

Scar healing and nutrition: a missing link in medical education Cicatrisation et nutrition: un maillon manquant dans l'éducation médicale

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Published ahead of issue: Apr 28, 2025; published: Jul 2, 2025. CMEJ 2025, 16(3) Available at <https://doi.org/10.36834/cmej.80110>

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What if the secret to optimal scar healing lies not in the surgeon's hands, but in the patient's plate? As we continue to focus on techniques that improve surgical precision, we may be missing an essential component of post-operative recovery. Surgical scars from various etiologies may cause psychosocial and emotional disturbances. Although the role of nutrition in scar healing is well-established in the literature, patients remain unsatisfied with the appearance of their surgical scars. Physicians have received scant nutritional training, impacting their ability to speak about its vital role in health with their patients.¹ The current commentary highlights the need for greater emphasis on nutritional education and its relation to scar healing in medical school and clinical practice.

Wound healing occurs in three stages: the inflammatory, the fibroproliferative, and the maturation/remodeling phase.²

The inflammatory phase starts immediately after injury and is marked by a surge of cytokines and growth factors that recruit immune cells and other mediators critical for healing initiation.² During the fibroproliferative phase, fibroblasts are mobilized to the wound, helping restore the original function of the tissue through the production of a fibrin matrix.² The last phase of wound healing is the remodeling/maturation phase, characterized by increased collagen organization and strengthening of developing tissues.²

Many nutritional factors are involved in wound recovery and scar healing. Zinc, and Vitamins A and C are essential nutrients that promote the healthy recovery of tissues by regulating the function of immune cells and fibroblasts,

promoting epithelialization, and supporting collagen production.³ Patients who received Vitamin A, B, C, D, E, zinc, and calcium, experienced notable reductions in hospitalization rates, infections for burn wounds, shorter operative times, and improved appearance of hypertrophic scars.⁴ Although the exact cellular mechanisms underlying these beneficial effects may not be clinically relevant, understanding the role of nutrients in wound recovery will improve healing outcomes of patients if they are properly incorporated into medical education and patient care guidelines.

There is a lack of nutritional training in medical schools globally.¹ The deficiency in nutritional training in medical education can negatively impact student's knowledge, skills, and confidence in implementing nutrition within the care plan of their future patients. These deficits in education and the lack of confidence likely contribute to the absence of nutritional support from physicians worldwide.

Meaningful education of nutrition in medical school should be implemented. Before clinical training, medical school curricula should incorporate lectures discussing the role of nutrition and its impact on patient outcomes, allowing students to become familiar with the general principles of nutrition and its relevance to clinical practice. Wound care and scar healing should be one of the key areas explored in medical education. Through this introduction early in their careers, students would approach their clinical training years with a different perspective, enabling them to integrate nutritional insights into patient care more effectively.

During clinical training years, multidisciplinary approaches can be implemented to improve the understanding of nutrition in a clinical setting through collaboration with other healthcare professionals. Mandatory clinical rotations with allied healthcare workers such as dietitians, and case sessions around the role of nutrition in medicine can help bridge the existing knowledge gap. Shared group projects with dietetic and medical students could be implemented to foster a friendly learning environment where the interrelation between nutrition and medicine would be highlighted. Providing a platform for learning in nutrition, similar to other core areas of medicine can elevate the standards of nutritional science and ensure effective integration into comprehensive patient care. Physicians and surgeons trained to recognize and address situations where targeted nutritional interventions are necessary can promote comprehensive patient care and potentially enhance healing outcomes.

Without learning about nutrition and its valuable role in scar healing, medical students may never use this important component of patient health and overall medical care.

Given the apparent gap in nutritional education for medical students, there must be a national curriculum shift to equip future physicians and surgeons with the nutritional knowledge base needed to optimize patient care.

Conflicts of Interest: None.

Edited by: Marcel D'Eon (editor-in-chief)

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