Dietary Guidelines for Psychiatric Patients

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KEY CONCEPTS

■ Diet can have an important role in the management of psychiatric disorders.
■ One mechanism through which diet is helpful is that diet provides a range of vitamins and minerals that serve as cofactors for the synthesis of specific neurotransmitters.
■ Dietary guidelines can also benefit specific psychiatric disorders and common comorbid symptoms through their influence on hypoglycemia/abnormal glucose tolerance, food intolerance, and possibly other effects.
■ There is significant research to support the relationship between specific dietary factors and psychiatric disorders; however, many guidelines and recommendations come from years of clinical experience by many integrative medicine practitioners.
■ Because there is a range of dietary and/or nutritional factors that may have an influence, and many individual factors that may provide a susceptibility to psychiatric symptoms or disorders, a comprehensive evaluation is needed in order to provide a unique and effective dietary and nutritional program.
■ Since dietary changes and programs can be challenging, careful consideration should be given to what patients are willing and able to do.
■ Significant future research is required to clarify the influence of dietary factors in specific psychiatric disorders, and to determine the most effective dietary and nutritional approaches to recommend.
Introduction

Healthy dietary guidelines are an important foundation approach to health and healing in integrative medicine, and are necessary to address in order to lessen patient symptoms and promote optimal wellness in people with psychiatric disorders. While dietary choices and practices can be closely linked to physical, emotional, and spiritual well-being, it can be challenging to evaluate how beneficial dietary modifications will be for psychiatric patients and to determine the best approach to take that will not add significantly to patient stresses. Even considering these issues, however, diet can have an important impact on well-being and produce specific psychiatric benefits. This is especially true when considering how unhealthy most people’s diets are.

Dietary influences in nervous system function can occur in several ways. One primary characteristic of diet is that it provides essential vitamins and minerals that serve as cofactors for the synthesis of specific neurotransmitters. For example, the B complex vitamins (thiamine, riboflavin, pyridoxine, cobalamin, and folate) are cofactors for the synthesis of norepinephrine, dopamine, serotonin, GABA, and acetylcholine (Bell et al., 1992; Bradford, 1986). Dietary fatty acids also contribute to nerve cell membrane composition, fluidity, and resulting function. In addition, dietary antioxidants (e.g. vitamins C and E, selenium, and various phytonutrients) protect cell membranes from oxidative stress and aging, which could impair function over time. Also discussed are hypoglycemia/abnormal glucose tolerance, food intolerance, healthy fats or fatty acids, and other dietary factors.

How to approach patients with psychiatric symptoms and disorders to address dietary guidelines can be a challenge. However, integrative medical and nutritional approaches to these symptoms and disorders can provide an important framework from which dietary (and supplement) approaches can be presented. For example, an integrative medical practitioner could discuss the benefits of diet, supplements, exercise, relaxation techniques, and other modalities, and discuss approaches that the patient or client is open to consider. With nutrition, however, it should be remembered that supplements may have only limited benefit if the diet is very poor, so dietary improvements should be the basis for a good nutritional program.

A thorough clinical intake and physical examination is required, which should include questions about eating habits, foods preferred or avoided, typical meals and snacks, amounts eaten, and digestive function. Through this inquiry, suspected nutrient deficiencies or insufficiencies can be identified and later confirmed through specific diagnostic testing. These nutrient imbalances
can usually be managed through a dietary and nutritional consultation, and then by providing appropriate information and recommendations. Consideration of nutritional supplementation will be addressed in Chapter 3.

While there is some research presented to support many of these dietary and nutritional factors, a significant amount of this information has been derived from many years of clinical experience, and when effectively applied can produce significant benefit. Because this field is evolving, references at the end will help readers understand where the current research is, but it will be important to monitor new information and research as it becomes available.

**FACTORS LEADING TO NUTRITIONAL DEFICIENCY AND INSUFFICIENCY**

There are many nutrition-related influences that can contribute to psychological distress and disorders. These factors will be different for each person, so the challenge is to carefully identify the unique combination of factors that are present, and to formulate an effective overall approach.

