THE CHANGING LANDSCAPE OF NUTRITION IN MEDICINE

A look at developments that have propelled us forward and those still to come for eye care.

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In recent years, the medical community has increasingly recognized the profound effect of nutrition on overall health and disease management. This paradigm shift reflects a growing body of research underscoring the connection between diet, chronic illness, and well-being. Nutrition is no longer seen as a peripheral concern, but as a cornerstone of medical treatment and preventive care. The eyes are the windows into systemic health. The microvascular changes seen in the retina serve as an early warning system alerting practitioners to changes taking place elsewhere in the body.[1] These changes precede clinical manifestation and are independent predictors for hypertension, diabetes, coronary disease, renal disease, and stroke.[2-5] As the medical community begins to embrace the role that nutrition plays in chronic disease, it is imperative for eye doctors to get on board, as every chronic, systemic disease can affect ocular health.

HISTORICAL PERSPECTIVE

Historically, nutrition has played a secondary role in medical practice. The primary focus was often on pharmaceutical interventions and surgical procedures. However, ancient civilizations, such as the Greeks, acknowledged the importance of diet in health.[6] Hippocrates, often regarded as the father of modern medicine, famously stated, "Let food be thy medicine and medicine be thy food." Despite this early recognition, the 20th century saw a decline in the emphasis on nutrition, overshadowed by the rise of modern pharmacology and technology-driven treatments.

The late 20th and early 21st centuries marked a re-emergence of interest in the role of nutrition in health and disease. This shift can be attributed to several factors: epidemiologic evidence, chronic disease epidemic, and nutritional science advances.

Epidemiologic Evidence

Large-scale epidemiologic studies, such as the Framingham Heart study[7] and the Nurses' Health study,[8] have demonstrated strong correlations between dietary patterns and health outcomes. These studies have consistently shown that diets high in fruits, vegetables, whole grains, and lean proteins are associated with reduced risks of cardiovascular disease, diabetes, certain cancers, and macular degeneration.

Chronic Disease Epidemic

The increasing prevalence of chronic diseases (eg, obesity, diabetes, and cardiovascular disease) has highlighted the limitations of traditional medical approaches. These conditions are often lifestyle-related, with diet playing a significant role. As a result, there has been a growing recognition that addressing nutritional factors is essential for effective disease management and prevention.

Nutritional Science Advances

Advances in nutritional science have provided a deeper understanding of the mechanisms through which diet influences health. For example, research has elucidated the role of inflammation, oxidative stress, and gut microbiota in the development of chronic diseases, highlighting the potential of dietary interventions to effectively modulate these pathways.[9]

INTEGRATING NUTRITION INTO MEDICAL PRACTICE

The integration of nutrition into medical practice has taken various forms, reflecting the diverse ways in which dietary factors can influence overall health. Some significant developments include nutrition counseling, medication nutrition therapy (MNT), functional medicine, and preventive medicine.

Nutrition Counseling

Many health care providers now incorporate nutrition counseling into their patient care, either directly or through referrals to dietitians and nutritionists. This approach recognizes that personalized dietary advice can help patients make sustainable changes to their eating habits. Discussing nutraceuticals and nutrition with patients who have macular degeneration has been the standard of care in optometry and ophthalmology since the completion of the National Institutes of Health and National Eye Institute's Age-Related Eye Disease Studies, AREDS and AREDS2.[10,11]

MNT

MNT involves the use of specific nutritional interventions to manage medical conditions.[12] For example, carbohydrate counting is used to manage diabetes, while the dietary approaches to stop hypertension, or DASH diet, is recommended for individuals with hypertension. MNT is often provided by registered dietitians who work closely with other health care professionals.

Functional Medicine

Functional medicine is an emerging field that emphasizes the use of personalized dietary and lifestyle interventions to address the root causes of disease.[13] Practitioners of functional medicine often use advanced diagnostic testing to identify nutritional deficiencies, food sensitivities, and other factors that may contribute to health issues.

Preventive Medicine

The preventive medicine approach focuses on reducing the risk of disease through lifestyle modifications, including diet.[14] Public health campaigns and policies aimed at promoting healthy eating habits, such as reducing sugar consumption and increasing fruit and vegetable intake, are examples of this approach.

CHALLENGES AND BARRIERS

Despite the growing recognition of the importance of nutrition in medicine, several challenges and barriers still remain.

Education and Training

Many health care professionals receive limited training in nutrition

(continued on page 37)

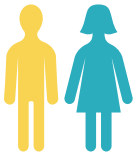
AT A GLANCE

- The increasing prevalence of chronic diseases has highlighted the limitations of traditional medical approaches and created a growing recognition that addressing nutritional factors is essential for effective disease management and prevention.
- Nutrition counseling, medical nutrition therapy, functional medicine, and preventive medicine have helped shape nutrition's role in the medical field.
- Looking to the future, personalized nutrition, technology, interdisciplinary collaboration, and policy advocacy will help further pave the way for nutrition in eye care.

