BWH
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The Home of Clinical Research at BWH

Brigham and Women's Hospital Center for Clinical Investigation

CCI Nutrition

BWH CCI Nutrition Mission Statement

- **E**ducate, train & mentor investigators, students, and colleagues in areas of nutrition research methodology, study design and implementation.

- **A**dvance nutrition research as an integral component of the research studies within the Center for Clinical Investigation.

- **T**ranslate nutrition research findings for health professionals and public health policy and application.

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CCI Nutrition Core

- Experienced staff specialized in nutrition research
- Metabolic research kitchens for production of controlled nutrient diets
- Validated databases for nutrient controlled diet calculation/diet analysis
- Research quality equipment for anthropometric, body composition and calorie expenditure measures

CCI Nutrition Staffing

Diet Office

- 2.5 FT Registered Dietitians
- 2FT Nutrition Research Assistants

Metabolic Kitchen

- 3 FT Metabolic Kitchen Technicians

- Years of Experience
  - Over 80 years of combined nutrient controlled diet production experience
  - Over 40 years of combined nutrition research design and implementation experience

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CCI Nutrition Locations

Inpatient : BWH Tower 9AB Metabolic Kitchen and Diet Office

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CCI Nutrition Locations (cont'd)

Outpatient : 221 Longwood Avenue

Satellite Kitchen and Storeroom (food and supplies)

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Metabolic Research Kitchen

- Equipment and standardized procedures to properly weigh controlled meals
- Expertise to develop recipes to meet nutrient targets
- Service both inpatient & outpatient diets

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Nutrient Controlled Diets

What we provide:

Diets individualized for food preferences and energy needs

Menus designed for particular nutrient needs depending on protocol specifications

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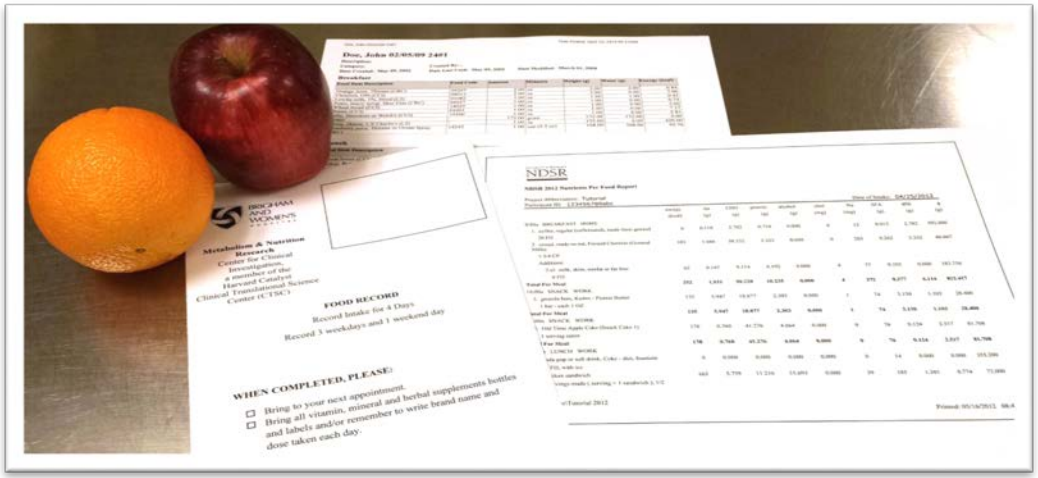
Nutrient Software

- Nutrition Data System for Research (NDSR)
  - Used for diet analysis of food records
- ESHA Food Nutrition Analysis Software
  - Used for controlled nutrition diet calculation, glycemic index
- Pronutra
  - Used for controlled nutrient diet calculation, intake tracking and data export



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Nutrition Research Equipment

- Bioelectrical Impedance Analyzer (BIA)
  - Body fat measurement
- Anthropometric equipment
- Skin fold calipers
- Indirect Calorimeters

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Past Studies

- DASH

  Appel LJ, et al. A Clinical Trial of the Effects of Dietary Patterns on Blood Pressure. JAMA. 1997; 336:1117-24.

- DASH Sodium

  Sacks FM, et al. Effects on Blood Pressure of Reduced Dietary Sodium and the Dietary Approaches to Stop Hypertension (DASH) Diet. JAMA. 2001;344:3-10.

- OMNI Heart

  Appel LJ, et al. Effects of Protein, Monounsaturated Fat, and Carbohydrate Intake on Blood Pressure and Serum Lipids: Results of the OmniHeart Randomized Trial. JAMA. 2005; 294:2455-2464.

- OMNI Carb

  Sacks FM, et al. Effects of High vs Low Glycemic Index of Dietary Carbohydrate on Cardiovascular Disease Risk Factors and Insulin Sensitivity: The OmniCarb Randomized Clinical Trial. JAMA 2014; 312:2531-2541.

- Popular Diets

  Ebbeling CB, et al. Effects of Dietary Composition on Energy Expenditure During Weight-Loss Maintenance. JAMA. 2012;307:2627-2634.