**BIOCHEMICAL INDIVIDUALITY AND GENETIC POLYMORPHISMS**

Roger Williams, an important early researcher of B complex vitamins (Williams & Saunders, 1934), proposed the role of nutrients to prevent diseases arising from above average demands for specific nutrients involved in cellular function due to genetic uniqueness; he called these conditions genetotrophic diseases. He popularized the term “biochemical individuality” and believed that major chronic degenerative diseases, such as heart disease, stroke, cancer, diabetes, and arthritis, as well as mental illness, behavior disorders, and alcoholism were “genetotrophic” diseases.

More recently, researchers led by Dr. Bruce Ames substantiated Dr. Williams’s postulates of genetotrophic disease. They suggested that as many as one-third of mutations in a gene results in a lower level of enzyme activity, and that the administration of higher than dietary reference intake (DRI) levels of cofactors, in the form of specific vitamins and minerals, restores activity to near normal and even normal levels (Ames, Elson-Schwab, & Silver, 2002).

The most common gene mutations or polymorphisms are called “single nucleotide polymorphisms” or SNPs. SNPs will produce less functional translation of proteins and enzymes, and therefore can adversely affect biochemical and metabolic pathways.

The most common SNP may be found within the gene that codes for the methyl-tetra-hydrofolate reductase (MTHFR) enzyme. As a result of the
MTHFR SNP, extra dietary and supplemental folate (and other nutrients) may be required for neurotransmitter synthesis and methylation, and research suggests that this may be associated with depression, bipolar disorder, and schizophrenia (Gilbody, Lewis, & Lightfoot, 2007).

**DIETARY AND METABOLIC INFLUENCES**

From a dietary standpoint, we know that the standard American diet is not nutrient dense and can lead to nutritional deficiencies or insufficiencies for nutrients such as folate, magnesium, iron, and zinc, as well as inadequate phytounitrient intake (Biesalski, 2003; Vaquero, 2002). An example of this, which could easily occur, is that of an older patient who has never eaten very well, is taking a number of pharmaceuticals, and may have limited access to healthier food or lack the incentive to eat well. These factors could also be compounded by some degree of malabsorption from irritable bowel syndrome (IBS) or inflammatory bowel disease (IBD). In addition to inadequate nutrient intake and malabsorption, stresses or an acute incident, such as the loss of a family member or a motor vehicle accident, could contribute to physiological or metabolic stresses and/or loss of appetite, all of which could cause a vulnerability that could be the nexus of a psychiatric illness.

The increasing prevalence of overweight and obesity, and associated inflammation, can be a chronic metabolic stress that has nutritional consequences. The impact of this could be even broader, since research now suggests that aging is an inflammatory process (Napoli & Palinski, 2005). It would therefore be appropriate to address the effects of an anti-inflammatory diet and additional nutrient requirements when developing a dietary and nutritional program for either a new onset psychiatric disorder that occurs with aging, or other disorders in which inflammation may be present (e.g., IBD, CVD, RA, and others). Within the context of metabolic syndrome and inflammation, it is also important to note that the prevalence of depression in Type 2 Diabetes Mellitus (T2DM) is double the level of a normal population, and evidence suggests that the depression can worsen symptoms and/or glycemic control (Musselman, Betan, Larsen, & Phillips, 2003).

Finally, there is the question of environmental exposures to pollution, heavy metals, and chemicals from air, water, and food. These may contribute to nutritional imbalances by interfering with important nutrients, or by adding to nutritional requirements that may be involved with detoxification of these substances. This is an important challenge, however, since the current methods for assessing exposure or burden and treating it have not been effectively validated and remain controversial.
Because these factors can produce inadequate nutrient intake, poor digestion, decreased absorption, and utilization, as well as greater nutrient requirements, it is likely that there can be an “environmental” susceptibility to psychiatric disorders that could benefit from attention to healthy dietary guidelines and related interventions. The broad range of these influences suggests the importance of a comprehensive assessment process that will effectively identify the significant risks present for each patient.

### Dietary Influences in Psychiatry

#### HYPOGLYCEMIA, ABNORMAL GLUCOSE TOLERANCE, AND INSULIN RESISTANCE

Hypoglycemia or abnormal glucose tolerance is an important consideration for neuropsychiatric disorders and symptoms. While this is controversial as a contributing factor to psychiatric disorders, abnormal glucose tolerance and insulin resistance for metabolic syndrome and associated characteristics are well accepted. It is possible, however, that these disorders represent two ends of a continuum, and both are representative of abnormal glucose tolerance. A primary factor is weight and its influence on insulin resistance, a central pathophysiological mechanism.