STARTLING STATISTICS

At the American Nutrition Association's meeting last October in Charlotte, North Carolina, cardiologist Dariush Mozaffarian, MD, DrPH, MPH, dean emeritus of Tufts University's Friedman School of Nutrition Science and Policy and director of the Food is Medicine Institute at Tufts, presented recent research findings about the effects of poor-quality nutrition on chronic disease, specifically diabetes and cardiovascular disease.[1] He shared the following statistics:

DIET-RELATED DISEASE AMONG US ADULTS



One in two have diabetes or prediabetes

Three in four are overweight or obese

Fourteen in 15 are not metabolically healthy

SICKNESS AMONG US TEENAGERS

One in four have prediabetes

One in four are overweight or obese

One in six have fatty liver disease

POOR NUTRITION IN THE UNITED STATES

1. Mozaffarian D. Food as medicine for longevity. Lecture presented virtually at: American Nutrition Association Annual Meeting; October 19-20, 2023; Charlotte, NC.

(continued from page 35)

during their formal education. Efforts are underway to address this gap, with some optometry and medical schools incorporating more nutrition education into their curricula. Continuing education programs for practicing clinicians also play a crucial role. Another option is to become certified in personalized nutrition. The Ocular Wellness and Nutrition Society has partnered with the American Nutrition Association to make this possible for optometrists (see *Perks of Becoming Certified in Nutrition*).

Reimbursement

The reimbursement structure for nutrition counseling and MNT can be a barrier to widespread implementation. Insurance coverage for these services varies, and financial incentives for health care providers to prioritize nutrition are often lacking.

In eye care specifically, emerging technologies, such as macular pigment optical density testing, have given many practitioners a chance to monetize testing that provides a glimpse into a patient's overall nutritional status.

Patient Compliance

Encouraging patients to make and sustain dietary changes can be challenging. Behavioral and psychological factors, such as habits, preferences, and social influences, play a significant role in dietary choices. Effective communication and motivational techniques are essential for addressing these challenges. Collaboration between specialists with consistent recommendations of evidence-based nutrition is needed. For example, every patient with diabetes needs an eye examination. Having a consistent message conveyed to patients by their endocrinologist and their eye doctor will increase compliance.

Socioeconomic Factors

Access to healthy food options can be limited by socioeconomic factors. Food deserts, where fresh produce and other healthy foods are scarce, disproportionately affect low-income communities.[15] Addressing these disparities requires a multifaceted approach, including policy changes and community-based interventions. Organizations such as the American Society for Nutrition advocate in Washington, DC, for wider access to healthy foods in food deserts.

PERKS OF BECOMING CERTIFIED IN NUTRITION

The Ocular Wellness and Nutrition Society (OWNS) provides a path for eye doctors to obtain nutrition education. OWNS, in partnership with the American Nutrition Association (ANA), offers the following benefits to its members:

- 35% discount on the ANA's Personalized Nutrition Practitioner Training Program
- OWNS doctor lookup for patients wanting a doctor with an interest in nutrition and wellness
- Six hours of COPE-approved CE annually
- Monthly email and blog updates on the latest in nutritional science
- The chance to earn a fellowship and receive the distinction of FOWNS
- Free admission to the in-person annual reception at the American Academy of Optometry
- Free access to American Board of Optometry COPE-approved CE
- Collaboration with the journal *Nutrients*
- Various discounts and promotions with affiliated industry companies

THE FUTURE OF NUTRITION IN MEDICINE

The future of nutrition in medicine looks promising, with several trends likely to shape the profession.

Personalized Nutrition

Advances in genomics, metabolomics, and other fields are paving the way for personalized nutrition, where dietary recommendations are tailored to an individual's genetic makeup, metabolic profile, and health status. This approach aims to enhance the effectiveness of dietary interventions and improve health outcomes.[16]

Technology

Digital health technologies, such as mobile apps and wearable devices, are increasingly being used to monitor dietary intake and provide personalized feedback. These tools can help patients track their progress, set goals, and receive real-time support, making it easier to adopt and maintain healthy eating habits.

Interdisciplinary Collaboration

The integration of nutrition into medical practice requires collaboration among various health care professionals, including physicians, dietitians, nurses, and pharmacists. Interdisciplinary teams can provide comprehensive care

that addresses the complex interplay between diet and health.[17]

Policy Advocacy

Continued advocacy for policies that promote healthy eating is essential. This includes efforts to improve food labeling, regulate food marketing, and create environments that support healthy choices. Public health initiatives and partnerships with community organizations can also play a vital role.

THE FACT OF FOOD

The changing landscape of nutrition in medicine reflects a broader shift toward a more holistic and preventive approach to health care. As the evidence linking diet to health continues to grow, the integration of nutritional principles into medical practice in eye care becomes increasingly important.

Current rates of lifestyle-related chronic diseases are not sustainable, and a shift is occurring in medicine toward prevention. Although challenges remain, the future holds great promise for advancing the role of nutrition in improving health outcomes and addressing the burden of chronic disease. Through continued research, education, and collaboration, the eye care community can harness the power of nutrition to enhance patient care and promote overall well-being. ■

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