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UNIVERSITY OF  
**SOUTH CAROLINA**  
Arnold School of Public Health  
Center for Research in Nutrition & Health Disparities

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## The State of Nutrition & Food-Systems Change in S.C.

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**Executive Summary:** The National Prevention Strategy provides a framework and specific recommendations for food-systems change, and although the nation understands that nutrition and food systems are inextricably linked to the health of our communities, there is a shortage of trained professionals to lead and direct these efforts. Therefore, students that receive a minor in Nutrition and Food Systems through the Department of Health Promotion, Education and Behavior at USC will possess competencies enabling them to guide communities in transforming our food systems to promote environmental sustainability, improve nutritional health and address social justice. The minor will not only fulfill student interests in food and nutrition but also build USC's institutional expertise in nutrition and food-systems change for childhood obesity prevention by offering courses that focus on the production, processing, retail, consumption and disposal of food.

**Eleven of the 15 top leading causes of death are potentially nutrition-related (Hogge).** Dietary risk factors and physical inactivity collectively accounted for 10.0% (95% UI 9.2–10.8%) of the global disability-adjusted life years in 2010, with the most prominent dietary risks being diets low in fruits and those high in sodium (Stephen et al.). Obese adults are at risk for many serious health conditions, including high blood pressure, high cholesterol, type 2 diabetes and its complications, coronary heart disease, stroke, gallbladder disease, osteoarthritis, sleep apnea and respiratory problems, as well as certain cancers. Children with a high body mass index (BMI), one indicator of excess body weight, are more likely than those with a normal or recommended BMI to have insulin resistance, high blood pressure, asthma, depression and poor self-esteem. In addition to these risk factors, overweight status or obesity in childhood may negatively affect health in adulthood, in part because obese children are likely to become obese adults (SC Obesity Burden Report).

In 2009–2010, 35.7% of U.S. adults and 16.9% of U.S. children and adolescents were obese (Ogden et al. 1). In 2010, three of every five (67.4%) adults in South Carolina were either overweight or obese (SC Obesity Burden Report). In 2011, 29.6% of S.C. high school students were overweight or obese (SC Obesity Burden Report). Obesity can be a result of not only food quantity but also a lack of access to fresh fruits and vegetables. According to the United States Department of Agriculture (USDA), one out of every five households is food insecure (USDA.gov). It is also estimated that 23.5 million people, including 6.5 million children, live in food deserts (Leise 1). In South Carolina, there are 1,632 rural and 4,897 urban food deserts (Liese 1). Additionally, modern lifestyles, including being sedentary with a heavy reliance on processed foods, when combined with the high prevalence of food deserts only increase the risks for obesity and related chronic diseases, particularly for individuals living in poverty (*Food Desserts: Lack of Access to Food Stores Growing Concern across SC*).



## **The public's health is threatened by rising antibiotic resistance; chemicals and pathogens contaminating our food, air, soil and water; depletion of natural resources; and climate change.**

These threats have enormous human, social and economic costs that are growing, cumulative and unequally distributed. These issues are all related to food—what we eat and how it is produced. The U.S. industrial food system provides plentiful, relatively inexpensive food, but much of it is unhealthy, and the system is not sustainable. Although most U.S. food consumption occurs within this industrial system, healthier and more sustainable alternatives are increasingly becoming available (*Towards a Healthy, Sustainable Food System*).

## **Local and regional food systems also have positive effects on communities.**

The growth of local and regional food systems promotes healthier eating habits. People who shop at farmers' markets tend to come home with more fruits and vegetables in their shopping bags. Expansion of local food systems could ultimately help reduce health care costs from obesity and other health problems that are linked to a diet dominated by processed foods. Our current consolidated U.S. food system accounts for 16% of the country's energy use and is a significant contributor to climate change. If more communities shifted their diets to eating fresh fruits and vegetables as a substitute for heavily processed foods, the environment would benefit from the reduced energy usage ("Expand Healthy Food Access" 25-26).