Although there has been little recent research, studies have suggested a significant relationship between affective disorders and abnormal glucose utilization and/or insulin resistance (Amsterdam, Schweizer, & Winokur, 1987). One study found significantly higher basal glucose levels, greater cumulative glucose responses during an oral glucose tolerance test (OGTT), larger cumulative insulin responses during the OGTT, and insulin resistance in depressives versus controls (Winokur, Maislin, Phillips, & Amsterdam, 1988). Some evidence suggests a greater prevalence in psychotic depression, melancholic depression, and bipolar disorder in comparison to neurotic depression or controls (Mueller, 1981). However, these findings have had some conflicting results, perhaps as a result of inconsistently examining factor effects from weight, age, activity level, diet, stress, and/or other potential influences.

In nine patients with panic disorder, OGTTs did produce typical hypoglycemia somatic complaints (palpitations and diaphoresis) as well as significant generalized anxiety symptoms according to the Zung Anxiety Scale (Uhde, Vittone, & Post, 1984). Also, those patients with the highest baseline anxiety levels tended to have the lowest glucose nadirs. However, no panic attacks were observed, so the authors concluded that “hypoglycemia is an unlikely cause.” These results were supported by another study of insulin—induced
hypoglycemia in which panic attacks were not elicited (Schweizer, Winokur, & Rickels, 1986). However, the authors of the latter study acknowledged the feasibility that the testing circumstances may have undercut the development of perceived panic. Finally, a study of cerebral glucose metabolism in women with panic disorders found significant abnormalities in PET scans, including increases in glucose metabolism in the left hippocampus and parahippocampal areas, as well as decreased metabolism in the right inferior parietal and right superior temporal regions (Bisaga et al., 1998).

There are also two other important studies of hypoglycemia in the medical and nutritional literature that need to be mentioned. In the first investigation (Chalew et al., 1984), the researchers actually called the condition “idiopathic post-prandial syndrome” (IPS). This research compared OGTTs in 19 patients with hypoglycemia or IPS versus 16 controls, and they also measured a full array of hormone levels, including epinephrine, norepinephrine, cortisol, glucagon, and growth hormone. What they found was significant differences between the two groups for all hormone levels at the OGTT nadir. In fact, there was no overlap between the two groups for epinephrine levels at the glucose nadir.

In the second excellent study (Blouin et al., 1993), the researchers compared subjects with bulimia and controls for their response to 25 g of injected glucose versus placebo. There were significant subject reports of fatigue, depression, and anxiety in bulimics injected with glucose in comparison to placebo and controls injected with glucose or placebo. Also, bulimics reported a significantly heightened urge to binge at 10 minutes and 60 minutes after the glucose injection.

Symptoms of hypoglycemia include fatigue, headaches, depression, anxiety, heart palpitations, irritability before meals, and possibly other symptoms. A review of hypoglycemia suggested that the symptoms could be categorized as adrenergic (e.g., anxiety, sweating, irritability) or neuroglycopenic (e.g., headache, fatigue, dizziness), although both are effects on the nervous system (Field, 1989). A prominent explanation is that epinephrine is a primary counter-regulatory hormone when blood glucose drops too low or too quickly. This notion is supported by Chalew’s work (1984), although there are probably several other hormonal and/or cell receptor influences. For example, more recent research has found inadequate glucagon secretion (Leonetti et al., 1996) and decreased dehydroepiandrosterone sulfate (DHEA-S) levels (Altuntas, Bilir, Ucak, & Gundogdu, 2005). It is also likely that some individuals who are highly stressed and have higher circulating levels of epinephrine, will be more susceptible to hypoglycemic symptoms.

