Determining the Best Strategy to Integrate Clinical Nutrition and Culinary Medicine for Preventative Health Education

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**Significance:**

- Dietary factors have been identified as the single most significant risk factor for disability and premature death in the U.S.
- Osteopathic Medicine uses a whole-person approach to focus on disease prevention, recognizing how lifestyle and environmental factors can impact wellbeing.
- Traditional medical curricula (Osteopathic and Allopathic) designate little to no time in training future physicians in clinical nutrition and lifestyle counseling.
- However, physicians are expected to be competent at managing and counseling patients on nutrition-linked diseases such as obesity, diabetes, metabolic syndrome, hospital malnutrition, etc.

**Culinary Medicine:**

- A new evidence-based field that blends the art of food and cooking with the science of medicine.
- The objective is to empower the patients to improve their condition by making better food choices.
- Despite the fact that there are at least 21 medical schools with Culinary Medicine training, to our knowledge, there is no program that has made the connection between teaching clinical nutrition implemented with Culinary Medicine, and the practice of medicine.

**Objectives:**

1. Assess students’ perception of the usefulness of nutrition in medicine and their satisfaction with the current curriculum in regards to clinical nutrition.
2. Gauge medical students’ interest in a clinical nutrition elective coupled with an active learning component of Culinary Medicine workshops.
3. Determine the best strategy to deliver the two components for preventive health education in osteopathic medicine.
4. Ascertain the feasibility of a Culinary Medicine elective for Touro University Nevada College of Osteopathic Medicine (TUNCOM) students.
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**Introduction**

Two surveys were created, one for the first and second year cohorts (n=310) and one for the third and fourth year cohorts (n=240). The majority of survey questions were derived from other previously published and validated questionnaires. This project received IRB exemption (IRB #: TUNIRB000028).

The survey was emailed to all TUNCOM students via SurveyMonkey. Students consented to participate by initiating the survey.

Responses were collected and de-identified. Statistical analyses were performed in Rv3.5.1. Phi coefficient and chi-square tests were used to analyze the survey data.

In order to determine the feasibility of the proposed elective, students (16) from all cohorts participated in a pilot comprised of an online unit on coronary vascular disease and two Culinary Medicine sessions on food preparation to manage or avoid the above disease.

**Survey focus:**

- Demographics
- Intended specialty
- Student interest in a clinical nutrition elective supplemented by Culinary Medicine workshops
- Content delivery preferences
- First and second year cohort survey additionally focused on:
  - Importance of preventative health care in osteopathic medical education
  - Pertinence of nutrition to the practice of medicine
- Third and fourth year cohort survey additionally focused on:
  - Preparedness to counsel patients about lifestyle changes
  - Satisfaction level with current nutrition curriculum

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Results 2

Results 3

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**Figure 1:** Almost all (98%) students surveyed either agreed or strongly agreed that preventive health care is important to an Osteopathic Physician’s education.

First year students n=124
Second year students n=29

**Figure 2:** The vast majority (88%) of students surveyed agreed or strongly agreed that dietary counseling should be a component of the patient-physician interaction, regardless of specialty.

First year students n=124
Second year students n=29

**Figure 3:** 47% of students surveyed either agreed or strongly agreed that they do not feel prepared to counsel future patients on nutrition.

Third year students n=49
Fourth year student n=17

**Figure 4:** The vast majority (77%) of students surveyed reported not being satisfied with the amount of nutrition specific education in the curriculum.

Third year students n=49
Fourth year students n=17

Preventive health care is an **important** aspect of a Doctor of Osteopathic Medicine’s education.

All physicians, regardless of specialty, should **counsel** high-risk patients about dietary change.
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Figure 5: 84% of students surveyed reported being interested in taking part of the proposed elective. In regards to the delivery of the clinical nutrition instruction part of the proposed elective, 46% of students surveyed preferred in-class instruction, 29% preferred online recorded lectures, and 25% preferred online PowerPoints. To make it available to all cohorts, online instruction was preferred. The majority (80%) of students preferred the Culinary Medicine workshop portion to be every other week.

Figure 6: The top two specialties interested in the proposed elective were surgery (n=20) and family medicine (n=37). The specialties least interested in the proposed elective were, in order, Dermatology (n=1), Pathology (n=2) and Radiology (n=2) (tied for second), and Anesthesiology (n=11). Those with moderate interest were Emergency Medicine (n=23), Internal Medicine (n=32), Neurology (n=4), Obstetrics and Gynecology (n=15), Psychiatry (n=12), and Undecided (n=56).
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With Touro University Nevada being a Jewish sponsored institution without a kitchen to provide a venue for Culinary Medicine workshops, finding a location and funds to ascertain the feasibility of this important component was a challenge.

