PSIDO Lifestyle and Behavioral Medicine
Programmatic Area
Cynthia Bartok, Ph.D.

Assistant Professor of Kinesiology
Faculty Affiliate, Center for Childhood Obesity Research & Nutritional Sciences
Director, Growth and Body Composition Laboratory
Contact: cjb25@psu.edu

Research Interests: Body composition assessment in children and adults; relationship between growth patterns early in life and later risk for obesity; emergence of motor control and locomotion in children; weight management in adults and sports nutrition.
Bartok: Growth and Body Composition Lab

• Research Focus:

Methods and techniques for evaluating growth in children and body composition across the lifespan

The rules and theoretical models underlying the assessment of body composition in children

Variation in child growth & body composition due to early life experiences

Association between early growth and body composition and later obesity
Bartok: Growth and Body Composition Lab

• We use these methods in our lab:

  Air displacement plethysmograph
  - For children 6 months and up
  - Under evaluation for young children

  Skinfolds
  - Estimate of regional fat stores
  - For older children and adults
Bartok: Growth and Body Composition Lab

• Emerging methods in our lab:
  
  **Underwater Weighing**  
  • For older children and adults  
  • Under construction

  **GE Lunar iDXA**  
  • For bone and soft tissue analysis  
  • Under evaluation
Leann L. Birch, Ph.D.

Distinguished Professor of Human Development
Director, Center for Childhood Obesity Research
Co-Director, PSIDO
Contact: llb15@psu.edu

Research Focus: examining the factors that influence the developing controls of food intake from infancy through adolescence; including a focus on both predictors and consequences of eating behavior, food preferences, and on problems of energy balance, particularly obesity, dieting, and disordered eating.
Birch: Girls NEEDS Project

- **Purpose:** to identify individual, family, peer and media factors influencing girls’ eating habits, physical activity patterns, weight status and emergence of dieting

- Families were non-Hispanic, White and lived in Central Pennsylvania

- **Baseline:**
  - 197 married couples and their 5 year old daughters
  - Parents were slightly overweight, well-educated, and middle income
Birch: Girls NEEDS Project

• Design: 10-year NIH-funded longitudinal cohort study
Birch: GNP Measures

• Daughter
  • Ability/Achievement
  • Anthropometrics
  • Body Satisfaction/weight concerns
  • Child Feeding
  • Dietary Intake
  • Eating Behavior
  • Family Functioning
  • Knowledge of Dieting
  • Neophobia
  • Perceptions of Parenting
  • Peer Relationships
  • Personality/Self-Concept
  • Physical Activity
  • Physiological Health

• Mother
  • Anthropometrics
  • Background
  • Body Satisfaction
  • Weight Concerns
  • Child Activity
  • Child Feeding Practices
  • Eating Patterns
  • Dietary Intake
  • Family Functioning
  • Marital Relationship
  • Food Preference
  • General Parenting
  • Personality/Self-Concept
  • Physical Activity
  • Work Environment
Mary Jane De Souza, Ph.D.

Professor of Kinesiology
Co-Director, Women’s Health and Exercise Laboratories
Contact: mjd34@psu.edu

Research Interests: women's health and physical activity, endocrinology of the female athlete; effects of exercise on the menstrual cycle, female athlete triad (eating disorders, amenorrhea and osteoporosis); eating behaviors, food intake, and exercise, luteal phase defects and amenorrhea, bone health and osteoporosis in female athletes, and energy deficiency and bone health.
Nancy I. Williams, Sc.D.

Professor of Kinesiology
Co-Director, Women’s Health and Exercise Laboratories
Contact: niw1@psu.edu

**Research Interests:** exercise physiology; effects of alterations in energy balance on reproductive function; neuroendocrinology, metabolism, clinical issues pertaining to women's health and reproductive status (i.e., hypothalamic amenorrhea, bone loss, breast cancer).
Women’s Health and Exercise Laboratories (WHEL)

- **Location:** Department of Kinesiology, Noll Laboratory
- **Co-Directors:** Nancy I. Williams, Mary Jane De Souza

**Research Focus:**
- Effects of exercise and dietary alterations on reproductive status, bone health, and other clinical outcomes important for girls’ and women’s health

**Experimental Approaches:**
- Randomized controlled trials involving diet and exercise manipulations
- Short-term meal studies to assess gut peptide responses in relation to eating behaviours, obesity and exercise associated menstrual disturbances
- Methodological studies to validate bone and body composition measures

**Methodological Techniques**
- Assessment of menstrual status with daily urinary collections and assays for estrogen, progesterone, and luteinizing hormone
- Energy balance measures: food intake, resting metabolic rate, physical activity kcals, thermic effect of a meal
- Bone density (DXA) and pQCT (in collaboration with Dr. Shelly Nichols-Richardson), bone markers
- Biochemical determinations of gut peptides, metabolic hormones, metabolic substrates, hormones, bone markers, reproductive hormones
Ongoing Studies

**REFUEL:** To examine the effects of increased caloric intake on menstrual and bone health among physically active women who have irregular or absent menstrual cycles.

