

# Nutrition and Pain



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## KEYWORDS

- Nutrition • Inflammation • Micronutrients • Diet • Antioxidants • Microbiome
- Healing • Integrative pain medicine

## KEY POINTS

- Macronutrients such as proteins, carbohydrates, and fats provide the calories in food. Micronutrients such as vitamins, minerals, flavonoids, and other antioxidants are also essential for health.
- Heavily processed foods are high in calories and poor in micronutrients, leading to calorie excess and micronutrient deficiency in many Americans.
- An antiinflammatory diet can reduce the prevalence of many of the chronic diseases that are associated with pain: diabetes, cardiovascular disease, and obesity.
- Research into nutrients does not mirror drug research randomized controlled trials (RCTs) because nutrients, which bodies are programmed to use, work more slowly and physiologically than do drugs, which are “new-to-nature” molecules that often have dramatic effects and side effects.

## INTRODUCTION

There is growing literature documenting the effects that lifestyle choices have on overall health outcomes by changing host susceptibility and the propensity to heal.<sup>1</sup> The European Prospective Investigation Into Cancer and Nutrition (EPIC), Potsdam study, evaluated the effects of 4 lifestyle factors on health (never smoking; body mass index [BMI], calculated as the weight in kilograms divided by height in meters squared, less than 30; physical activity for at least 3.5 hours a week, and eating a healthy diet with vegetables, fruits, whole-grain bread, and low quantities of meat). The study revealed benefits for these 4 lifestyle factors that no drugs or procedures can remotely approximate. A total of 23,000 participants were followed up for 7.8 years. Participants with all 4 factors at baseline, when compared with those without a healthy factor, had a 78% lower risk of developing a chronic disease: specifically 93% reduced risk of diabetes, 81% reduction in myocardial infarction, 50% less chance of strokes, and 36%

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reduction in cancer.<sup>2</sup> The common denominator of all these chronic conditions is inflammation: all the 4 factors studied reduce body-wide inflammation, which in turn can influence the course of chronic diseases. Each of these chronic diseases can affect pain, but the reduction of inflammation itself can affect the experience of pain.

A diet of processed foods tends to be high in calories with an abundance of unhealthy fat, refined carbohydrates, salt, and chemicals such as pesticides, stabilizers, antibiotics, and preservatives. Almost 80% of processed foods contain added sugar.<sup>3</sup> Such a diet is poor in fiber, micronutrients, and antioxidants and is proinflammatory. Pain-specific studies are lacking in this area, but a month of following this practice (either for the practitioner or their patients) will convince most practitioners that “you are what you eat.” There are studies looking at the influence of diet on inflammatory markers showing that diets high in fiber, healthy oils, fruits, and vegetables and low in sugars, starchy carbohydrates, and unhealthy oils can reduce inflammation and disease.<sup>4–8</sup>

The United States is faced with an obesity epidemic, and it is estimated that 1 in 3 Americans will become diabetic in their lifetime and that the figure increases to 1 in 2 for those of Latin American descent, African Americans, and American Indians. At present, in the preteen population, there is an increasing prevalence of obesity, diabetes and coronary artery disease and the attendant complications of other chronic diseases and pain syndromes.

## PATIENT EVALUATION

We persist, as a nation, to subsidize grains instead of fruits and vegetables and have made fast foods and processed foods cheap, whereas fresh foods are unaffordable for much of the nation. There are food deserts in the United States where people cannot find fresh produce in their local stores. There are movements to reverse these trends, such as The Family Dinner Project,<sup>9</sup> Slow Food,<sup>10</sup> and Food Inc.<sup>11</sup> Against the vigorous lobbying of food industries, a host of governmental and nongovernmental organizations are trying to improve school lunches and reduce the high-sugar, high-fat, empty calorie junk foods available in schools.

Taking a detailed dietary history must be done carefully to maximize patients’ openness about eating habits that may be causing embarrassment or guilt, especially if patients are poor, have been overweight, or had eating disorders. People can be simultaneously obese and malnourished. Many people do not know what real food is: things that come from a farm are food; things that come from a factory are usually not food anymore. This conversation can lead to a worthwhile discussion about how to seek out health-promoting foods.

It can be easiest to go through an example of the patient’s meal cycle: breakfast, lunch, dinner, and snacks. (For example, for breakfast, I ask specific details such as specifically what types of starches, cereal, and bread they eat; how much and what type of sweetener they use in their beverage; and whether they use cream or chemical-laden creamer.) Other important parameters are numbers of vegetables (in handfuls) and fruits, amounts of sugar or artificially sweetened beverages, amount of other sugars in the diet such as candy or pastries, and an idea of the relative amounts of processed foods versus homemade “from-scratch” foods.

People’s tastes become desensitized to sweet if they over ingest sweets. Very often, removing sweets from their diet for a week allows their palates to reregulate and they will use less added sweeteners of all kinds. The same holds true for salt.

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