Causes of hypoglycemia include excessive sugar and refined carbohydrate intake, missing meals, excessive coffee or caffeine intake, inadequate dietary protein or fat (preferably healthy fat), significant stress and/or inadequate
magnesium or chromium intake and/or status. While the most accurate test to identify hypoglycemia is an OGTT (insulin levels could also be measured), it can be a very unpleasant test, and there are several unresolved issues about the testing, such as optimal test length and diagnostic criteria. Common criteria for diagnosing hypoglycemia during a 5-hour OGTT include (a) plasma glucose < 55mg/dL; (b) glucose dropping > 100 mg/dL in 1 hour; (c) a flat OGTT curve; and/or (d) more than one peak during a 5-hour OGTT. It should be noted that early morning waking and some menopausal hot flashes may also be related to hypoglycemia. Early morning waking is particularly relevant to this text because of the importance of sleep and the significant adverse effect that insomnia can have on overall symptoms.

Although appropriate recommendations are indicated by addressing the list of causes or contributing factors listed above, assessing influences and applying dietary guidelines will be discussed later in this chapter. It is important to conclude this discussion of hypoglycemia by stating that consideration of abnormal glucose tolerance is important for all patients with neuropsychiatric disorders. This area remains controversial, however. Since there are many factors that influence this process, symptoms will vary in different people and are fairly broad, and there is not the significant and convincing evidence base of research that is required.

**FOOD INTOLERANCE**

The influence of food intolerance on nervous system functioning is also controversial. While there is a range of evidence to suggest that specific dietary components have neuromodulatory effects, the research is weak, and there are several important research gaps that need to be addressed. Food intolerance is a more useful and appropriate term than food allergy because the specific mechanisms of action go beyond immunologically based reactions, and they are not well understood. Research on exorphins and casomorphins provides a good example of other mechanisms of action.

The initial research on exorphins was reported in 1979, in which in vitro models of dairy (casein) and wheat (gluten) protein hydrolysates (using pepsin) showed opioid activation (Zioudrou, Streaty, & Klee, 1979). The proteins were four and five amino acid polypeptides that were exogenous in origin and had morphine-like activity, so they were called exorphins.

One research group has examined characteristics of five gluten exorphins (A4, A5, B4, B5, and C) and has shown in animal research that exorphin A5 can stimulate insulin secretion, suggesting pancreatic endocrine function modulation (Fukudome, Shimatsu, Suganuma, & Yoshikawa, 1995). Another group
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has examined milk-protein-derived opioid receptor ligands from alpha- and beta-casein, and alpha-lactalbumin and beta-lactoglobulin, and found that the beta casomorphin (derived from beta-casein) may have the most significant biological effects (Teschemacher, Koch, & Brantl, 1997). An example of this is an animal model study that found that beta-casomorphin modulated prolactin secretion (Nedvidkova, Kasafirek, Dlabac, & Felt, 1985).

A review by Reichelt and Knivsberg suggests that opioid peptides from foods have been found in significant levels in the urine of children with autistic disorders (Reichelt & Knivsberg, 2003). This research group and their colleagues have found similar results in attention deficit disorder (Hole et al., 1988), depression (Saelid, Haug, Heiberg, & Reichelt, 1985), schizophrenia (Reichelt et al., 1981), and celiac disease (Ek, Stensrud, & Reichelt, 1999).

While many integrative medicine practitioners recommend casein-free and gluten-free diets to children with autism, because they have observed significant clinical benefits and there is some research to support an association, these investigations have not been well controlled (Christison & Ivany, 2006). In addition, integrative medicine practitioners will usually also recommend supplements and behavioral or psychosocial approaches, as well as other modalities that can be beneficial. This makes it much more difficult to determine the degree to which the diet specifically has an effect.

Other pediatric research that illustrated this potential influence of food intolerance was done in children with epilepsy (Egger, Carter, Soothill, & Wilson, 1989). This study showed that a significant percentage of children with epilepsy and GI symptoms, headaches, and/or hyperactivity had some benefit from an elimination or oligoantigenic type of diet. Out of 24 children with generalized epilepsy, 18 had moderate improvement to complete control, as did 18 of 21 children with partial epilepsy; whereas none of the 16 children with epilepsy alone showed a response from the diet. In double-blind, placebo-controlled challenges, symptoms recurred in 15 of 16 subjects (8 had seizures).

In a subgroup of children with attention deficit hyperactivity disorder, this same research group was able to demonstrate that food not only affected clinical symptoms but also altered brain electrical activity (Uhlig, Merkenschlager, Brandmaier, & Egger, 1997). This study was done in 15 children following avoidance and ingestion of offending foods in a crossover design with blinded independent investigators reading topographic EEG mappings of brain electrical activity. Provoking foods were associated with an increase in beta 1 activity in the frontotemporal area of the brain.

