

# Bridging the Nutrition Gap for Chefs

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Currently, chefs are lost with the task of searching for and interpreting research-based, up-to-date nutrition information on their own. As a leader in culinary science, the Food Science and Human Nutrition Department at Clemson University, Clemson, S.C., is prepared to fill the gap between nutrition information and practical culinary applications by providing culinary-nutrition materials and programs for chefs nationwide. Clemson has been fully engaged and committed to the research, design and delivery of nutrition for chefs, using mechanisms such as undergraduate research teams, a new state-of-the-art research kitchen and the establishment of CU CHEFS® (Clemson University's Cooking and Healthy Eating Food Specialists), a trademarked logo under which numerous hands-on culinary and nutrition-education outreach programs have been created and demonstrated throughout communities and industries.

## Clemson University bridging the gap

Assisting in this ongoing commitment and pursuit for the expansion of culinary nutrition knowledge is Clemson's Culinary Science Creative Inquiry Undergraduate Initiative (CI). This program consists of 160 students forming 18 specialized teams that engage in food-related research projects.



## Chef's portioning habits

In recent decades, the frequency of eating out and the prevalence of obesity has increased dramatically, making the importance of controlling energy intake in the restaurant setting more significant. Chefs play an integral role in preparing and serving healthy food. While surveys conducted by Clemson have reported that chefs recognize the importance of nutrition in menu planning, many are preparing meals that are inconsistent with U.S. dietary guidelines. Little is known about chefs' opinions of ingredient modification for healthy recipes or their role in determining portion sizes in the U.S.

I conducted a study in conjunction with Pennsylvania State University researchers

This side-by-side comparison of a 500-calorie lunch shows a fast-food ¼ lb. hamburger, 1.5 oz. fries and 8 oz. regular soda vs. the *Volumetrics* chicken-salad sandwich, 1 serving of *Volumetrics* Pepper Slaw, 1¼ cups *Volumetrics* vegetable barley soup and 12 oz. diet soda.

to determine the portioning habits of chefs. A survey was distributed to 300 chefs attending various culinary and research-chef meetings to obtain information about who establishes restaurant portion sizes, factors influencing these decisions, what food portion sizes are being served in restaurants and chefs' opinions regarding nutrition information and weight management. While 76% of chefs thought they served "regular" portions, they actually served portions two to four times larger

than serving sizes recommended by the U.S. government (Condrasky et al., 2007. Obesity. 15: 2086-94; USDA, 2005).

The study also found that while chefs do believe that the amount of food served influences customer consumption and that large portions pose problems for weight management, their attitudes varied regarding whether or not it is the customer's responsibility to eat a reasonable amount of food when served a large portion. Since portion size is a major determining factor of energy intake, and the results of the study imply cultural norms and cost are the greatest influences in determining restaurant portion sizes, strategies are needed to encourage chefs to provide and promote portions that are appropriate for customers' energy requirements. Pending legislation for nutrition labeling in restaurants has already begun to generate awareness.

### **Nutrition news for chefs**

Until recently, a chef's plate had neither room nor genuine need for a garnish of nutritional concepts, but times have changed. Chefs demonstrate an interest in nutrition and want to make a difference. For example, chefs are tackling the national problem of children and weight. The children of today are the determining factors for the future of our nation's health condition. Chefs want to know what they can do to help in this healthy initiative needed to change our unhealthy demographics.

This past year, I was asked by the American Culinary Federation to assist with an ad hoc task force in the design and delivery

of the "Nutrition News for Chefs" eight-hour refresher course at all four regional conferences and the national convention. Lessons revolved around the topics of healthy lifestyles, nutrients, functional ingredients, new products and resources, food allergens and marketing for healthy menus. These sessions provided the foundation of a greater understanding of what chefs wanted to know more about and what questions their customers were asking them in their restaurants relative to nutrition, ingredients and healthy recipes.

Chefs who participated in the nutrition refresher were asked to complete a pre- and post-test on the course material. The test spanned general nutrition concepts to help gather information regarding chefs' current knowledge base of nutrition. For instance, most chefs seemed to possess a broad understanding and awareness on issues such as food labeling, organic products and various measures of food substituting for fat reduction, while many seemed less experienced with concepts pertaining to portion size, serving size, body mass index, the new food guide pyramid (MyPyramid) and fiber recommendations.

### **Chefs plate-up nutrition concerns**

During time spent with the chefs attending the ACF course, we attempted to learn more about chefs' culinary nutrition concerns and interests. Clemson views culinary nutrition as an integration: culinary skills and nutrition knowledge. The main idea involves combining the practicality of the culinary arts and the increasing necessity of nutrition principles to create an innovative outlook

on food prepared with culinary confidence and nutrition alertness. At the forefront for culinary nutrition, Clemson decided to turn the tables, since people are always asking chefs the questions. Now, it is the chefs' turn to ask the questions. What are the needs and concerns of chefs when it comes to nutrition? What issues do they face? After evaluating a survey distributed to chefs at ACF events in Cincinnati, Kansas City, Mo., Las Vegas, Salt Lake City and Williamsburg, Va., the chefs inspired a six-course sampling based on their nutritional interests.

