

CULINARY MEDICINE AND A MULTISITE LONGITUDINAL STUDY: COOKING FOR HEALTH OPTIMIZATION WITH PATIENTS (CHOP)

N. Bell,¹ E. Schiesler,¹ N. Sisk,¹ A. VanBeber,¹ L. Dart,¹ J. Stevenson,¹ D. D'Agostino,² P. Smith-Barbaro,² D. Farmer,² K. Argenbright,³ K. Aspegren,³ D. Monlezun,⁴ L. Sarris,⁴ T. Harlan,⁴

¹Texas Christian University, Fort Worth, TX, ²University of North Texas Health Science Center and Texas College of Osteopathic Medicine, Fort Worth, TX, ³Moncrief Cancer Institute, Fort Worth, TX, ⁴Goldring Center for Culinary Medicine at Tulane University School of Medicine, New Orleans, LA

Background

Preventative health and disease management has become one of the most talked about areas of medicine during recent years..

With chronic diseases such as type II diabetes, coronary heart disease and morbid obesity on the rise, it has become increasingly important for doctors and medical professionals to counsel their patients and clients about preventative health measures that include nutrition and healthful eating habits.

With this in mind, the **Culinary Medicine** curriculum was developed in 2012 by Tulane University and the Goldring Center for Culinary Medicine (GCCM) to train medical professionals about nutrition and healthy eating practices. Currently, 22 medical schools and institutions nationwide provide this program and also participate in a 10-year longitudinal study (Cooking for Health Optimization with Patients, CHOP) to assess training outcomes.



Study Purpose

The purpose of this research was to examine 2014-2015 data from the *Cooking for Health Optimization with Patients (CHOP)* longitudinal study initiated by Tulane University and the Goldring Center for Culinary Medicine.

Methods

During 2014-2015, 66 medical students from UNTHSC Texas College of Osteopathic Medicine participated in the Culinary Medicine course. Students were assessed following course participation by completing a 4-part survey including demographics, attitudes, dietary habits, and degree of proficiency in professional competencies related to clinical nutrition knowledge.

Student responses were compared with 554 CM and non-CM students from seven partner institutions. Study procedures were approved by Tulane University and Texas Christian University IRB, and participants' informed consent was obtained. Data was analyzed to meet study objectives (SPSS, $P \leq 0.05$).



Culinary Medicine

The Culinary Medicine curriculum was first piloted in Fort Worth, TX in 2014 and coordinated by medical and dietetics faculty from the University of North Texas Health Science Center (UNTHSC), Texas College of Osteopathic Medicine (TCOM), Texas Christian University (TCU) and Moncrief Cancer Institute.

Weekly Classes

Six weekly sessions include principles and dietary practices team-taught by faculty and dietetics students about (1) the Mediterranean Diet and healthy eating, (2) carbohydrates and diabetes, (3) fats/lipids and cardiovascular disease, (4) sodium and renal disease, (5) proteins and plant based/vegetarian diets, (6) food allergies/sensitivities.

A typical lesson integrates nutrition and a hands on cooking class with biochemistry and physiology. Case study exercises, pre-class quizzes, and meal planning.

Students are also taught how to prepare more nutritious dishes and modify recipes by focusing on flavor building, incorporating more fruits/vegetables, substituting healthier fats, and reducing sodium.

22 CHOP Institutions

1. Tulane University School of Medicine,
2. University of Texas-Southwestern Medical School Moncrief Cancer Institute
3. UNTHSC Texas College of Osteopathic Medicine
4. Texas Christian University
5. University of Illinois-Chicago College of Medicine
6. University of Colorado-Denver School of Medicine
7. Charles R. Drew/UCLA Medical Education Program
8. Western University of Health Sciences
9. University of Texas School of Medicine in San Antonio
10. Lake Erie College of Osteopathic Medicine Arnot Ogden Medical Center
11. Rutgers Robert Wood Johnson Medical School
12. Meharry Medical College
13. University of Chicago Pritzker School of Medicine
14. Michigan State University College of Human Medicine
15. Penn State Hershey College of Medicine
16. Mercer University School of Medicine, Columbus GA
17. Mercer University School of Medicine, Macon, GA
18. Mercer University School of Medicine, Savannah, GA
19. West Virginia University School of Medicine
20. University of Alabama School of Medicine
21. A.T. Still University Kirksville College of Osteopathic Med.
22. University of Tennessee Health Sciences Center College of Medicine

Culinary Medicine Competencies & Learning Outcomes

Post Course TCOM Students Totally Proficient in Disease Management	$P \leq 0.05$
Fiber in disease prevention and high fiber ingredients	0.002
Eating disorders and the resulting nutrition outlook	0.024
Omega-3 and Omega-6 fatty acids in heart health and dietary oils and fats that correspond to each group	0.047
Water and hydration in health, and fluid needs based on activity and age	0.039
Impact of weight loss on type 2 diabetes	0.024

Post Course TCOM Students Totally Proficient in Recommended Dietary Practices	$P \leq 0.05$
Low-fat diet and its relationship to optimal health	0.022
Understanding of Mediterranean Diet principles	0.005
Knowledge and use of the glycemic index	0.035
Understanding the DASH Diet and its effect on health outcomes	0.035
Food allergies and their role in nutrition	0.004
Optimal strategy for weight loss in overweight or obese patients	0.023

- Post-course TCOM students reported greater proficiency and more confidence in their understanding and ability to inform patients about nutrition competencies related to dietary practices and disease management

Summary of Results

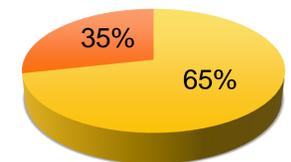
- Significant (P value < 0.05) post-course results showed that, compared to non-CM students, UNTHSC/TCOM students who participated in the **Culinary Medicine** course reported greater proficiency and more confidence in their understanding and ability to inform patients about the following competencies related to clinical nutrition knowledge:
 - (1) health effects of the Mediterranean, Dash, and low fat diets,
 - (2) dietary patterns for type 2 diabetes, celiac disease, and food allergies,
 - (3) weight loss strategies,
 - (4) recognizing warning signs/symptoms of eating disorders, and
 - (5) the role of fiber and omega-3 fatty acids in disease prevention and heart health.



Benefits to Dietetics Students

- Opportunity to enhance teaching skills in educating medical professionals about life-long benefits of sound nutrition practices for patient care.
- Opportunity to interact in an interprofessional program to build better communication skills with other health professions.
- Opportunity to demonstrate the value of dietitian's knowledge and expertise as part of the medical team.

TCOM Culinary Medicine (CM) students strongly agree **Nutrition Counseling** is needed in medical practice ($P = 0.001$)



Discussion & Conclusions

Nutrition plays a vital role in disease prevention and health promotion. However, few medical or health professions curriculums provide adequate practical integration of the effects of nutrition and eating practices on chronic disease management and quality of life.

Course results underline the value of dietetics educators emphasizing the continuity between food, health, and medicine, and providing innovative interprofessional learning opportunities that integrate nutrition into lifestyle medical and health professions training.