

# Fit and healthy for a lifetime



UNC public health faculty, students and alumni discover ways to trim down the obesity epidemic

A 10-year-old girl runs into her house in tears. During her first day of fifth grade at a new school, children made fun of her weight. At recess, nobody chose her for their soccer team, saying she ran too slowly to keep up. Some boys called her names. *Mommy, she cries, am I always going to be fat?*

Her mother cringes, hearing echoes of the taunts from her own childhood. She wants to spare her daughter the low energy and poor self-esteem that she endures as an obese adult. Even more, she doesn't want her daughter to face the same high risk of disease.

But her mind races to statistics she's read, compiled by the Robert Wood Johnson Foundation ([www.rwjf.org](http://www.rwjf.org)) and the Trust for America's Health (<http://healthyamericans.org>). In 2010, more than 25 percent of adults in 38 states are obese. (Just 10 years ago, no state had an obesity rate above 20 percent.) More than 12 million American children, ages 10 to 17, are obese.

Her crisis – her daughter's crisis – has become epidemic.

These days, many agents – from First Lady Michelle Obama to the Centers for Disease Control and Prevention, from insurance companies to school nutrition counselors – seek ways to control the crisis. Mrs. Obama's initiative, "Let's Move" ([www.letsmove.gov](http://www.letsmove.gov)),

has the audacious goal of solving the obesity epidemic in one generation. "[Obesity] is a major public health threat right now," she said, announcing the program, "so just imagine what we're going to be facing in 20 or 30 years if we don't get on this issue."

The American Institute for Cancer Research (AICR) reports that excess body fat causes approximately 103,000 cases of cancer in the United States every year.

"Many people are aware of the role of obesity when it comes to increasing the risk of cardiovascular disease and type 2

diabetes," says Kelly B. Browning, AICR executive vice president and member of the School's Public Health Foundation board of directors, "and we at AICR want to make sure people know that excess body

fat also increases the risk for cancer."

For more than three decades, the UNC Gillings School of Global Public Health has been a recognized world leader in discovering evidence-based, creative and sustainable ways to prevent obesity and to help people lose weight. Mrs. Obama cited UNC's NAP SACC program (see page 9), aimed at improving nutrition and increasing exercise in child care centers throughout North Carolina, as an example of a creative, successful intervention.

"We have a world that consumes more saturated fat and more meat and dairy products than we could have imagined 10 to 20 years ago," says Barry Popkin, PhD, Carla Smith Chamblee Distinguished Professor of Global Nutrition at UNC Gillings School of Global Public Health. "Even in developing countries now, there are more obese people than there are hungry people."

Popkin is one of several School researchers advocating for policy changes at local, state, national and international levels that would help modify behavior, including a call for higher taxes on sugar-sweetened beverages to discourage people from drinking them.

Maintaining healthy weight is not only about "looking good." It's about *feeling* good



Kelly Browning



Dr. Barry Popkin



– having energy to enjoy life and minimizing disease risks that strain the health care system and slow productivity.

Faculty members and students in UNC’s renowned nutrition department – based in the public health and medical schools – are finding solutions. For example, nutrition professor Melinda Beck, PhD, uses mouse models to explain the link between obesity and higher mortality rates from influenza. Professor Rosalind Coleman, MD, studies hepatic insulin resistance and inborn errors of carbohydrate and lipid metabolism. Researchers including Kari North, PhD, associate professor of epidemiology, and Daniel Pomp, MD, professor of genetics, nutrition, and cell and molecular physiology, look at genetic factors that may contribute to obesity and related diseases.

Other researchers, including Peggy Bentley, PhD, nutrition professor and the School’s associate dean for global health, Miriam Labbok, MD, Professor of the Practice of maternal and child health and director of the School’s Carolina Global Breastfeeding Institute, and Elizabeth Mayer-Davis, PhD, nutrition professor and vice president of the American Diabetes Association, search for critical information about what and how we feed infants and young children. Nutrition professor Dianne Stanton Ward, EdD, explores ways to increase activity and healthy eating for children in child care settings.

June Stevens, PhD, nutrition chair, and associate professors Penny Gordon-Larsen, PhD, Deborah Tate, PhD, and others, find interventions to help adolescents lose weight or avoid gaining extra pounds. Tate’s creative approaches include text messaging, active video gaming and nutrition counseling to help during this critical period of development. Recent alumna May May Leung, PhD, used manga comics (Japanese comic art) to pro-



Dr. June Stevens

mote positive health behaviors in youth. (See page 13.) Other approaches are aimed at adults. Tate and associate professor Laura Linnan, ScD, assess the usefulness of workplace-centered weight loss programs. Professors Alice Ammerman, DrPH, and Marci Campbell, PhD, teach communities about the benefits of eating fresh fruits and vegetables. Epidemiology professor Marilee Gammon, PhD, examines the connection between weight and exercise, and the impact both have upon multiple diseases, including cancer, diabetes, heart disease and stroke. Others, including Anissa Vines, PhD, research assistant professor of epidemiology, search for causes of racial disparities in obesity and related diseases.

Their research is conducted across North Carolina in towns such as Kinston, Hillsborough, Clinton and Greensboro. The search for answers extends throughout the world, with research projects in China, India, Mexico, Philippines and the Arctic Circle. This issue of *Carolina Public Health* describes only some of the obesity-related work in which faculty members and students are involved.

“Obesity is a preventable cause of disease and death that has a huge impact on quality of life and health care costs,” says nutrition chair Stevens, AICR/WCRF Distinguished Professor of nutrition and epidemiology. “It is important that we train the next generation of students to build on what we are now discovering about obesity in order to create new solutions. There are so few individuals trained to understand the biologic, behavioral and population sciences needed

to effectively combat the obesity epidemic. The School’s approaches address health and nutrition at all stages of people’s lives.”

To educate doctors about nutrition-related disease, Steve Zeisel, MD, PhD, Kenan Distinguished Professor of nutrition at the School and director of the Nutrition Research Institute in Kannapolis, N.C., has developed a groundbreaking Nutrition in Medicine course for medical students and practicing physicians. (See [www.med.unc.edu/nutr/nim](http://www.med.unc.edu/nutr/nim).) The online materials, made available free to medical students, are used by more than 100 U.S. medical and osteopathic schools and by more than 50 international institutions. Also available is a new online training program, Nutrition Education for Practicing Physicians (NEPP), funded by the National Cancer Institute.

“We have scientific evidence explaining the role of nutrition in preventing and managing most of the leading causes of death in the U.S.,” says Zeisel. “Physicians are uniquely positioned to emphasize to patients the importance of nutrition in preventing and managing chronic disease. However, physicians must be prepared to give specific advice about nutrition to patients.”



Dr. Steve Zeisel

Maybe one day, when the 10-year-old is grown and has a child of her own, new prevention strategies, combined with better understanding of nutrition, genetics and behavior management, will reduce the chances that she and her child will face the dangers of obesity. With effort, they will be part of a more energetic, healthier world.

–Ramona DuBose