It is important to note that there are a number of neurological syndromes that are associated with celiac disease (Wills, 2000). Also, one study of consecutive patients presenting to a neurology clinic (147 patients total—94 with a known diagnosis and 53 with no diagnosis), found that for those subjects with
an idiopathic condition, 57% (30/53) had anti-gliadin antibodies (Hadjivassiliou et al., 1996). This is at least suggestive that wheat-derived peptides can significantly affect nervous system functioning.

While there is some evidence to support significant clinical influence, there are important unanswered questions that need to be addressed, including (a) what dietary components or peptides are most important; (b) whether there is scientific plausibility based on identifying circulating levels of exorphins, casomorphins, or other food components, and then whether they cross the blood brain barrier and promote adverse effects; (c) what the prevalence and degree of influence of these factors may be; (d) how susceptible individuals can be identified; and (e) what the impact is of eliminating these factors on circulating levels, and tissue and clinical responses.

Even without answers to these questions, the clinical influence can be assessed in patients. An effective way to try to test this is through the use of a rotation diet and/or elimination/challenge diet. While there are some tests that may identify food allergy or food intolerance, they have not been shown to have high specificity or reliability. Therefore, a clinical trial is appropriate, although there are differences of opinion regarding how exactly this should be done and for how long.

Rotation and elimination diets can also be useful for the significant numbers of psychiatric patients who present with comorbidities and psychosomatic disorders, such as stomach and intestinal disorders (IBS, IBD, and GERD), migraines, autoimmune disorders, chronic inflammatory or pain disorders, skin conditions, allergies, or others. These diets can be applied in three primary ways, including (a) a rotational diet (1–2 times per week of foods in Level 1 or Level 2)—this is a good way to begin, especially for those patients who may have difficulty with the diet and/or are resistant to it; and this diet can be followed for 2–4 weeks, or until they may be ready to proceed to the more restrictive protocol; (b) a “Level 1” elimination diet—avoid sugars, dairy, wheat, alcohol, and caffeine; and (c) a “Level 2” elimination diet—avoid foods from Level 1, plus other potentially offending foods such as peanuts, soy, other gluten grains (rye and barley), corn, oats, citrus, eggs, and any other foods that may be suspected. The patient’s ability and willingness to comply even for a short time is important to consider.

**HEALTHY DIETARY FAT AND ESSENTIAL FATTY ACIDS**

The inclusion of significant amounts of healthy fatty acids in the diet is likely to be beneficial in several ways, including (a) its influence on nerve cell membrane fatty acid composition, membrane fluidity, and neuronal function;
(b) anti-inflammatory effects; (c) the adherence to a healthy dietary pattern, which would be similar to a Mediterranean-type diet or vegetarian-based diet; and (d) its help in balancing macronutrients and, therefore, in stabilizing glucose tolerance. Although dietary fats may be most important during infancy and childhood (for normal growth and development), and with aging, the effects can be important during any phase of life. These healthy fats include omega 3 fatty acids (primarily from specific types of fish, flax seeds, soy products, nuts/seeds, and dark green leafy vegetables) and monounsaturated fats (primarily from olive oil, olives, nuts/seeds, and avocado).

A recent review effectively addresses the importance of essential fatty acids in nerve cell membranes and their influence on cell membrane fluidity and physiological functions of the brain (Yehuda, Rabinovitz, & Mostofsky, 2005). Some of the specific functions thought to be affected include (a) membrane-bound enzyme activity; (b) number and affinity of membrane receptors; (c) ion channel function; (d) synthesis and activity of neurotransmitters; and (e) cellular signal transduction.

With regard to anti-inflammatory effects, a significant amount of the research and the best research is on omega 3 fatty acids and their influences on the eicosanoids (prostaglandins, leukotrienes, and thromboxanes), which mediate inflammation and related functions. While there are other dietary influences on inflammation that can promote inflammation (e.g., trans fats, saturated fats, and high glycemic index/load diets) or decrease inflammation (e.g., anti-oxidants, monounsaturated fat, and fiber/higher fiber dietary patterns), this research is getting a lot of attention and will continue to develop on a yearly basis (Kontogianni, Zampelas, & Tsios, 2006). An example of the type of research that is needed is the effects of monounsaturated fat, since it probably has membrane and inflammatory influences, but this has not yet been carefully studied.

