



## Editorial

### We Are What We Eat: Food as Medicine in Health and Disease

Food is an essential facet of our daily lives, and not just from a nutritional perspective: The food we eat is interwoven in our social, cultural, and religious practices. Food brings us comfort; we entertain with it, we celebrate with it, and we grieve with it. Our relationship with food and the food choices we make influence our health and play a role restoring wellness and alleviating symptoms. We cannot escape food (nor would we want to), and thus maintaining a healthy relationship with food and avoiding maladaptive eating behaviors are essential to our quality and quantity of life.

The concept of “food as medicine” resonates with many patients as they search for greater control over their health, yet in a world with information, and *misinformation*, overload, finding reliable sources is challenging for patients and providers alike. Herein we hope to provide trustworthy opinion and data driven practice for guiding medical care utilizing food as medicine. In this Special Issue of *Clinical Therapeutics*, we present three narrative reviews that examine food as medicine in obesity, gastrointestinal disease, and liver disease, plus interviews with two nutrition experts. Below are highlights of the fantastic contributions our experts have made.

Obesity is a growing epidemic in the United States, now affecting >40% of adults and ~20% of children.<sup>1,2</sup> The first step in managing obesity is improving lifestyle choices, and while fad diets and quick fixes abound, we all know they are not the right answer. Johnson et al<sup>3</sup> advocate for diet-related interventions that are sustainable over the long term and a “shift to focus on diet quality with [an] increase [in] micronutrient density and consumption of less ultra-processed foods.” Improvements in obesity can have a multisystem benefit and lead to better cardiovascular, gastrointestinal, and liver health and protection against cancer.

The liver plays a central role in nutrition and metabolism. As mentioned above, suboptimal food and lifestyle choices are central in the genesis of obesity and diabetes, which can lead to nonalcoholic fatty liver disease. Additionally, food as medicine has a place in other liver disease states, as illustrated by Shah et al<sup>4</sup>: “Malnutrition and sarcopenia are severe complications of alcohol induced liver disease and cirrhosis, with a direct impact on prognosis and mortality. The use of ‘food as medicine,’ especially in this latter group, play a crucial role in the management of these patients and can improve both quality of life and overall clinical survival.”

Food as medicine can affect a variety of gastrointestinal problems as well. Swier et al<sup>5</sup> review several benign colon disorders, from diverticular disease to irritable bowel syndrome to inflammatory bowel disease. The authors endorse multidisciplinary care with a registered dietician and follow the evidence from clinical trials: “Data from trials suggest that soluble fiber is effective for patients with chronic constipation, irritable bowel syndrome, and fecal incontinence. A diet low in select fermentable, oligo-, di-, and monosaccharides and polyols may benefit patients with irritable bowel syndrome. Patients with inflammatory bowel disease, especially those with active disease, are at risk for malnutrition. Dietary restrictions may further increase that risk.”

Delivering food as medicine to people in need presents unique logistic hurdles. Food deserts exist in both urban and rural areas, and access to healthy, affordable diet choices are limited for many people. Additionally, transitioning the hospital-based advice that physicians give to patients into achievable diets at home is difficult. Sue Daugherty, RDN, LDN, is co-Vice Chair of the national Food is Medicine Coalition and has been involved with the Metropolitan Area Neighborhood Nutrition Alliance (Philadelphia, Pennsylvania), for more than 20 years. In an interview, she tells us that “People often forget that diets are complex. You get discharged from the hospital . . . and then there’s something on the discharge instructions stating to take something as complicated as 4 g potassium or 4 g phosphorus and adhere to a 2000-cc, fluid-restricted diet. What are folks supposed to do with that? We very much believe that



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we need to provide complete nutrition, to really have the best impact on health outcomes. To do that, we need to provide three meals a day, 7 days a week."<sup>6</sup>

Teaching these food-as-medicine concepts to the next generation of health care providers is part of Dr. Melinda Ring's charge at the Northwestern University Feinberg School of Medicine (Chicago, Illinois). She advocates for an individualized approach: "We need to start thinking about that idea of what is the right diet for the individual person, the patient sitting in front of me, and that gets more into food as medicine. It's not that the Mediterranean diet is the right diet for everybody, it's not keto, it's not the Ornish diet. It's really saying, for this particular person with this complex of symptoms and syndromes or concerns, how can I best help them craft their nutritional intake?"<sup>7</sup>

Through these reviews and interviews from experts in this "Food as Medicine" Special Issue of *Clinical Therapeutics*, our goal was to outline the opportunities for healthy eating in general and specific diet-related interventions for specific disease states to help patients achieve improved quality and quantity of life. From managing obesity, gastrointestinal disease, and liver disease; to delivering high-quality meals to people in need; to ultimately integrating diet-related interventions as a part of training the next generation of physicians, a holistic food-as-medicine approach reminds us that if we want to improve what we are, we need to improve what we eat.

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