- Metabolic Shift Work

  Morris, CJ, et al. Endogenous circadian system and circadian misalignment impact glucose tolerance via separate mechanisms in humans. PNAS. 2015; 112: 2225-2234.

Effects of Protein, Monounsaturated Fat, and Carbohydrate Intake on Blood Pressure and Serum Lipids

Results of the OmniHeart Randomized Trial

Lawrence J. Appel, MD, MPH
Frank M. Sacks, MD
Vincent J. Carey, PhD
Eva Obarzanek, PhD
Janis F. Swain, MS, RD
Edgar R. Miller III, MD, PhD
Paul R. Conlin, MD
Thomas P. Erlinger, MD, MPH
Bernard A. Rosner, PhD
Nancy M. Laranjo
Jeanne Charleston, RN

Context Reduced intake of saturated fat is widely recommended for prevention of cardiovascular disease. The type of macronutrient that should replace saturated fat remains uncertain.

Objective To compare the effects of 3 healthful diets, each with reduced saturated fat intake, on blood pressure and serum lipids.

Design, Setting, and Participants Randomized, 3-period, crossover feeding study (April 2003 to June 2005) conducted in Baltimore, Md, and Boston, Mass. Participants were 164 adults with prehypertension or stage 1 hypertension. Each feeding period lasted 6 weeks and body weight was kept constant.

Interventions A diet rich in carbohydrates; a diet rich in protein, about half from plant sources; and a diet rich in unsaturated fat, predominantly monounsaturated fat.

Main Outcome Measures Systolic blood pressure and low-density lipoprotein cholesterol.

The New England Journal of Medicine

VOLUME 336 APRIL 17, 1997 NUMBER 16

A CLINICAL TRIAL OF THE EFFECTS OF DIETARY PATTERNS ON BLOOD PRESSURE

LAWRENCE J. APPEL, M.D., M.P.H., THOMAS J. MOORE, M.D., EVA OBARZANEK, PH.D., WILLIAM M. VOLLMER, PH.D., EY, M.D., M.H.S., FRANK M. SACKS, M.D., GEORGE A. BRAY, M.D., THOMAS M. VOGT, M.D., M.P.H., 'LER, M.D., MARLENE M. WINDHAUSER, PH.D., R.D., PAO-HWA LIN, PH.D., AND NJERI KARANJA, PH.D., FOR THE DASH COLLABORATIVE RESEARCH GROUP*

Endogenous circadian system and circadian misalignment impact glucose tolerance via separate mechanisms in humans

Christopher J. Morris[a,b,1], Jessica N. Yang[a], Joanna I. Garcia[a], Samantha Myers[a], Isadora Bozzi[a], Wei Wang[a,b], Orfeu M. Buxton[a,b,c], Steven A. Shea[a,b,d], and Frank A. J. L. Scheer[a,b,1]

Effects of Dietary Composition on Energy Expenditure During Weight-Loss Maintenance

Cara B. Ebbeling, PhD
Janis F. Swain, MS, RD
Henry A. Feldman, PhD
William W. Wong, PhD
David L. Hachey, PhD
Erica Garcia-Lago, BA
David S. Ludwig, MD, PhD

Context Reduced energy expenditure following weight loss is thought to contribute to weight gain. However, the effect of dietary composition on energy expenditure during weight-loss maintenance has not been studied.

Objective To examine the effects of 3 diets differing widely in macronutrient composition and glycemic load on energy expenditure following weight loss.

Design, Setting, and Participants A controlled 3-way crossover design involving 21 overweight and obese young adults conducted at Children's Hospital Boston and Brigham and Women's Hospital, Boston, Massachusetts, between June 16, 2006, and June 21, 2010, with recruitment by newspaper advertisements and postings.

The New England Journal of Medicine

VOLUME 344 JANUARY 4, 2001 NUMBER 1

EFFECTS ON BLOOD PRESSURE OF REDUCED DIETARY SODIUM AND THE DIETARY APPROACHES TO STOP HYPERTENSION (DASH) DIET

FRANK M. SACKS, M.D., LAURA P. SVETKEY, M.D., WILLIAM M. VOLLMER, PH.D., LAWRENCE J. APPEL, M.D., GEORGE A. BRAY, M.D., DAVID HARSHA, PH.D., EVA OBARZANEK, PH.D., PAUL R. CONLIN, M.D., EDGAR R. MILLER III, M.D., PH.D., DENISE G. SIMONS-MORTON, M.D., PH.D., NJERI KARANJA, PH.D., AND PAO-HWA LIN, PH.D., FOR THE DASH–SODIUM COLLABORATIVE RESEARCH GROUP

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Summary of CCI Nutrition Services

- Nutrition research design consultation
- Development and production of controlled nutrient diets
- Participant compliance monitoring
- Nutrient intake collection, analysis, and assessment
- Anthropometric measurements
- Indirect calorimetry testing
- Bioelectric Impedance Analysis (BIA)
- Group and individual education and counseling

Our Staff