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Complementary, Holistic, and Integrative Medicine: Eating Disorders

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Case #1
A 15-year-old girl presents to your office with a history of a 35-lb weight loss, which began when she was told by her gymnastics coach that she needed to “slim down a bit.” She was originally 140 lb and 5 ft. She has had no menses for 3 months. In addition to her 90-minute gymnastics practice 3 days per week, she has been running 5 miles every day and working out at her parents’ gym for 60 minutes 3 days per week. She admits to feeling depressed and occasionally out of control in that she cannot stop “worrying about things.” She admits to drinking “lots of coffee” and takes ginseng for energy and melatonin because she cannot sleep. She is in your office with her parents, who realize that their daughter is ill and have pulled her out of gymnastics. They realize that they need to put together a multidisciplinary team to help treat their daughter. They clearly understand that the initial management and, indeed, the standard of care for the treatment of eating disorders includes a clinician, nutritionist, and mental health professional who strictly monitor the physical and mental health manifestations of this disorder. They also have read that alternative treatments may be helpful as adjunctive therapy, in particular yoga and massage, and want to know what you think.

Case #2
A 14-year-old wrestler is in your office for a preparticipation sports physical. He has been trying to make the 100-lb weight category. He is 5 ft 4 in and has been told that some day he could go to the Olympics. In your office, he weighs 105 lb and expresses frustration that he has not been able to lose any more weight. He is eating 500 kcal/day and every third day binging and purging a large amount of food. Confidentially, he has told you that he is taking creatine to “bulk up” and increase his muscle mass. His parents want to know if they should keep supporting his drive to lose more weight and how to get him to stop binging and purging. They are against any form of medication or mental health intervention but are interested in complementary and alternative medicine (CAM) therapies. You realize that there are evidence-based treatments available to help this adolescent, and you find it ironic that the family is against the “standard of care model” yet are interested in CAM treatments, which may not have any scientific support. However, you also realize that you need to discuss all of the concerns of the family regarding standard care and CAM care and help them navigate the sources that push “quick fix” solutions to problems that require a more systematic and stepwise treatment model.

Introduction
Eating disorders, including anorexia nervosa (AN), bulimia nervosa (BN), and eating disorders not otherwise specified (NOS), typically become apparent shortly after puberty. Although it is not clear whether the incidence of eating disorders has increased, data support the conclusion that earlier access to treatment is imperative. The prevalence of AN ranges between 0.5% and 1% among adolescent females and is 0.02% in adolescent males. BN is another eating disorder whose prevalence is 1% to 2% among adolescent females and less than 0.2% in adolescent males. It is important to note that another 2% to 3% of adolescents present with bulimic symptoms that are clinically significant but do not meet full threshold criteria. Psychiatric disorders such as depression, anxiety, and obsessive-compulsive disorders are observed in more than 50% of those who have eating disorders.

Physical symptoms and medical complications that may occur include dry skin, cold intolerance, acrocyanosis, constipation, bloating, presence of lanugo, scalp hair loss, early...
Nutrition
Central to the diagnosis of an eating disorder are abnormal nutritional status and dietary patterns. Normalization of eating is the first goal of treatment. Altered nutritional status leads to a chronic and debilitating course experienced by some patients, with the development of cognitive dysfunction and bone loss that may be reversed with restoration of weight. Nutritional management of the patient who has AN or BN presents some distinct challenges because so many patients are resistant to the idea of normalizing their eating. Multidisciplinary teams providing treatment for eating disorders should include a dietitian or nutritionist. It is the position of the American Dietetic Association that nutrition intervention, which includes nutritional counseling by a registered dietitian (RD), is an essential component of the treatment of patients who have AN, BN, and eating disorder NOS. (20) The RD is a unique member of the treatment team and can teach patients how to normalize their eating and improve their nutritional status.

In a study comparing patients who had AN with controls, the patients were asked to self-report their dietary intake, which was compared with their documented actual intake. (21) Self-reporting was more accurate in the patients who had AN than in the control subjects, indicating the value of this technique. The report also indicated that in reviewing the diet history, more than 50% of the patients who had eating disorders failed to meet the recommended dietary allowance for vitamin D, calcium, folate, vitamin B12, zinc, magnesium, and copper.

Herbs/Supplements
Adolescents frequently use herbs and supplements for weight loss or gain and to treat depression, anxiety, and insomnia. (22) Adolescents who have eating disorders may be particularly inclined toward “natural” remedies, including herbs and supplements, for the management of comorbid physical or mental health symptoms. (23) In one study in a tertiary care pediatric eating disorder treatment center, 46 female adolescents (age range, 10 to 17 years) volunteered for a cross-sectional study. (23) They met the criteria for AN, BN, or eating disorder NOS. Seventeen of the girls (37%) used herbal remedies, with 35% of these girls using herbal remedies to decrease their appetites and induce vomiting, 41% using herbal remedies without knowing anything about them, and only 24% reporting that their physicians asked about their use of herbal remedies.