### **First course: healthy cooking techniques**

A chef's primary goal is to provide food that impresses, inspires and satisfies customers so that they will keep coming back for more. With customer satisfaction in mind, consumers have expressed the need for health without sacrificing taste. Case studies investigated by the Keystone Report ([www.keystone.org](http://www.keystone.org)) revealed that companies using healthy tactics, such as substituting lower-calorie ingredients without compromising taste and employing cooking techniques that resulted in fewer calories but yielded strong flavor, were successful in maintaining and gaining customer approval.

### **Second course: vegetarianism**

Many restaurants have begun catering to a new wave of diners by offering a selection of vegetarian-friendly dishes. Only about 2% to 3% of the U.S. population claims to never consume meat, fish or fowl and, thus, are vegetarians. However, the number of customers who order meatless dishes when

eating out is a completely different story. The Vegetarian Resource Group (VRG) organized a Zogby Poll in 1999 and 2008 and found that in both years more than half the population “sometimes, often, or always orders meatless dishes” ([www.vrg.org](http://www.vrg.org)).

### Third course: diabetes and heart disease

Most chefs would agree that “diets” or diet principles have no place in the kitchen; however, with diet-related diabetes and heart disease among the top causes of death in the U.S., there remains a looming public health crisis. DASH (Develop Approaches to Stop Hypertension) diet plan has been receiving much deserved attention lately, because its diet principles center around eating foods that lower the risk of heart disease by using simple concepts that maximize health and flavor ([www.dashdiet.org](http://www.dashdiet.org)). Chefs can capitalize on dishes that highlight fruits, vegetables and fiber while reducing sodium and fat.

### Fourth course: allergies

Every year, food allergies are responsible for approximately 30,000 cases of severe allergic reactions, 2,000 hospitalizations and 150 deaths ([www.niaid.nih.gov/about/organizations/dait/PDF/june30\\_2003.pdf](http://www.niaid.nih.gov/about/organizations/dait/PDF/june30_2003.pdf)). Eight

foods account for 90% of all food-allergy reactions: cow’s milk, egg, peanut, tree nuts such as pecans and walnuts, fish, shellfish, soybeans and wheat. Being aware and conscientious about food allergies and intolerances can help chefs be better equipped to substitute ingredients and serve the varied needs of customers.

### Fifth course: portion control

A common misconception is that portion equals serving size. In today’s restaurants and even at home the servings recommended by USDA are much smaller than the actual portions served, which means that unless daily menu planning is carried out, far more calories than needed can be consumed. Unfortunately, people have a tendency to follow a “clean plate” mindset by eating a consistent amount of a dish without considering the caloric value. Energy density is a concept that takes into account the volume of food with the amount of calories. Lowering the density of calories in foods is a way to reduce calorie intake and help with weight management (Rolls, BJ, 2003. *The Supersizing of America: Portion Size and the Obesity Epidemic*. Nutr. Today. 38:42-53). “The *Volumetrics* Eating Plan” developed by Barbara Rolls, professor of nutritional sciences at Pennsylvania State University, focuses on reducing the energy density of foods using the latest research on controlling hunger while managing calories (Rolls, BJ, 2005 “The *Volumetrics* Eating Plan—Techniques and Recipes for Feeling Full on Fewer Calories.” HarperCollins Publishers, New York). Chefs with an eye on flavor provide recipes and

techniques that increase vegetables, fruits and fiber while reducing the fat content realize reduced calories in flavorful dishes. When chefs apply *Volumetrics* principles to their menu planning, the end result is foods packed with flavor and texture that leave customers feeling satisfied.

### Sixth course: fats

Fats have been getting a lot of attention for some time now, and chefs have taken notice by asking for clarification on what are good and bad fats. An understanding of the chemistry and nutrition background of saturated, trans, cholesterol and other fats can allow chefs to make healthful fat selections for themselves and those they are feeding.

### Dessert

Chefs crave a better understanding of nutrition. While dessert, in the culinary sense, is the last course before complete dining satisfaction is achieved, the “dessert” that chefs crave is composed of rich resources topped with knowledge and drizzled with keen insights on nutrition, which is why there exists a continual need to study, analyze and distribute well-founded, researched information. There is a growing breadth of information to learn and understand related to culinary nutrition, and as long as chefs keep asking questions, Clemson University is committed to finding the answers.

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