Andrea Stonecipher, M.D., Clocktower Therapy Center, 217-793-0680

http://clocktowertherapy.com/practitioners/andrea.html

Excerpts From the Medscape Article: Depression: Lifestyle and Complementary Therapies to Promote Healthy Moods in Teens by Kathi Kemper, MD, MPH

Lifestyle Essentials: the Fundamentals for Healthy Moods

Nutrition

Healthy nutrition means taking in optimal amounts of essential nutrients while avoiding or minimizing intake of toxic substances. Genetic variability, lifestyle, medical illnesses, medications, allergies, or environmental exposures may increase the need for specific nutrients in the form of supplements (see section on Biochemical Therapies).

Nutrients are essential for optimal production of neurotransmitters affecting mood such as serotonin (made from tryptophan with B vitamins and zinc as cofactors). Table 2 provides a listing of food sources for nutrients essential for mental health.

Table 2. Selected Nutrients Essential for Mental Health and their Food Sources

Nutrient	Food Sources
Vitamin B6	Beans, nuts, legumes Eggs, meats, fish Whole grains, and fortified breads and cereals
Folate	Beans and legumes Citrus fruits and juices Wheat bran and other whole grains Dark green leafy vegetables Poultry, pork, shellfish Liver
Vitamin D	Fish, fish oils, oysters Fortified foods such as cow milk, soy milk, rice milk, and some cereals
Calcium	Milk, yogurt, buttermilk, cheese Calcium-fortified orange juice Green leafy vegetables (broccoli, collards, kale, mustard greens, turnip greens, and bok choy or Chinese cabbage) Canned salmon and sardines canned with their soft bones, shellfish Almonds, Brazil nuts Dried beans
Zinc	Beef, pork, lamb, oysters; dark meat of poultry Peanuts, peanut butter, nuts, and legumes (beans) Fortified cereals
Essential fatty acids (omega-3 fatty acids such as linolenic acid)	Fish (tuna, salmon, and mackerel oil) fish oil, flax seeds, flax oil, canola oil, walnut oil, dark green leafy vegetables
Tryptophan	Turkey, chicken, fish Milk, cheese Eggs Soy, tofu Sesame seeds Pumpkin seeds Tree nuts, peanuts, peanut butter

Failure to eat breakfast is associated with depressed mood. Encourage patients to eat a healthy breakfast, including some protein to promote stable blood sugar throughout the day. Foods with a *low glycemic index* such as proteins, healthy (unsaturated, non-trans) fats, and complex carbohydrates help minimize mood swings associated with variations in blood sugar.[2] Minimize the use of processed foods that contain low levels of the nutrients essential to maintaining a positive mood. Avoid sweetened beverages, processed foods, high fat foods, fried foods, and junk food.

Food sensitivities can cause mood problems as well as rashes, asthma, and rhinorrhea. Approximately 6% of children and adolescents have allergies or sensitivities to foods, including 1% who cannot tolerate gluten. The most common food sensitivities are to wheat, corn, soy, dairy, eggs, tree nuts (such as pecans, walnuts and almonds), shellfish, and peanuts. Eliminating the triggering food(s) from the diet can improve mood as well as other symptoms such as chronic headaches, rashes, and gastrointestinal upset.

Healthcare professionals can also urge patients to avoid toxic ingestions. Some teens try to manage their moods by smoking, drinking alcohol, or taking other drugs. While these may improve mood in the short term, over the longer term, they do not. In some rare cases, people are sensitive to petrochemicals, artificial flavors, artificial colors, and artificial sweeteners; these food additives are not essential nutrients and might well be avoided by most people. Choosing organic or unprocessed foods may be a way to reduce exposure to artificial chemical residues.

Exercise

For many people, vigorous physical exercise is as or more effective than cognitive-behavioral therapy in promoting positive moods.[3] Children who are sedentary report higher levels of depression.[4] Depressed mood and fatigue are common in individuals deprived of usual exercise activities (whether from an injury or acute illness) and may be influenced by reduced fitness levels. Minimizing sedentary activities associated with television, computer, and electronic games in favor of vigorous activity can improve mood. Side effects of exercise include overuse injuries, decreased obesity, lower risk of heart disease, improved sleep, less chronic fatigue, improved academic performance, and decreased pain.

Few studies have evaluated specific sports or compared one form of exercise with another. However, in a meta-analysis of five randomized controlled trials of *yoga* therapy in adults suffering from depression, all reported positive effects of this particular exercise.[5] No *adverse effects* were reported with the exception of fatigue and breathlessness, as might be expected from physical exertion. Clinicians should consider advising patients to exercise to improve mood.

Sleep / Rest

Sleep deprivation can lead to poor mood; insomnia is a common symptom of depression. Many teenagers do not get sufficient sleep. Improving sleep hygiene can help improve mood and set the tone for a restful sleep. Methods for improving sleep hygiene include:

- Using the bed only for sleep;
- Removing TV from the bedroom;
- Ensuring that the bedroom is dark and cool;
- Taking a hot bath before bed, listening to relaxing music;
- Reading positive or inspiring books;
- Receiving a brief back, foot, or hand rub from a trusted family member; and
- Writing in a journal before bed.