For eating disorder patients who have significant mental health symptoms, consideration of psychotropic medications may be warranted as part of comprehensive treatment. Most commonly prescribed medications for those who have eating disorders are antidepressants and benzodiazepines for symptoms of depression and anxiety. (24) (25) Several herbs and supplements may be used by those who have eating disorders to treat comorbid depression, anxiety, and sleep disorders.

St. John’s Wort
St. John’s wort is an herb that may be effective for depression, anxiety, and sleep disorders. Hypericin and hyperforin, two active ingredients in St John’s wort, may inhibit the reuptake of serotonin, norepinephrine, and dopamine. Several studies comparing St. John’s wort to selective serotonin reuptake inhibitors (SSRIs) found comparable efficacy using high doses of St. John’s wort and low doses of SSRIs in mild-to-moderate depression. (26) Evidence of the herb’s effects on the treatment of severe depression is inconclusive. (27)

The adverse effects of St John’s wort include gastrointestinal (GI) symptoms, dizziness, phototoxicity, and confusion. Herb-drug interaction can be a problem because St. John’s wort has been shown to induce the cytochrome P-450 metabolic pathway and, thus, may interact with cyclosporine, oral anticoagulants, oral contraceptives, and certain antiretroviral agents, including indinavir. The use of St. John’s wort with standard
antidepressants such as SSRIs may cause serotonin syndrome. The recommended dose is 300 mg (0.3% hypericin) three times per day.

**Chamomile**

Chamomile has been used to treat GI discomfort, peptic ulcer disease, and mild anxiety. The active substances in chamomile are chamazulene, which has anti-inflammatory effects; apigenin, a benzodiazepine-like substance; and bisoprolol, which has antispasmodic properties. The proposed mechanism of action of chamomile is binding to central benzodiazepine receptors. (28) Chamomile oil has been shown in a small study (n=22) to shift mood ratings in a positive direction and may be helpful in treating anxiety. (29) A recent randomized, placebo-controlled efficacy trial in 61 patients who had anxiety showed Hamilton Anxiety Rating scores improving over 8 weeks in the treatment group. (30)

Chamomile generally is regarded as safe, although cases of allergic reactions have been reported. No significant adverse effects or herb-drug interactions have been observed. The recommended dose is 2 chamomile tea bags per 6 oz of water.

**Valerian**

Valerian has been recommended as an anxiolytic and sedative agent and more recently as a sleep aid for those who suffer insomnia and jet lag. The herb’s sedative effects may be due to binding of gamma-aminobutyric acid receptors. One meta-analysis of 16 studies confirmed that valerian might improve sleep quality in adults. (31) A Cochrane review evaluating the efficacy of valerian as a sedative or anxiolytic had inconclusive results. (32)

Adverse effects include headache, excitability, irritability, and cardiac disturbances. Valerian should not be taken when consuming sedatives or alcohol. The recommended dose from various studies on sleep ranges from 400 to 900 mg 2 hours before going to bed. For anxiety, studies have used 100 mg to 125 mg three times per day.

**Melatonin**

Melatonin is a neurohormone that is produced primarily by the pineal gland. During its synthesis, tryptophan is hydroxylated to 5-hydroxytryptophan that, in turn, is decarboxylated to 5-hydroxytryptamine (serotonin). Proposed mechanisms for the action of melatonin include a phase-shift of the endogenous circadian pacemaker, a reduction in core body temperature, and a direct effect on somnogenic brain structures. (33) In a Cochrane review, melatonin, when taken at bedtime, may decrease or prevent jet lag, especially when five or more time zones are crossed. (34)

In adolescents who have delayed sleep phase syndrome, one study (n=33) reported that participants receiving 3 to 5 mg/day of melatonin for an average of 6 months experienced quicker sleep onset, longer sleep duration, and interestingly, a decrease in school problems. (35)

Melatonin is considered relatively safe for short-term use. The recommended dose in studies to prevent jet lag has been 0.3 mg to 5.0 mg 30 minutes before bedtime for 1 week.

