



Food is medicine: Embracing strategies for improved nutrition

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Nutritional issues have been increasing steadily across the United States. Disturbing statistics published by the Centers for Disease Control and Prevention (CDC) in 2021 showed an increase in the prevalence of obesity from 30.5% to 41.9%, with the prevalence of severe obesity affecting 9.2% of the population.¹ A 2022 report from the US Department of Agriculture revealed that 44.2 million people lived in households that had difficulty getting enough food to feed everyone.²

A 2022 study showed that almost 13% of people had difficulty getting enough food

Only 1 in 10 adults eat the daily recommended amounts of fruits and vegetables. And health equity challenges involving cultural and socioeconomic factors can further complicate nutritional issues. Both obesity and undernutrition have associated health risks, including higher rates of heart disease, stroke, diabetes, fractures, infections, and many other conditions.

Poor nutrition comes at a cost — not only to the health of those affected — but as a financial burden to individuals, their communities, and their employers. In 2019, the medical cost of obesity in the U.S. was estimated to be \$173 billion dollars. Lost productivity from diseases related to malnutrition (obesity and undernutrition) were shown to cost employers \$295.9 billion from 2011-2020. The same study estimated employers would lose another \$114.4 billion from these conditions in 2021-2023.³

Factors that contribute to malnutrition in injured persons

When an event occurs, such as a traumatic injury or even a surgical procedure, it triggers a cascade of events on a micro level. The inflammatory response and release of stress hormones cause the body to break down proteins for fuel. The body also creates an environment in which there is insulin resistance that allows the fuel — sugars — to stay present and available to the body for use. This leads to muscle breakdown, loss of lean body mass, and reduced immune function.⁴ These factors may remain active if there are ongoing critical illness and bodily stressors.



In 2021, the prevalence of obesity rose by 11%

Processed foods that are easy to prepare often have low nutritional value

Injuries, surgeries, and loss of income can also create barriers to good nutrition on a macro level. Hospitals have been trying to improve food quality and service, but they remain a challenge with decreased appetites, timed meals, and limited choices. And once an injured person returns home, they may experience limited mobility that affects their ability to shop, cook, and sometimes even feed themselves. When improved mobility does permit activity, comfort foods (often processed and easy to prepare) are typically the “go to” meal, worsening the nutritional status. Finally, loss of income — either temporarily or over longer periods of time — may affect an injured person’s budget and subsequent food choices.

Certain medications prescribed during recovery can reduce appetite, create unhealthy cravings, or decrease motivation



At the time an injured person receives medical attention for their injury, or during the surgical recovery period, they are often placed on medications that may negatively affect nutrition even further. NSAIDs are known to upset the stomach, which can reduce appetite. Opiates are associated with nausea, vomiting, and constipation. Opiates can also change the composition of saliva and reduce food breakdown, impair barriers to infection, and cause a general lack of motivation. Amphetamines, used to improve alertness after a traumatic injury or to combat side effects of medications, can elevate blood sugars and create cravings for sugary foods. These cravings may cause unintentional weight gain by increasing body fat, while not increasing muscle mass.

Strategies for nutritional improvements

Despite these interrelated challenges, there is good news. There are proven strategies that help with recovery and are backed by science. Before reviewing these, let’s start by defining a healthy weight. Body mass index (BMI) is a measure of body fat based on weight and height. It is independent of age and gender and used as a screening tool to determine risk to overall health. The BMI provides a goal range for healthy weight, which helps to reduce the risk of chronic conditions. However, there are many variables, and someone in the ideal weight range may still have nutritional deficiencies that need to be addressed on an individual basis.

The CDC defines a healthy BMI for an adult as between 18.5 and 24.9, with the overweight and obesity ranges starting at a BMI at 25 or above.⁵ Morbidity (disease state) and mortality (death) are

increased at either end of the “normal” BMI range. In other words, there are issues both with being over the ideal body weight and having nutritional deficiencies.

Most individuals and healthcare providers are aware of health challenges caused by overnutrition or obesity. However, individuals with BMI values below the ideal range are also at higher risk, including a greater propensity for fractures, osteoporosis, and poorer outcomes with bony healing and surgical fusions.⁶ Low albumin, a protein seen in the blood that is used as a marker for nutritional status, has been associated with increased risk of post-operative complications (including infections), increased length of hospital stays, elevated readmission rates, and higher mortality.⁷

It is crucial to assess and address nutritional issues on both sides of the spectrum. A randomized controlled trial showed that patients assigned to a multimodal nutritional management protocol before and after lumbar spinal surgery experienced shorter length of stays, lower incidence of electrolyte disturbances, and higher postoperative albumin levels on postoperative day 3 compared to control patients.⁸ Research completed at Duke University provided nutrition therapy the week before and week after surgery. The results showed a 40% reduction of infections, a 2-day reduction in length of stay, and lower rate of readmissions.⁹ A European-based organization, the Enhanced Recovery After Surgery (ERAS) Society, has developed guidelines using holistic, multidisciplinary tools to improve recovery after surgery. Since their first consensus publication in 2005, they have expanded their evidence-based guidelines to include recommendations for surgeries in over 23 different fields, including orthopedics and spinal surgery.¹⁰

Their recommendations include preoperative nutritional evaluation and education regarding supplementation that may be needed.

