Culinary Medicine in Medical Education and Chronic Disease Prevention: An Evidence-Based Educational Framework

Chelsea Lee[1], Jina Park[1], Victoria Wang[1]
1. Philadelphia College of Osteopathic Medicine, Philadelphia, PA

PURPOSE AND INTRODUCTION

- Culinary medicine integrates nutrition education with hands-on cooking instruction to address gaps in physician nutrition competency and chronic disease prevention.
- This literature review evaluates the effectiveness, feasibility, and core curricular elements of culinary medicine programs in medical education.
- Across studies, culinary medicine consistently improved nutrition knowledge, counseling confidence, dietary behaviors, and interprofessional collaboration among trainees and patients.

CLINICAL OUTCOME STUDIES

1. A multi-site cohort study of 4,026 students across 45 U.S. medical schools found that culinary medicine training was associated with higher achievement in 25 diet-related preventive cardiology competencies and healthier personal dietary habits (i.e. lower soft drink consumption, greater adherence to a Mediterranean-style diet) over a 5-year follow-up period.

2. Randomized Controlled Trial: Wood et al. (2025) investigated culinary medicine among primary care residents by comparing a virtual teaching kitchen curriculum with didactic-only nutrition education. While both groups improved nutrition knowledge, the culinary medicine group demonstrated greater confidence in counseling patients on healthy dietary changes and more frequent use of nutrition resources in clinical practice.

3. Community-Based Randomized Controlled Trial: Razavi et al. (2021) randomized 41 families to hands-on teaching kitchen education versus standard dietary counseling over 6 weeks. Families participating in kitchen-based education were nearly three times more likely to adhere to a Mediterranean-style diet and were projected to reduce food costs through increased home-prepared meals.

SYSTEMATIC REVIEWS

1. Asher et al. (2022) conducted a scoping review of 33 studies examining culinary medicine and nutrition education for health professionals. Reported benefits included improved culinary skills, nutrition knowledge, dietary intake, healthy eating behaviors, and competency in nutrition counseling.

2. Newman et al. (2023) and Tan et al. (2022) synthesized evidence demonstrating consistent improvements in nutrition knowledge, attitudes, and counseling competencies across diverse culinary medicine curricula.

EDUCATION-FOCUSED STUDIES

1. Review: Newman et al. (2023) identified 12 inclusion criterias describing culinary medicine programs for medical students. Programs varied in learner level, number of participants, course length and structure, and instructor background. It showed improved student knowledge in key areas of nutrition application and also changed knowledge and attitudes about food and nutrition. Common elements included use of a space for hands-on learning, opportunities for practical application, and survey-based assessment. Funding was frequently noted as a barrier to program sustainability.

2. Health Meets Food Curriculum Implementation: Johnston et al. (2024) integrated the Health Meets Food curriculum into systems-based medical courses for 195 first-year osteopathic medical students. Despite poor baseline diet quality, students demonstrated significant dietary improvement by the end of year one and rated nutrition counseling as highly relevant to future clinical practice that rivaled other lifestyle areas. Attendance was robust despite the program not being required.

3. Counseling Confidence Study: Magallanes et al. (2021) assessed the impact of a culinary medicine elective on medical student counseling confidence, awareness of evidence-based nutrition approaches, and understanding of interprofessional teamwork. There was marked improvement in confidence discussing nutrition with patients, familiarity with Mediterranean diet principles, and understanding of the role of dietitians in patient care.

4. Interprofessional Training: Hynicka et al. (2022) evaluated an interprofessional culinary medicine course involving students from medicine, pharmacy, nursing, dentistry, social work, and law programs. Confidence in nutrition knowledge, counseling skills, and interprofessional collaboration improved significantly following participation. Similar outcomes between virtual and in-person formats demonstrated the feasibility of remote culinary medicine instruction.

EDUCATION-FOCUSED STUDIES SUMMARY

Study	Population	Intervention	Major Finding
1. Newman et al.	Medical students	Culinary curriculum review	Improved nutrition competency
2. Johnston et al.	Osteopathic students	Health Meets Food	Increased counseling confidence
3. Magallanes et al.	Medical students	Culinary elective	Improved patient nutrition counseling
4. Hynicka et al.	Interprofessional students	Collaborative culinary course	Better teamwork skills and virtual feasibility

DISCUSSION

1. Core Curricular Components

Four key educational elements were consistently identified across successful culinary medicine programs:

1. Hands-on cooking experiences using teaching kitchens
2. Integration of nutrition and medical science concepts
3. Reflection and application to patient care
4. Interprofessional learning opportunities

Programs varied in learner level, duration, and structure, but these foundational components were consistently associated with stronger educational outcomes.

IMPLEMENTATION AND FEASIBILITY

Current Situation	Barriers	Evidence for Feasibility
- At least 34 U.S. medical schools currently offer culinary education	- Funding limitations - Curricular time constraints	- Virtual culinary medicine instruction comparable to in-person delivery

CONCLUSIONS

- Culinary medicine is an evidence-based educational strategy that addresses gaps in physician nutrition training while supporting chronic disease prevention. Evidence demonstrates improvements in nutrition knowledge, counseling confidence, dietary habits, and patient-centered clinical behaviors across medical trainees and community participants. Programs with strong curricular design and hands-on learning components demonstrated the greatest gains in counseling competency and long-term educational impact.
- The growing success of culinary medicine programs supports expansion through standardized competencies, institutional support, and scalable virtual models. Further long-term research is needed to determine optimal implementation strategies and sustained effects on physician practice and patient outcomes.

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REFERENCES