**Acupuncture**

Acupuncture, a popular CAM therapy in children and adolescents, originated as an ancient Chinese therapeutic treatment. It is based on the theory that energy (Qi-Chi) flows along channels known as meridians, connected by acupuncture points. (36) Blocking these meridians may create an imbalance in a person’s spiritual, emotional, mental, and physical health. In acupuncture, the Qi can be unblocked using acupuncture points to restore flow. (36)

Acupuncture may be helpful in treating dental pain, postoperative nausea and vomiting, or chemotherapy-associated nausea and vomiting. (37) Although there are no studies on the use or benefits of acupuncture in patients who have eating disorders, there are promising studies on anxiety and depression. (38)

Acupuncture has been shown to decrease anxiety in adults and in children. Findings were hopeful in a review of 12 controlled trials of acupuncture, four of which involved patients who were experiencing generalized anxiety. (39) In a study of female college students, anxiety, depression, and self-esteem improved with meridian exercise using 12 poses. (40) In a randomized, double-blind, controlled study on depression, 80 patients were randomized to receive either true acupuncture or sham acupuncture with low-dose fluoxetine. No statistically significant difference was found in depression scores at the end of the treatment period between the two groups, but patients in the true acupuncture group showed fewer antidepressant adverse effects and fewer anxiety symptoms. (41) Improvement in self-concept has also been explored, and a literature review on appropriate outcome questionnaires for acupuncturists and patients who have chronic health problems has had shown promising results. (42)

In a retrospective qualitative examination, Kemper and colleagues (43) found that 60% of parents described the acupuncture experiences as positive and 70% of pa-
tients (median age 16 years) and 59% of parents reported that treatment was helpful. The benefits of acupuncture for other comorbid physical and mental health symptoms such as constipation and sleep disorders are not known but are important topics for future research.

Adverse complications of acupuncture are rare and include pneumothorax, angina, septic sacroiliitis, and epidural and temporomandibular abscess. (44)

**Massage**

Massage often is used in the pediatric and adolescent populations. There are more studies for this form of CAM treatment for the eating disorder patient than for other CAM therapies. The most common type of massage is traditional European or Swedish massage, performed on a table or special massage chair with a focus to relax the muscles and improve circulation. (45) Massage therapy is believed to release muscle tension, remove toxic metabolites, and facilitate oxygen transport to cells and tissues. The strongest effect of massage from a number of studies has been a reduction in anxiety. (46)

In one research study, 52 hospitalized children and adolescents in a psychiatric unit received 30 minutes of back massage for 5 days compared with controls, who watched relaxation videos. (47) Massage reduced their signs of anxiety. In a separate study, 19 women (median age=26 years) who had AN were given standard treatment alone or standard treatment plus massage therapy two times a week for 5 weeks. (48) The massage group reported lower stress and anxiety levels, lower cortisol concentrations, increased dopamine and norepinephrine concentrations, and a decrease in body dissatisfaction on the Eating Disorder Inventory (EDI).

Another study reported on 24 adolescent females who had BN and were randomly assigned either to receive massage therapy two times a week for 5 weeks or to participate in a control group (not receiving massage therapy). (49) Adolescents in the massage group had lower depression scores, lower cortisol (stress) concentrations, and higher dopamine concentrations. The massage group also had improved scores on the EDI, which may indicate increased body awareness.

Research on the benefits of massage consists of small pilot studies that have methodologic limitations such as inadequate therapist training and insufficient duration of treatment. To date, there are no contraindications to massage in the patient who has an eating disorder despite a theoretic concern that those who have body image distortion may resist massage.

In summary, massage may be an effective adjunctive intervention for those who have eating disorders, but larger studies are warranted.

**Therapeutic Touch**

Therapeutic touch is an energy therapy claimed to promote healing and reduce pain and anxiety. Practitioners of therapeutic touch assert that by placing their hands on or near a patient, they are able to detect and manipulate the patient’s putative energy field. Because anxiety plays such an important role in the lives of those who have eating disorders, it is reasonable to look at therapeutic touch as an adjunctive CAM intervention. The Cochrane Collaboration Depression, Anxiety and Neurosis Controlled Trials Registers did not report any randomized or quasi-randomized trials looking at therapeutic touch for anxiety disorders. A need for well-conducted, randomized, controlled trials to examine the effectiveness of therapeutic touch for anxiety disorders is warranted. (50)

**Mind-Body Therapies**

Mind-body/relaxation therapies such as yoga, meditation, and self-hypnosis may have a role in the treatment of adolescents who have eating disorders. Mindfulness meditation can be defined as a form of self-regulation that ebbs and flows as thoughts enter and leave the mind. (51) The model of mindfulness meditation occurs when the patient looks at his or her thoughts and experiences from a detached perspective. Hypnotherapy has been suggested as a possible therapeutic CAM intervention for eating disorders, but a review of the literature has shown it to be of limited value due to methodologic limitations in hypnosis research. (52) (53)

In one study evaluating meditation as a CAM treatment in those who had eating disorders, meditation was reported to be a potential therapeutic alternative to psychotherapy when access to counseling was limited due to finances or geographic issues. (54)

In one study of adults who had binge eating disorder and practiced an eating meditation, the number of binges dropped significantly over the course of treatment, with nine participants binging less than once a week and five participants binging less than once or twice a week after treatment. (55) Participants who used meditation subsequently were able to change their binging behaviors through an increased sense of eating control, sense of mindfulness, and awareness of hunger and satiety cues.