Environment

A healthy environment is of critical importance in promoting, maintaining, and restoring healthy mood. Discussions of the known impact of abuse, neglect, racism, sexism, poverty, and social isolation will not be included here despite their obvious effects on mood. Instead, we will focus on light and toxins in the physical environment.

Songs, poems, and stories as well as folk wisdom support the association between *sunshine* and happiness and lack of sunshine with sadness (the blues). Seasonal affective disorder (SAD) has been well-described. Modern children and adolescents receive far less sunshine than our ancestors.

A 2005 meta-analysis concluded that bright light treatment for nonseasonal depression is effective, with effect sizes equivalent to those in most antidepressant pharmacotherapy trials.[6] In a randomized controlled trial published in 2006, bright light was as effective as fluoxetine in improving symptoms of SAD (67% response rate for both).[7] Light therapy can be an effective adjunctive therapy, enhancing the effectiveness of other treatments and is safe during pregnancy.[8]

Bright light *early in the morning* seems to be most effective. In most trials of light therapy, the patient receives 2000-10,000 lux for 30-120 minutes daily.

Heavy metals such as lead and mercury are also associated with depressive symptoms.[9] Carbon monoxide poisoning is also associated with depression.[10,11] Alerting parents and caregivers to check for and eliminate environmental toxins may help improve mood.

Mind-Body Therapies

Meditation

Meditation practice, particularly mindfulness meditation (moment-to-moment nonjudgmental awareness of breathing, physical sensations, emotions, and thoughts), can contribute to enhanced mood, and change brain activation patterns in ways likely to support ongoing benefits. Specifically, meditation training leads to significant increases in left-sided anterior activation, a pattern associated with positive affect.[12] Long-term meditators compared with age-matched controls exhibit increased cortical thickness in brain regions associated with attention and sensory processing, including the prefrontal cortex.[13] Side effects of meditation may include improved ability to cope with stress, reduced pain, reduced anxiety, and enhanced immune function.

Biochemical Therapies

Because of our individual uniqueness (genomic variability), diet, and environment, some individuals require additional nutrients or benefit from specific biochemical therapies to achieve healthy moods. We will consider vitamins and minerals, fatty acids, amino acids, and herbs. Given the fact that fewer than 1% of American children meet their recommended daily allowance of all essential nutrients through diet alone,[14] it is likely that many children would benefit from supplementation with 1 or more nutrients in addition to striving to improve their overall diet. This is especially important for children who eat a restricted diet due to suspected food allergies or sensitivities.

B Vitamins, Including Folate

Vitamin B6 is essential in metabolizing tryptophan to serotonin. Folate and vitamin B12 are major determinants of 1-carbon metabolism, in which S-adenosylmethionine (SAM-E) is formed. SAM-E donates methyl groups that are crucial for neurologic function.

A systematic review suggested that 100-200 mg daily supplementation with vitamin B6 significantly benefits premenstrual depression.[15] Folate and vitamin B12 levels are lower in depressed than nondepressed persons, and replacing deficiencies can lead to remarkable improvements in mood.[17,18] The side effects of excessive doses of vitamin B6 include nausea, vomiting, abdominal pain, anorexia, headache, somnolence, lower vitamin B12 levels, and sensory neuropathy. The latter typically occurs with doses over 1000 mg daily, but can occur lower with lower doses.

Folate deficiency is common and contributes to a variety of psychiatric symptoms: depression, psychosis, irritability, dementia, and impaired memory. One review concluded that folate supplementation is beneficial in treating depression whether used alone or to complement conventional medications.[16] Adding 500 micrograms of folate to 20 mg of fluoxetine significantly improved the response rate in another study of patients with major depression.[19] Primary care clinicians should ensure that children prone to mood disorders have an adequate intake of folate, and vitamins B6 and B12 and consider recommending a multivitamin or a B-vitamin complex containing folate.

Vitamin D

Low levels of vitamin D are associated with depressive symptoms, and treatment with vitamin D supplements is associated with improved mood. A growing body of research suggests that American youth are vitamin D deficient, even in older pediatric and adolescent populations that do not have classic rickets.[20] Many adolescents have relatively low levels of vitamin D due to indoor lifestyle and inadequate intake of vitamin D fortified foods.[26] This may be exacerbated in children taking anticonvulsant medications,[21] those with inflammatory bowel disease[22] or arthritis,[23] those with chronic renal disease,[24] those living in the inner city,[25] and those who are veiled.

