Germany, April 2004.
- Beare: Poster Presentation, "Dietary intake and body composition differences among Hutterite, rural and non-rural populations. Presented at the Experimental Biology Annual Meeting, 2004. FASEB 18: 2004.
- Englert: Poster Presentation, "Calcium intake does not influence change in % body fat in children. Presented at the Experimental Biology Annual Meeting, 2004. FASEB 18: 2004.
- Specker: Invited speaker "Effect of Physical Activity and Calcium Intake on Bone Geometry during Growth," Clinical Research Forum, Cincinnati Children's Hospital Medical Center, June 2004
- Specker: Invited speaker, "Possible Revision of Vitamin D Dietary Reference Intakes – Why Now?" Food & Nutrition Board, Institute of Medicine, National Academy of Sciences Symposium "Dietary Reference Intakes: Framing the Next Generation", Washington DC, December 2004

Specker: Invited Speaker, "The Influence of Rapid Growth on Skeletal Adaptation to Exercise" Harold Frost Memorial Meeting, Institute for Biophysical and Clinical Research into Human Movement, Manchester Metropolitan University, Manchester, England, May 2005

Gorres: Low vitamin D status in rural and older populations with high body fat. Presented at the Experimental Biology Annual Meeting, 2005.

Binkley: pQCT Findings in Children with Cystic Fibrosis and Cerebral Palsy vs. Control Children. Presented at the 2nd Black Forest Forum for Musculoskeletal Interactions, Bad Liebenzell, Germany, May, 2005.



*Black Forest Forum for Musculoskeletal Interactions ~ 2005*

Binkley: Bone Measurements by Peripheral Quantitative Computed Tomography in Children with Cerebral Palsy. Presented at the 3rd International Conference on Children's Bone Health, Sorrento, Italy, May, 2005

Ballard. Peripheral Quantitative Computed Tomography Bone Measurements in Children with Cystic Fibrosis. Presented at the 3rd International Conference on Children's Bone Health, Sorrento, Italy, May, 2005

Specker: Invited Speaker, "BYPL Vanguard Center", The National Children's Study Assembly Meeting, Washington, D.C. 2005

Specker: Invited Symposium Speaker, "Activity and Bone Health during Childhood: Insights Using New Technologies", American College of Sports Medicine Annual Meeting, Denver, June 2006

Binkley: Invited Symposium Speaker, "Determinants of Bone Geometry in Young Children," American Society for Bone and Mineral Research, Philadelphia, September 2006

Fahrenwald: Community partnership building in preparation for the National Children's Study (NCS): A perspective from the BYPL Vanguard Site. Presented at the American Public Health Association 134th Annual Meeting, Boston, November

Havill: Shared Genetic Effects on Bone Size and Density in the Schmiedeleut Hutterites. Presented at the American Society for Bone and Mineral Research Annual Meeting, Philadelphia, 2006

Abou Samra: Walking Age Does Not Explain Term vs. Preterm Differences in Bone Geometry. Presented at the American Society for Bone and Mineral Research Annual Meeting, Philadelphia, 2006

Binkley: Muscle Function, Not Size, is Associated with Cortical vBMD. Presented at the American Society for Bone and Mineral Research Annual Meeting, Philadelphia, 2006

## Honors & Awards

### *Bonny Specker:*

- Member, Institute of Medicine's Panel on Calcium and Related Nutrients, Food and Nutrition Board, National Academy of Sciences, 1996-1997
- Member, Institute of Medicine's Committee on Body Composition, Nutrition and Health of Military Women, Food and Nutrition Board, National Academy of Sciences, 1997
- Member, NASA Johnson Space Center Facilities Review Panel, Houston, TX, 1997
- Member, National Institutes of Health/NICHD Review Panel "Behavioral Strategies in Children and Adolescents to Prevent Osteoporosis Later in Life," 1998
- Sigma Xi, The Scientific Research Society, South Dakota State University Chapter, 1998
- Member, National Institutes of Health/NIAMS Special Emphasis Panel for P20 Applications, 1999
- Member, National Institutes of Health/NIAMS Special Emphasis Panel for K23/K24 Applications, 1999
- Member, National Institutes of Health/NIAMS Special Emphasis Panel for R03 Applications, 1999
- Member, National Institutes of Health/NCRR General Clinical Research Center Site Visit Team, 1999
- Invited Participant, Life Sciences Research Office, "Third Party Review of the Evidence for Food and Supplement Claims", November 2000
- Member, National Institutes of Health/NICHD Special Emphasis Panel: Bone Mass Density Concept Review in Children, 2000



- Participant of the Subcommittee of the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) Advisory Council discussion on “Strategies for Disseminating Information on Bone Disease,” Washington DC, December, 2001
- Center for Disease Control (CDC) expert panel on “Vitamin D Supplementation of Breast-Fed Infants,” Atlanta, October 2001
- Research Award, Sigma Xi, SDSU Chapter, 2003
- Working Group Leader, Pediatric Bone Disease Initiative for the American Society for Bone and Mineral Research Advocacy Committee, 2003
- Data Safety Monitoring Board member for several NIH/NIAMS sponsored grants, 2003-present
- Temporary Member, National Institutes of Health Skeletal Biology Development and Disease (SBDD) Study Section, 2004-present
- Ad Hoc reviewer, National Institutes of Health Endocrinology, Reproductive, Nutritional & Metabolic Sciences Study Section, 2004
- Temporary Member, National Institutes of Health Nutrition (NTN) Study Section, October & June 2004
- Mead Johnson Advisory Board on Toddler & Children Nutrition, 2004
- Member, National Institutes of Health Integrative Nutrition and Metabolic Processes (INMP) Study Section, 2004-2008
- Dairy Management, Inc., National Scientific Research Advisory Committee, 2006 –

*Mona Rosene:*

- Regional American College of Sports Medicine graduate student competition, 1999
- SDSU Sigma Xi M.S. Paper Award, 1999

*Karen Wosje*

- Numerous SDSU Sigma Xi Graduate Student Awards
- EPSCoR Ph.D. Graduate Research Assistantship Awardee, 2000
- Geraldine Clewell Doctoral Fellowship Awardee, 2001