**Yoga**

Yoga includes meditation, relaxation, control of breathing, and various physical postures or asanas. (56) Due to
the lack of controlled clinical trials, it is difficult to interpret the impact of yoga on anxiety and depression in patients who have eating disorders. (57) (58)

In a study evaluating physiologic and psychological effects of Hatha yoga in healthy women, heart rate declined during and after yoga practice, with a return to normal baseline. (59) Blood pressure showed no significant variation. The yoga group showed markedly higher scores in life satisfaction and lower scores in excitability, aggressiveness, openness, emotionality, and somatic complaints.

In a study that included eating disorder patients who had completed a yoga program in an observed setting, weight did not change in any of the study groups, and quality-of-life scales “tended” toward improvement in the yoga group. (60) In another trial, a total of 50 girls and 4 boys ages 11 to 21 years were randomized to an 8-week trial of standard care versus individualized yoga plus standard care. The yoga group demonstrated greater decreases in eating disorder symptoms. Both groups maintained current body mass index (BMI) and had decreases in food preoccupation, anxiety, and depression over time. (61) (62) Finally, yoga practiced by patients who have eating disorders may help reduce severe physical discomfort and feelings of guilt after eating. (63)

Results from these small but promising studies suggest that doing yoga before or after meals to help reduce typical anxiety responses may alleviate some of the problems of after-meal supervision and allow patients to have some activity without a loss in their BMI. More studies are needed to determine if doing yoga can improve body image distortion in the patient who has an eating disorder.

**Biofeedback**

Biofeedback is a training technique intended to regulate normal body functions such as heart rate, breathing, brain activity levels, and body temperature. This technique helps to change physical responses to stress as well as enhance overall health. A robust body of neurophysiologic research is available on functional brain abnormalities associated with depression, anxiety, and obsessive-compulsive disorder. Electroencephalographic biofeedback (neurofeedback) seems to hold promise as a methodology for retraining abnormal brain wave patterns. This technique has been associated with minimal adverse effects and has produced favorable results in individuals who have anxiety, obsessive-compulsive disorder, and depression. (64)

Important areas of research include evaluation of the efficacy of biofeedback in decreasing anxiety before or after meals and reviewing the impact of biofeedback training on other comorbid symptoms such as constipation and insomnia in the eating disorder patient.

**Conclusion**

Eating disorders are biopsychosocial illnesses in which the physical, emotional, and psychosocial aspects of the patient and family must be addressed. Standard treatments include frequent medical evaluations, nutritional interventions, and psychological treatments. In the two case studies, each patient and family was interested in the care and treatment of their child who had an eating disorder. In the first case, the family understood that standard care was imperative but also wanted to discuss the beneficial affects of adjunctive CAM treatments. In the second case, the family needed more education about standard care but also had important thoughts about the use of additional CAM treatments. A number of adjunctive CAM treatments may be beneficial in addition to the standard-of-care, stepwise treatment approach to treating patients who have eating disorders.

CAM therapies can be integrated into the management of eating disorders and may improve outcomes. Many affected patients lack the motivation to address the need to change, especially if it involves weight gain, the cessation of exercise, and involvement of the mental health community. A few small studies using mind-body therapies such as yoga have shown them to be beneficial in weight restoration, reduction of anxiety, and improvement of quality of life. Managing eating disorders in adolescents requires an integration of evidence-based treatments in daily practice.

Health-care practitioners need to inquire about the use of CAM by their patients and recommend specific CAM treatments as adjunctive therapies. Although data are limited, some of these techniques are considered to be safe, have few adverse effects, and possibly could be effective. (65) Talking about CAM interventions with teens and their families can offer them a sense of autonomy when they feel that they have none. More research is necessary to reinforce the idea that CAM interventions are safe and effective adjunctive options for adolescents who have eating disorders.

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Massage:
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National Certification Board for Therapeutic Massage & Bodywork at: http://www.ncbtmb.com
HealthyChildren.org Parent Resources from AAP

Emotional Problems area includes eating disorders:
http://www.healthychildren.org/English/health-issues/conditions/emotional-problems/Pages/default.aspx

Specific articles:
Anorexia:
http://www.healthychildren.org/English/health-issues/conditions/emotional-problems/pages/Anorexia.aspx

Binge Eating Disorder

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Eating Disorders and Teens

Eating Disorders in Children

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Eating Disorders: Bulimia
http://www.healthychildren.org/English/health-issues/conditions/emotional-problems/pages/Eating-Disorders-Bulimia.aspx

Is Your Teen at Risk for Developing an Eating Disorder?

Treating Eating Disorders