In a randomized controlled trial of vitamin D given to 44 Australian patients (none, 400 IU vs 800 IU vitamin D) vitamin D significantly enhanced mood in a dose-dependent fashion.[27]

It may be worthwhile for adolescents to take vitamin D supplements, particularly during winter months to ensure adequate vitamin D levels; supplementation is also worthwhile for patients with renal, inflammatory bowel disease or juvenile arthritis and those patients on anticonvulsant drugs that lower vitamin D levels.

Minerals

Calcium. Lower levels of calcium and higher levels of parathyroid hormone have been observed in depressed persons. Likewise, depression is commonly noted among patients suffering from hyperparathyroidism[28]; quality of life and depressive symptoms improve when these patients receive appropriate treatment.[29] Epidemiologically, normal to high intakes of calcium and vitamin D are associated with lower risks depressive mood in patients with premenstrual syndrome; conversely, lower intakes of calcium and vitamin D are associated with increased risk of premenstrual syndrome (PMS).[30] Small studies suggest that calcium supplementation may benefit women with PMS-related depression.[31,32]

Most adolescent girls do not meet their minimum daily requirement for calcium through diet alone. According to the Continuing Survey of Food Intakes of Individuals (1994-1996), the following percentages of Americans do notmeet their recommended intake for calcium:

- 44% boys and 58% girls ages 6-11; and
- 64% boys and 87% girls ages 12-19.

It is important for clinicians counseling adolescent girls about mood to address adequate calcium intake (optimally 1200-1500 mg daily) to ensure bone health and promote a healthy mood throughout the menstrual cycle.

Chromium. Chromium, a dietary trace mineral, has a crucial role in glucose and fat metabolism and neurotransmitter synthesis. Chromium increases free brain levels of serotonin, norepinephrine, and melatonin. A randomized controlled trial of chromium picolinate (600 micrograms daily) in patients whose depression was characterized by carbohydrate craving showed significant improvement in craving and depressive symptoms.[33]

Chromium is well tolerated, but it can have a stimulating effect. The RDA for chromium is 120 micrograms. The daily dietary intake of chromium for a typical American is approximately 25-

50 micrograms per day. The dose range in studies of its effects on mood is typically 200-600 micrograms per day. Dietary sources rich in chromium include fresh vegetables, meats, fish, and brewer's yeast.

Iron. Iron deficiency anemia is often accompanied by depression. It is important to check adolescents (particularly females who may not be meeting their needs for iron to replace menstrual losses) for iron sufficiency.[34] Primary care clinicians should ensure that their patients consume adequate amounts of iron either through diet or supplementation.

Fatty Acids

Linolenic, Eicosapentanoic (EPA), and Docosahexanoic (DHA) Acids. There is strong epidemiologic correlation between fish consumption, levels of omega-3 fatty acids and protection from depression and suicide.[35-37] Furthermore, clinical trials suggest that supplemental essential fatty acids (EPA and DHA) can improve mood and decrease hostility and violence, even in patients hospitalized for severe depression or suicidality.[38,39] The doses in positive studies range from 1 to 9.6 g per day.

Product testing has revealed no significant contamination with mercury, dioxins, or other contaminants in molecularly distilled fish oil products. More potent and palatable forms of fish oils make these dietary recommendations easier to swallow. Small children can take one of the liquid forms easily hidden in food. However, as always, clinicians should use caution when recommending this product.

Biomechanical Therapies

Massage

Massage is widely used to improve mood. Therapeutic massage contributes to increased blood flow and lymphatic drainage, muscle relaxation, stress reduction, and social support. Physiologically, massage is linked to the balancing of right and left prefrontal cortex activity in those with right dominance.[53] Furthermore, massage decreases cortisol levels and increases levels of serotonin and dopamine in patients with depression.[54] In depressed women, massage, compared with progressive relaxation, led to higher dopamine and serotonin levels and lower levels of cortisol and norepinephrine.[55]

In the studies showing positive effects, massage has been provided 5 days a week. To achieve this frequency cost effectively, parents are generally trained to provide the massage. Massage is generally safe if care is taken to avoid wounds, burns, intravenous lines, pumps, or other subcutaneous devices and vigorous strokes in patients with low platelet counts. Careful discussion and respect for individual patients is extremely important for patients with a history of physical or sexual abuse.

Bioenergetic Therapy

Acupuncture

Randomized controlled trials suggest that acupuncture has significant benefits for depressed adults and may be comparable in effectiveness to prescription antidepressant medications.[56] In a meta-analysis published in 2005, the authors concluded that "the effect of electroacupuncture

may not be significantly different from antidepressant medication."[57] Acupuncture rarely causes bleeding, bruising, infection; it causes sleepiness in about 5% of patients. In general, it has fewer side effects than medications. Serious side effects are extremely rare. Pediatric patients will accept it, but it's not usually their first choice of therapies. Those who receive it generally report that it is helpful and unlike their expectations, pleasant.[58]

Summary

Depression is the second leading cause of illness and disability among young people worldwide. A healthy lifestyle (good nutrition, vigorous exercise, restful sleep, sunshine) is the cornerstone for promoting positive moods.

.