✓ Funds were provided by a student grant from the International Association of Medical Science Educators (IAMSE).
✓ The Art Institute of Las Vegas, which has Culinary Art as one of its programs, agreed to host the culinary classes conducted by one of their chefs.
✓ The pilot workshop had two sessions. The first Culinary Medicine session was dedicated to learning food safety and knife skills and the second session focused on preparing food for a patient who is on a sodium and fat restricted diet.
✓ The theme of each workshop was determined by the faculty participating in the teaching of the clinical nutrition component and the chef determined the best way to prepare the healthy food corresponding to the disease to be prevented or managed.

Methods

Pilot Culinary Medicine Sessions

Four students were selected from each cohort on a first come first served basis.
✓ The 16 participants of the pilot session received a PowerPoint on coronary health disease causes and nutritional preventive measures, a Word document about patient counseling prepared by a certified nutritionist, as well as an assessment in the form of two clinical cases.
✓ Discussion about the content of the assessment was conducted at the end of the culinary session.
✓ A survey was sent to all participants following the completion of both Culinary Medicine sessions to receive feedback on the pilot course.

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Results 1

• First and second year students almost unanimously agreed that preventive health care is of significant importance to the osteopathic medical education.
• The first and second year students both strongly agreed that preventative health care, in particular nutrition counseling, is an important aspect of the patient-physician encounter.
• Fourth year students were, on average, less satisfied with their nutrition education.
• Third and fourth year students felt equally unprepared to counsel future patients regarding nutrition and lifestyle changes. One would expect fourth year students to feel more confident, given their extra year of clinical training, indicating clerkship training is not sufficient in this area, thereby strengthening the need for an elective to bridge this gap.

Results 2

• Although the data of the survey regarding the pilot sessions is not available yet, the participants (n=16) verbally indicated during the discussion that they appreciated the essay-based assessment of their knowledge of the clinical nutrition and the correlation between food intake and disease.
• They also valued learning about healthy food preparation without sacrificing on taste.
• Students who plan to practice primary care were among the most interested in the creation of this elective.
• Participants strongly indicated that there is currently a lack in nutritional training in the curriculum and a great interest in the proposed elective to potentially fill this gap in their medical training.
• Given curriculum density for the first two years and the unpredictable schedules of third and fourth year students while on clinical clerkships, the best option to teach the didactic component should be online (Canvas). Students preferred that the active learning component, Culinary Medicine workshops, take place every other week by a wide margin.

Results 3

• An evaluation of the first cohort completing this elective will be administered, and improvement will be implemented accordingly.

References
Available upon request

Acknowledgements:
Our gratitude goes to Medical Educators IAMSE Student Professional Development Committee for funding this project through IAMSE/ScholarRx Student Research Grant and to Chef Vietmeier, Dean of The Art Institute of Las Vegas for agreeing to host and teach the two pilot Culinary Medicine sessions.

Limitations:
This study was limited by the low response rate by second (n=29), third (n=49), and fourth (n=17) year cohorts. Given the overall response, the needs assessment data and the feasibility study data are strong enough to go ahead with the elective proposal.
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Survey Questions

1. Preventive health care is an important aspect of a DO’s education.
2. As a DO, preventive health care is an important aspect of any patient appointment.
3. Nutrition counseling should be part of routine care by all physicians, regardless of specialty.
4. Nutritional assessment and counseling should be included in any routine appointment, just like diagnosis and treatment.
5. Nutrition counseling is not an effective use of my professional time.
6. Physicians have an impact on a patient’s ability to lose weight.
7. I have an obligation to improve the health of my patients including discussing nutrition with them.
8. All physicians, regardless of specialty, should counsel high-risk patients about dietary change.
9. Is worth my time to counsel patients with poor dietary patterns about nutrition.
10. Patients need healthy and yet good-tasting alternatives in order to change their eating patterns.
11. Most physicians are not adequately trained to discuss nutrition with patients.
12. Patients need specific instructions about how to change their eating behavior.
13. Specific advice about how to make dietary changes could help some patients improve their eating habits.
14. Patients need ongoing counseling following my initial instruction to maintain behavior changes consistent with a healthier diet.
15. Most patients will try to change their lifestyle if I advise them to do so.
16. Physicians can have an effect on a patient’s dietary behavior if they take the time to discuss the problem.
17. Most patients, health education does little to promote adherence to a healthy lifestyle.
18. After receiving nutrition counseling, patients with poor eating habits will make major changes in their eating behavior.
19. My patient-education efforts will be effective in increasing patients’ compliance with nutritional recommendations.
20. After receiving nutrition counseling, patients with poor eating patterns will make moderate changes in their eating behavior.

Discussion/Conclusion

Figure 7: First and Second Year Cohort Survey Questions and Results. Means and standard errors are reported. First year cohort n=124, second year cohort n=29.

Figure 8: Third and Fourth Year Cohort Survey Questions and Results. Means and standard errors are reported. Third year cohort n=49, fourth year cohort n=17.