



The following reviews are published in the March 2015 issue of [Advances in Nutrition](#).

New Research Finds Link between Obesity and Malnutrition

Advances in Nutrition review explores discovery of high rates of thiamin deficiency among people with obesity

The incidence of obesity in the United States has more than doubled since 1980, with 35% of American adults categorized as obese. Moreover, obesity has been closely linked to an increased risk of type 2 diabetes, cardiovascular disease, sleep apnea, metabolic syndrome, and cancer. In fact, there is evidence suggesting that obesity has now overtaken smoking as the leading cause of preventable death in the United States.

Because obesity usually results from excessive energy intake, it has traditionally been viewed as a disease of "over-nutrition." In the past decade, however, it has become apparent that, despite its overfed state, obesity may actually be a disease of malnutrition. Many obese Americans eat diets that consist of high-calorie, low-nutrient processed foods filled with excessive fats and simple sugars. A recent large-scale study, for example, found that deficiencies of multiple nutrients are more common among obese people than in lower-weight individuals. In addition to differences in diet, higher rates of malnutrition among the obese may be due to decreased absorption and increased excretion of nutrients as well as differing metabolism or physiologic requirements; however, there are very few studies available to confirm any of these theories.

Thiamin deficiency has been found in 15.5 to 29% of obese patients seeking bariatric surgery. An article published in the March 2015 issue of *Advances in Nutrition*, "[Thiamin Deficiency in People with Obesity](#)," examines what we know and what we need to know about this important aspect of malnutrition among the obese.

Thiamin (also known as vitamin B-1) is an essential micronutrient involved in the metabolism of glucose and is critical for healthy tissue and organ function. There is speculation that the primary reason for thiamin deficiency in people with obesity is a diet high in simple sugars and low in whole grains, legumes, and other whole foods that naturally contain thiamin. Not only do simple sugars lack thiamin, but the metabolism of foods high in sugar requires relatively high amounts of thiamin and may therefore accelerate its depletion.

Severe thiamin deficiency, which is rare, can lead to fatal cardiovascular and neurologic complications. Marginal thiamin deficiency, which is more prevalent, may give rise to symptoms such as mental fatigue, mood swings, paresthesias (burning or prickling sensations), generalized weakness, muscle and back pain, and nausea. Because these symptoms are somewhat vague and common to many diseases and disorders, health care providers rarely consider thiamin deficiency unless a patient is known to abuse alcohol.

The authors have noted that there is a great deal of research needed to understand the link between obesity and thiamin deficiency. For example, much of the information we have on obesity and the incidence of thiamin



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deficiency comes from individuals seeking bariatric surgery. To qualify for bariatric surgery, all patients must have actively engaged in weight-loss efforts for a minimum of three to six months prior to surgery. Research has shown that exercise and diets designed to promote weight loss may lead to thiamin deficiency in obese people who were not thiamin deficient before their weight-loss efforts began. Therefore, the prevalence of thiamin deficiency in the preoperative bariatric surgery population may not accurately reflect the prevalence of thiamin deficiency in the general obese population.

In addition to calling for more research, the authors state that "it would behoove clinicians to consider the diagnosis of thiamin deficiency in obese or dieting patients with vague signs and symptoms, such as gastrointestinal symptoms, mood or sleep disturbances, paresthesias, or heart failure, that have not otherwise been explained."

Can Your Diet Prevent or Postpone Dementia?

Advances in Nutrition review finds certain dietary patterns linked to better cognitive function as we age

It is estimated that 44 million people worldwide lived with dementia in 2013. With the aging of the global population, there will be an estimated 7.7 million new cases per year, reaching 135 million dementia patients by 2050. Because there are currently no effective treatments for dementia, it is an urgent priority to find ways to both reduce incidence and slow down the progression of dementia. With that goal in mind, nutrition researchers are gathering more and more evidence connecting diet to cognitive decline and dementia.

Over the past years, attention has shifted from the role of individual nutrients or foods to the role of broader dietary patterns in cognitive decline and dementia. A dietary pattern approach better reflects the complexity of what and how we eat. The authors of "[Dietary Patterns, Cognitive Decline, and Dementia: A Systematic Review](#)," published in the March 2015 issue of *Advances in Nutrition*, offer a systematic review that evaluates the evidence from a broad range of studies conducted around the world that investigate dietary patterns and their effect on cognitive decline and dementia in older adults.

Their analysis suggests that better adherence to a Mediterranean diet can result in lower incidence of cognitive decline, dementia, and Alzheimer's disease. The Mediterranean diet emphasizes the consumption of fruits, vegetables, whole grains, olive oil, fish, and seafood. Moreover, it limits meat and sweets.

Less research has been done on other dietary patterns; however, the authors did point to promising studies that examined the effects of such dietary patterns as the Japanese diet and the Healthy Diet Indicator. In general all of these dietary patterns share common elements: an emphasis on fruits, vegetables and fish, with limited consumption of meat, saturated fats, and refined sugar.

Interestingly, some studies have shown that the same dietary pattern does not have the same effect on men and women. For example, the authors pointed to one study that found that higher consumption of "vegetables-fruits" and "snacks-drinks-milk" patterns were associated with reduced risk of cognitive impairment in women, but not in men. In contrast, another study reported that the Mediterranean diet resulted in an increased risk of cognitive impairment for women, but a reduced risk in men. The authors noted that "[T]hese possible sex-specific differences merit further investigation and clarification."

While healthy dietary patterns such as the Mediterranean diet do show promise in warding off dementia, the authors note that more research is

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needed. In particular, the authors note the difficulty in reaching firm conclusions with observational studies in which participants must periodically recall what they've eaten. Moreover, they pointed to differing methodology among the studies they evaluated, making it difficult to compare results. The authors call for "more intervention trials of sufficient sample size investigating what type of dietary pattern is favorable with respect to prevention of cognitive decline."

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