Research is accumulating that describes the inflammatory process associated with obesity, cardiovascular disease (Willerson & Ridker, 2004), cognitive dysfunction associated with aging, and aging in general (Napoli & Palinski, 2005). Since many patients will have one or more of these disorders, dietary guidelines that address anti-inflammatory effects could have benefits for these comorbid diseases but may also influence neuropsychiatric function and susceptibility to aging-related psychiatric disorders.

A recent meta-analysis suggested that omega 3 fatty acids did have anti-depressive effects, despite heterogeneity and publication bias in the included studies (Lin and Su, 2007). Although this research examined influences of supplemental EPA and DHA, there is research that has shown lower serum or red blood cell membrane levels of omega 3 fatty acids, or w3:w6 fatty acid ratios in patients with major depression (Kilkens, Honig, Maes, Lousberg, & Brummer, 2004; Maes et al., 1999). Still other research has found associations between
chronic inflammatory disorders and affective disorders, such as the research of substance P, which has been tied to both the pathophysiology of inflammation, and to depression and anxiety (Rosenkranz, 2007).

Finally, it should be recognized that these influences are interrelated. For example, overweight or obesity can contribute to inflammation, and inflammation can contribute to oxidative stress of tissues, including neurological tissues. While healthy fats can contribute to more optimal cell-membrane fluidity and function, dietary and supplemental anti-oxidants will also help in protecting tissues from oxidative stress. At the same time, eicosanoid metabolism of fatty acids to less inflammatory or anti-inflammatory mediators is dependent on other factors, such as magnesium and zinc status, as well as cholesterol levels and aging, all of which can affect delta-6 desaturase enzyme activity. In addition, the inclusion of healthy dietary fat may promote the ingestion of a broader range of important nutrients and phytonutrients, as well as help in improving glucose tolerance. Therefore, future research will need to clarify the most important specific mechanisms involved, and the relative contributions that these factors have.

**DIETARY FOLATE AND DEPRESSION**

Investigations have documented a potential relationship between dietary folate and depression (Tolmunen et al., 2004). Other research suggests that this relationship may be more significant in men than women and for recurrent depression more than a single depressive episode (Astorg et al., 2008). Folate is important for methylation reactions and neurotransmitter synthesis. Since folate is found in healthy foods such as vegetables, whole grains, and beans, which are suggestive of healthier dietary patterns, it may be difficult to separate out the influence of folate specifically. However, other investigations have found that lower folate status was associated with poorer response to SSRIs and that folate supplementation may augment SSRI therapy in major depression (Alpert et al., 2002). The potential influence of folate and overall dietary guideline influences were supported by research that found that a Mediterranean dietary pattern was linked with depression prevention (Sanchez-Villegas, Henriquez, Bes-Rastrollo, & Doreste, 2006).

**OTHER DIETARY FACTORS**

To accurately and comprehensively describe the research and clinical practice that characterizes dietary influences in integrative psychiatry, it should be mentioned that there are other dietary factors that may have clinical influence and
have been studied. Two examples of this are (a) the potential influence of dietary chemicals (e.g., pesticides, coloring agents, and preservatives) and their effects in children with ADHD and other disorders (Bateman et al., 2004); and (b) the area of diet and nutrition and behavior that includes associations with aggression, violence, and anti-social behavior (Benton, 2007).

Although these issues will arise periodically as research is published and/or advocacy groups are highlighted in media stories, it should be recognized that this research is very challenging to do and is always open to criticism. It is also likely that there are specific vulnerabilities in patient subpopulations from factors such as genetic polymorphisms or SNPs, and/or multifactorial influences that need to be in place for symptoms or a disorder that is affected by diet to manifest. Therefore, general studies that look at overall influences may miss some factors that are very important and have significant effects. Future research will hopefully be better designed and have more sensitive markers to evaluate these relationships, especially with regard to studying subpopulations.

Healthy Eating Behaviors and Relationship to Food

An important goal for integrative medicine and nutrition is to eat a natural, healthy diet that provides important nutrients for nervous system functioning, as well as one that may support other symptoms or disorders that may be present. As observed with the worsening problems of obesity and Type 2 Diabetes Mellitus (T2DM), however, this can be a very challenging objective.