**APPETITE STUDY:** To determine if eating behavior phenotypes have unique peripheral feeding signal dynamics in adolescent girls.

**THERMIC EFFECT A MEAL AND ENERGY DEFICIENCY:** To determine if energy deficiency associated menstrual disturbances alter the thermic effect of a meal and gut peptide responses to that meal.

**VALIDATION STUDIES:** DXA assessment of body composition validated against a 4 compartment model.

**CROSS CALIBRATION STUDIES:** Prodigy, Hologic and iDXA scanner measures of bone density and body composition.
Women’s Health and Exercise Laboratories (WHEL)

Collaborative Studies

**ISIS:** Impact of antioxidant status on fertility (Hartman and Williams (PSU); Goldman (PI: Dartmouth)

**WISER SISTER:** Effects of exercise training on estrogen in BRAC gene positive women (Schmitz (UPenn) Williams (PSU)

**OWL PCOS:** Effects of lifestyle and pharmacological interventions on fecundity in PCOS women (Legro (Hershey) Williams (PSU)

**DES:** Daily Experiences Study: physical activity and menopausal symptoms (Elavsky (PSU) Williams (PSU)

**Adolescent Girls, Breast Density and Vitamin D:** Effects of menarcheal status and vitamin D on breast density (Co-PI: Knight, UToronto, De Souza, PSU)
• **Problem:** Energy deficiency caused by inadequate caloric intake for energy expenditure among exercising women can lead to irregular or absent menstrual cycles and bone loss.

• **Purpose:** To examine the effects of increased caloric intake on menstrual and bone health among physically active women who have irregular or absent menstrual cycles.

• **Hypothesis:** Increased caloric intake will increase blood levels of hormones, leading to resumption of menses and improved bone health.

• **Methodology:**
  • 12 month intervention among exercising women (18-35 years)
  • Blood and urine sampling
  • Measured energy intake and expenditure
  • Resting metabolic rate
  • DXA

• **Main Outcome Variables:**
  • Resumption of Menses
  • Hormone levels/energy status
  • Bone mineral density
Christopher N. Sciamanna, M.D.

Professor of Medicine and Public Health Sciences
Chief of the Division of General Internal Medicine
Milton S. Hershey Medical Center
Contact: cns10@psu.edu

Research Focus: examining the role of the internet to improve health and health care delivery; examining successful weight loss strategies.
   **Objective:** Identify effective weight control practices from 65 qualitative interviews.

   **Objective:** Identify effective weight control practices and degree of success for short-term weight loss and long-term maintenance.

3. Achieve Together: A Novel Interactive Weight Control Website – Stuckey, Rovniak, Kraschnewski, Lehman, Jansen, Reddy, Sciamanna
   **Objective:** Establish and assess effectiveness of a weight-loss support website based on prior work identifying habits of successful individuals.
Set your goals for this week

Now that you have added some new habits to your personal plan, you should set your goals for the upcoming week. This will help you track your progress. We recommend that you set goals to use these habits much of the time or almost always/always. When you hit the submit button, these goals are automatically sent to your email address. On the next page, you will be able to print out your weekly goals. You can also refer to your goals online at any time.

How often do you plan to use the following habits this week?: *

<table>
<thead>
<tr>
<th>Replace high-calorie foods or drinks with those that have fewer calories.</th>
<th>Always or almost always</th>
<th>Much of the time</th>
<th>About half of the time</th>
<th>Some of the time</th>
<th>Hardly ever</th>
<th>Never</th>
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<tbody>
<tr>
<td>Eat plenty of fruits or vegetables.</td>
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<tr>
<td>Eat healthy snacks.</td>
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</tbody>
</table>

* = this is a required field for you to complete

Submit

Successful habits identified by Positive Deviance - earlier work of Sciamanna et al.
Recommendations and Progress

In the past month, your weight has been pretty stable. That's great. Not gaining weight is an important goal to achieve.

This is a graph of your progress. Your target weight is 104 pounds.

HABITS THAT SEEM TO BE HELPING YOU. These are the habits that you have successfully used. You should keep using these habits in your personal plan. Click on a habit to learn more about it and how our role models used it consistently.