The expansion of local and regional food systems also supports employment, incomes and output in rural communities. Direct marketing channels, such as farmers' markets, stimulate rural economies because a greater percentage of sales revenues are retained locally. Further, farmers may purchase equipment and raw materials from local suppliers. Such transactions increase labor and, consequently, household incomes, resulting in additional spending. An important finding from the literature is that under various scenarios, further expansion of local and regional food systems has the potential to create tens of thousands of additional jobs ("Expand Healthy Food Access" 2).

**The National Prevention Council Action Plan is the next step in the federal implementation of the National Prevention Strategy, which serves as a comprehensive plan to tackle such issues as obesity, tobacco use, health disparities and chronic disease.**

The National Prevention Council was created through the Affordable Care Act and builds from the vision, goal, recommendations and actions of the landmark National Prevention Strategy, which aims to increase the number of Americans who are healthy at every stage of life. Healthy eating is one of the priorities listed in the National Prevention Strategy, with the goal of implementing policies, systems and environmental changes, in addition to targeted strategies to improve healthy food and beverage choices across the lifespan (Healthcare.gov).

The National Prevention Strategy provides a framework and specific recommendations for food-systems change, and although the nation understands that nutrition and food systems are inextricably linked to the health of our communities, there is a shortage of trained professionals to lead and direct these efforts. Therefore, students that receive a minor in Nutrition and Food Systems through the Department of Health Promotion, Education and Behavior at USC will possess competencies enabling them to guide communities in transforming our food systems to promote environmental sustainability, improve nutritional health and ensure social justice.

**Currently, there are three universities that offer undergraduate nutrition-related majors, but none offers a food-systems change minor.**

The Department of Food, Nutrition and Packaging Sciences (FNPS) at Clemson University manages two undergraduate degrees, one in Food Science and one in Packaging Science. Students in the Food Science B.S. program must select a concentration area: Food Science & Technology or Nutrition & Dietetics. Students in the Packaging Science program can choose from the following emphasis areas: Distribution, Transportation and Engineering Technology; Materials; Food and Health Care Packaging; and Package Design and Graphics (Clemson.edu).

The undergraduate program at Winthrop University offers a prerequisite for applying to accredited dietetic internships. Students completing the B.S. in Human Nutrition receive a Didactic Program in Dietetics Verification Statement that is required for dietetic internship applications. Because of their extensive background in nutrition and other sciences, including chemistry, human physiology and microbiology, many Winthrop program graduates continue their education and enroll in post-baccalaureate programs, including Dentistry; Health Administration; and Medicine (Winthrop.edu).

The Department of Family and Consumer Sciences at South Carolina State University manages the Nutrition and Food Management (NFM) program. Students may choose either the Nutrition or the Food Management option. Students who complete the Nutrition option become eligible to apply for an American Dietetic Association (ADA)-approved dietetic internship. Upon successful completion of the dietetic internship, students are eligible to take the registration examination for Registered Dietitians. The Food Management option emphasizes areas of management and business and is designed for career opportunities in the hospitality industry and other food service areas. Students who choose the Food Management option, however, are not eligible for a dietetic internship (SCSU.edu).

At the University of South Carolina (USC), we currently have more than 1,200 undergraduate Exercise Science majors and about 450 undergraduate Public Health majors, in addition to Environmental Studies, Business and Communications majors with interests in nutrition. About 150 students enroll in the Department of Health Promotion, Education and Behavior's (HPEB) applied nutrition course each semester, and many of these students would form the cohort of students interested in the minor. The Green Quad also offered a sustainable foods course for undergraduates for the first time in 2011 (Jones et al.).

USC offers a nationally unique set of expertise and training, encompassing a systems perspective on health. The committee to develop the minor includes an interdisciplinary team of faculty, with leadership from Exercise Science, HPEB and Sustainable Carolina. Sustainable Carolina is made up of the following Campus Departments, Offices and Community Organizations: Office of Sustainability; Campus Housing; Green Quad Living/Learning Community; Outdoor Recreation; Learning Center for Sustainable Futures; School of Environment and Sustainability; Healthy Carolina; Campus Landscaping Department; Campus Transportation Department; Campus Facilities; and Campus Wellness.

The minor will not only fulfill student interests in food and nutrition but also build USC's institutional expertise in food-systems change for childhood obesity prevention by offering courses that focus on the production, processing, retail, consumption and disposal of food (Jones et al.).

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