Although it is beyond the scope of this chapter to discuss the range of evidence for the addictive potential of foods, it is important to note that there is increasing clinical and animal research that supports this relationship. Areas of research have included both sugar and carbohydrate addiction (Avena, Rada, & Hoebel, 2008; Spring et al., 2008), as well as the addictive qualities of high fat foods (Teegarden & Bale, 2007). A recent review paper discussed several aspects of this process, including the presence of chronic psychological stress, consequent influences on the HPA axis, a theoretical, reward-based stress eating model, and neuropeptide/endocrine dysregulation mediators that may be involved (Adam & Epel, 2007). A good illustration of some of these factors were observed in men recovering from substance abuse in which three main themes emerged, including excess weight gain, meaningful use of food, and a struggle to eat healthfully that varied by recovery stage (Cowan & Devine, 2008).

The emotional and physiological interrelationships that people have with food are complex. One recent study found that obesity was spread through
the influences of social network (Christakis & Fowler, 2007). Other research suggests that many environmental factors increase food intake, including package size, plate, and glass sizes/shapes, lighting, socializing, variety, and others (Wansink, 2004). This same group found that people make as many as 200 decisions about food everyday.

As many integrative medicine practitioners may know, mindful eating is the focus of one of the eight sessions of the Mindfulness Based Stress Reduction (MBSR) program, the nationally recognized and well-researched approach developed by Jon Kabat-Zinn, PhD. In this practice, the full measure of attention and experience is brought to the process of eating—thoughts, feelings, smells, textures, etc.—which may provide an opportunity to be fully present to the healthy or unhealthy feelings that occur. Several other similar programs are in the process of being developed and researched.

One important consideration, which may or may not be specific to psychiatric practice, is that behavior change is difficult enough without the additional burden that depression, anxiety, and other psychiatric symptoms can add. Therefore, these guidelines may be more appropriate for patients with relatively stable or moderate conditions, or for those with significant knowledge, motivation, support, and/or resources. The process could also be started slowly by adding foods or making dietary changes that promote the inclusion of healthy foods (e.g., vegetables, fruits, bean products, healthy snacks such as nuts, and others), or by limiting potentially problematic foods (e.g., sugars, alcohol, caffeine, sodas, fast foods, and others).

The general approach and discussion of dietary change with patients can also be used to address a range of emotional, psychological, and spiritual issues—from addressing conflicted feelings, making choices, and employing restraint—to issues of self-care and personal responsibility. At the same time, comfort eating and food addiction can also present opportunities for talk therapies or other approaches to uncover or explore areas of trauma or conflict that have contributed to unproductive or unhealthy dietary patterns.

**CONSIDERATIONS FOR PRACTICAL APPLICATION**

Some practical issues have been addressed above. In general, the primary considerations are (a) knowledge of diet, dietary components, and health influence or impact; (b) shopping, cooking, and preparation time, as well as cost in some cases; and (c) what adjustments to make, and at what point in a treatment program; and (d) for how long should therapeutic guidelines be followed.

Knowledge, practices, and beliefs can be identified through a diet/food questionnaire, which could just be a description of one day’s typical food
intake, as well as through patient discussions. Another method to more clearly assess dietary patterns is to have patients fill out a 3- to 7-day food record, which may include daily symptoms, moods, and/or feelings. Individuals who have followed specific dietary guidelines or specific diets may be better able to make the recommended changes. An additional concern, for both patients and practitioners, is that there is often significant conflict or controversy regarding specific dietary guidelines or recommendations, which can result in considerable confusion. However, by taking a larger view of diet, it can be recognized that there is reasonably good agreement on basic healthy dietary (and lifestyle) recommendations that would be a good place to start. Then other, more controversial approaches could be considered for a period of time if desired.

Given some considerable controversies in nutrition and diet, another important option could be to refer to a knowledgeable and effective nutritionist or dietician who can support patient efforts more broadly, as well as be a good professional resource to the practitioner and patient regarding dietary and nutritional issues.