The American Heart Association (AHA) recommends diets that focus on overall quality and include more nutrient-dense foods such as fruits, vegetables, legumes, and lean proteins. Several diets align with the AHA recommendations, including the Mediterranean diet, the DASH (Dietary Approaches to Stop Hypertension) diet, and whole food plant-based choices.¹¹ The Mediterranean diet includes low fat or fat-free dairy products, fish, poultry, non-tropical vegetable oils and nuts; while limiting sugars, sodium, processed foods, refined carbohydrates, saturated fats, and fatty or processed meats, The DASH diet is very similar, but allows more dairy products and meat. While there is evidence to support these lifestyle choices — with multiple studies showing reduced heart disease, hypertension, stroke, and diabetes —



there is also now research to support some of these diet options for pain and recovery.

A randomized controlled trial of a whole food plant-based diet reduced stiffness, relieved pain, and improved physical function in people with hip or knee osteoarthritis compared to usual care.¹² A review article evaluating 32 different studies found evidence that supports the premise that diverse, plant-based, Mediterranean vegetarian and vegan diets may reduce musculoskeletal pain. In addition, the studies showed that other dietary considerations, including the addition of marine oils, seafood, omega-3 fatty acids, antioxidant-rich fruits, and turmeric, may also benefit patients with chronic musculoskeletal pain.¹³

Finally, injuries are interwoven with neurocognitive and mood disorders. Studies show improvement in mental cognition and mood disorders with omega-3 fatty acid supplementation. In addition, some vitamin supplementation has demonstrated benefits. For example, Vitamin B helps produce

neurotransmitters, which can contribute to improved memory and recovery of the nervous system. Vitamin D has been shown to improve balance and depression.

Promoting education and nutritional improvement programs

How do we, as a society, start to effect a change? First, we need to recognize the knowledge gap within the general population. In a survey conducted by Deloitte of more than 2,000 people, 62% had encountered conflicting information and confusion regarding the health properties of certain foods. Approximately 40% did not understand which fresh foods could act like medicine. This clearly demonstrates the need for education, modeling, and support for dietary changes.

Professionals in the field of nutrition have always acknowledged the relationship between food and



health. Now, additional healthcare providers are contributing to the application of that knowledge and an expansion of services by adding programs for other clinical professionals and practitioners. Examples include the Certified Culinary Medicine Specialist program¹⁴ and the American College of Lifestyle Medicine program. In addition, physicians can now become board certified by the American Board of Lifestyle Medicine¹⁵, which trains doctors to use a whole food, plant-based eating pattern as part of a strategy to treat chronic conditions.

Recent initiatives show that organizations are also responding to this need with programs designed to help people live healthier lives and reduce health care costs to society. Notable examples include UnitedHealth Group, which has partnered with Northside Achievement Zone to address food insecurity in the northern Minnesota area. Working with local organizations, families receive prepared meals or a delivery of groceries, including fresh produce, dairy products, protein, and shelf-stable items like rice, pasta, and soup. The Healthy Food Rx program, created by Abbott in partnership with the Public Health Institute, has piloted meal kits to target diabetes and food insecurity with

promising results. Stop & Shop has expanded their Fresh Connect program, which provides food-insecure customers with prepaid debit cards that are prescribed by health care providers for fresh produce. Kroger has piloted a program, OptUP, where physicians could write food prescriptions that patients would “fill” at a local store under the guidance of a nutrition expert at the supermarket. Giant Food has worked with Produce Rx in the District of Columbia to allow Medicaid patients to get a prescription for fruit and vegetables for a diet-related chronic illness and process the prescription at the supermarket pharmacy.¹⁶ These industry leaders have recognized the financial and health benefits of nutrition and are designing programs to effect a change.

Within the workers’ compensation industry, we want to deliver the best, most cost-effective treatment for our injured persons. With all the growing evidence to support that food is medicine, we need to ask ourselves the question: How can we continue to ignore options that are likely to result in improved outcomes, reduced costs, and healthier lives?



UnitedHealth Group, Abbott, Stop & Stop, Kroger, and Giant Food are among the industry leaders that have designed programs to reduce food insecurity and improve nutrition.

About the author



As Associate Medical Director for Optum Workers' Comp and Auto No-Fault, Dr. Kathleen Fink works closely with the Optum leadership team, while overseeing clinical programs and supporting the clinical team. She also chairs the Optum Pharmacy and Therapeutics (P&T) Committee, which guides the formulary management process. Dr. Fink has extensive experience in industrial medicine and specialty workers' compensation programs, including engaging in peer-to-peer clinical discussions and directing pharmacists, nurses, and claims professionals.

Dr. Fink attended Robert Wood Johnson Medical School in New Jersey and completed her postgraduate training at the Rehabilitation Institute of Chicago. She remains actively involved in the education and training of clinicians and other allied health professionals. Washingtonian magazine, a top source of information for the Washington D.C. area, has repeatedly named Dr. Fink as a top doctor in her specialty.

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