<table>
<thead>
<tr>
<th>Habit name</th>
<th>Goal feedback</th>
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</thead>
<tbody>
<tr>
<td>Replace high-calorie foods or drinks with those that have fewer calories.</td>
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<tr>
<td>Limit the amount of carbohydrates or carbs you eat, such as breads, pasta, rice, potatoes and crackers.</td>
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<tr>
<td>Follow a consistent exercise routine.</td>
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<tr>
<td>Write down how much you exercise.</td>
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<tr>
<td>Eat plenty of fruits or vegetables.</td>
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Danielle Symons Downs, Ph.D.

Associate Professor of Kinesiology and OBGYN
Director, Exercise Psychology Laboratory
Lifestyle and Behavioral Medicine Programmatic Chair, PSIDO
Contact: dsd11@psu.edu

Research Focus: developing and testing optimized behavioral interventions to increase physical activity and improve health for women during transition to motherhood (prenatal, pregnancy, postpartum periods); theoretically-driven biopsychosocial determinants and outcomes of exercise and health behaviors for pregnant women and their offspring
Downs: Exercise Psychology Laboratory

Research Concentration

• **Exercise Promotion**: physical activity and health interventions for women during the transition to motherhood [i.e., preconception, prenatal, and postpartum periods]

• **Theoretical Determinants**: physical activity correlates [e.g., beliefs, attitude, perceived control, social support] and social-ecological factors influencing physical activity [e.g., built environment]

• **Health Outcomes**: effects of exercise on maternal & infant health outcomes [e.g., gestational weight gain, postpartum weight retention, disease status (GDM), psychosocial health (depression), infant weight]
**Ongoing Research Projects**

- **Active MOMS:** physical activity intervention for pregnant women, including women with gestational diabetes, to increase physical activity and improve maternal/infant health outcomes (NIDDK and PSIDO funded)
  - **Collaborators:** Drs. Leann Birch, Ian Paul, Jan Ulbrecht

- **Pregnancy & Exercise Survey Study:** longitudinal cohort study examining theoretically-driven psychosocial determinants and outcomes of physical activity and eating behaviors in pregnancy and postpartum (CYFC and SSRI funded; NIH R01 prep)
  - **Collaborators:** Drs. Leann Birch, Jen Savage, Kelly Evenson (UNC Chapel Hill)
Ongoing Research Projects

• **BEAP (Beliefs about Exercise After Pregnancy) and MOMENT (MOtivating Moms for Exercise & Nutrition Together) Focus Groups:** understand women’s beliefs about exercise and healthy eating behaviors in order to build an optimized intervention using these intervention components to prevent high gestational weight gain in pregnancy (PSIDO funded; NIH R01 revision)
  • **Collaborators:** Drs. Leann Birch, Linda Collins, Barbara Rolls, Jen Savage

• **Psychological, Physical, and Environmental Barriers of Walking in Pregnancy:** Identify salient barriers to walking and develop intervention to effectively promote walking in pregnancy (SSRI funded; NIH R21 revision)
  • **Collaborators:** Drs. Jinger Gottschall, Stephen Matthews, Mallika Bose, Kelly Evenson (UNC Chapel Hill)
Center for Nutrition and Activity Promotion

• Formerly known as Pennsylvania Advocates for Nutrition and Activity Promotion (PANA)

• Joint collaborative between Penn State College of Medicine’s Department of Public Health Sciences and the Department of Pediatrics at Penn State Milton S. Hershey Medical Center

• Committed to helping youth and families in the Commonwealth of Pennsylvania learn how to eat well, engage in regular physical activity, and incorporate healthy habits into their daily life.
The work of the Center includes projects aimed at:

• Providing informative and educational programs and materials to schools, youth, and their families

• Collaborating with schools, communities, and like-minded organizations on projects related to promoting nutrition and physical activity behaviors

• Implementing research-based interventions in the school and community setting and disseminating innovative solutions and methods

• Obtaining funding and in-kind support from foundations, industry, and state/federal government sources to support our work
Center for Nutrition and Activity Promotion

Current Work

1) nrgBalance Zone school campaign – six year program, 2010/2011 enrollment is 825 schools

2) In-school and after-school educational programs for youth and their families

3) Teen health promotion campaign

4) Outreach events including participation in the 2011 Pennsylvania Farm Show

5) Research projects with Penn State Hershey clinical faculty and other sponsors
Department of Public Health Sciences at Penn State College of Medicine

• The Department of Public Health Sciences (PHS) has cultivated extensive growth in extramural funding, faculty members and staff during the past 20 years.

• Public Health Sciences has three academic divisions: Biostatistics, Epidemiology, and Health Services Research.

• Four research support teams: Data Management, Research Computing, Project Management, and Administration.