With respect to shopping, cooking, and preparation time, it may be helpful and important that a patient take time for this, and hopefully develop an ability to manage these tasks. While the degree to which this may be necessary will vary from person to person, it is a central feature of health and healing, especially in an integrative medical environment. Depending on how poor a patient’s diet is and how much dietary change is made, some symptoms could improve within two weeks. In fact, some patients may have already made dietary changes in the past and observed that they feel better when they eat less sugar and refined flour products, dairy and/or wheat products, and/or made other dietary changes.

One empirical guideline to consider is that diet may need to change 25%–50% before it can have a significant enough influence on health and well-being (assuming that there is not a specific food or issue that is having an overriding effect). This is, in most cases, however, in addition to some changes in other integrative modalities, such as targeted nutritional supplementation, some regular exercise, movement and/or stretching, and some regular relaxation practice. It could also be important to have patients eat smaller but more frequent meals and snacks (e.g., four to six times per day, including three meals and one to three snacks, with the mid-afternoon snack being the most important), and to bring one to three healthy snacks to work or school so that they are readily available, and/or to set limits on specific, potentially problematic foods or beverages, such as sugar, caffeine, dairy, wheat, and alcohol.
Future Research

Because of the complexity of dietary research and the fact that it is not a funding priority, there has not been the range and depth of effective and meaningful research that is necessary to identify more effectively dietary influences on psychiatric-related illnesses and specific mechanisms that are involved. However, this deficiency is very slowly beginning to change for several reasons, including (a) significant interest in integrative medicine by the public, which has led the NIH to establish the National Center for Complementary and Alternative Medicine (NCCAM), where nutrition and lifestyle approaches, as well as other modalities, are being studied more carefully; (b) organizations, such as the Consortium for Academic Health Centers for Integrative Medicine and the Bravewell Collaborative, are actively promoting nutrition and lifestyle approaches for the prevention and treatment of disorders, and will soon begin practice-based research networks; (c) the public health problems of obesity and diabetes will necessitate a more effective approach to lifestyle factors, such as diet and exercise; and (d) the cost of medical care and the insurance system that supports it is almost at a breaking point, which will necessitate a move toward prevention and better care systems for chronic diseases.

Research priorities include more effective dietary research designs, reliable markers of nutritional status and dietary compliance, and research designs that can examine multifactorial influences on multifactorial disorders. This will, however, require significant time and resources.

Another important factor to investigate is dietary compliance and an examination of the various factors that promote this type of behavioral change. This will also need to be combined with more effective infrastructure to support these changes, as well as some insurance reimbursement to encourage a larger scale impact.

Summary and Conclusions

As this chapter describes, dietary guidelines that are part of an integrative medicine approach to care can have an important effect on physical and emotional symptoms that are important in psychiatric disorders. It is also evident that, while there is not as much effective research to support such approaches as may be desired, the research that has been done, combined with substantial clinical experience and logic, suggests the importance of addressing underlying
contributing factors, such as dietary guidelines. This also provides a valuable opportunity to work with a patient in a comprehensive way, which allows him or her to be involved in the process of finding effective and helpful approaches, as well as taking responsibility for aspects of his or her care and well-being.

As described, key dietary factors include dietary nutritional composition, hypoglycemia, food intolerance, healthy dietary fat, and/or other possible effects. These guidelines could be addressed by (a) eating more whole foods (e.g., vegetables, beans, whole grains, fruit, and lean protein), and less refined flour products and processed foods; (b) eating smaller, more frequent meals (e.g., four to six times per day); (c) bringing two to three healthy snacks to work; (d) balancing meals for healthy protein, low carbohydrate vegetables, and complex carbohydrates; (e) rotating allergenic foods (e.g., dairy and wheat, only one to two times per week); and (f) setting limits on sugar (e.g., dessert, other than fruit, one to two times per week); caffeine (e.g., one cup of coffee per day at breakfast); and alcohol (e.g., one to two drinks per week). What can be a challenge is determining the exact approach to use, the appropriate point in time to apply it, and the time frame when a program should be used. Diet will also most likely be beneficial when it is linked directly to the use of targeted nutritional supplements, so that it can initiate biochemical influences more quickly, and promote more short-term benefits that will encourage longer term compliance. Ongoing research and clinical experience should help in determining the most important dietary influences in psychiatric disorders and the most effective clinical protocols to recommend.

REFERENCES


