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**Managing Low Bone Mineral Density in Adolescents  
with Eating Disorders:  
A Review of Pathophysiology, Diagnostic Modalities,  
and Treatment**

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Medical complications are frequently seen in patients with anorexia nervosa (AN) and bulimia nervosa (BN).<sup>1</sup> Loss of bone mineral density (BMD), though not often the initial focus of eating disorder treatment, can persist long after apparent recovery from AN. It is a well-established consequence of poor nutritional intake, and is particularly concerning for the developing bodies of adolescent patients. Adolescence is a critical time for bone development, because 40% to 60% of peak bone mass accrues during these years.<sup>2</sup> Unfortunately, the peak age of onset for AN also occurs during adolescence. The time of onset, type and duration of the eating disorder, as well as the degree of nutritional deficit, will determine whether peak adult bone mass can be achieved.

Since low bone density is most often associated with AN, BN is not considered a risk factor.<sup>1</sup> If bone accrual is interrupted by the malnutrition associated with AN, life-long adverse sequelae to bone health can occur. These include long-term increased risk of fractures, osteoporosis, and limited longitudinal growth, impairing eventual height. Although osteoporosis is considered an adult disease, there is increasing evidence that factors in childhood contribute to its development and morbidity in adulthood.<sup>3</sup>

Osteoporosis is defined as a "reduction in bone mass and disruption of bone architecture, resulting in reduced bone strength and increase of bone fractures."<sup>4</sup> Osteopenia is also defined as reduced bone mass, but this is less severe than in osteoporosis. Among adults, the type of bone density is determined by bone densitometry, defined by a T-score of -1 to -2.5 for osteopenia, and -2.5 or lower for osteoporosis.<sup>5</sup> However, these definitions are not applicable to adolescent and pediatric populations. According to a systematic review of bone health in AN, there is a paucity of available data regarding bone health and prevalence of poor bone health in adolescents.<sup>2</sup>

### **Pathophysiology of Low Bone Marrow Density**

Bone is dynamic, with ongoing formation of new bone as well as continuing resorption of existing bone. In AN, malnutrition leads to an uncoupling of bone formation and bone resorption. Thus, high rates of bone resorption with decreased bone formation lead to rapid bone loss, potentially resulting in osteopenia and osteoporosis.<sup>1</sup> This is secondary to disruption of hormonal levels and regulatory processes of the hypothalamic-pituitary-adrenal (HPA) axis and hypothalamic-pituitary-gonadal (HPG) axis. Severe malnutrition causes an adaptive state of hypercortisolemia. High cortisol levels directly inhibit the HPG axis, impair calcium absorption and renal processing of calcium, inhibit osteoprotegerin (OPG) secretion,

which normally inhibits bone reabsorbing osteoclasts, and increases the receptor activator of nuclear factor kappa B ligand (RANKL), which also increases osteoclast activity.<sup>2</sup> Furthermore, the states of low energy and hypercortisolemia both have an inhibitory effect on the HPG axis, leading to a hypogonadal state, which is characterized by low estrogen levels and amenorrhea.

Estrogen normally inhibits bone resorption by blocking secretion of inflammatory cytokines and RANKL. In males, low testosterone levels similarly have an adverse effect on bone density.<sup>2</sup> Pubertal changes and growth during adolescence are directly dependent on rising levels of sex hormones, which in turn stimulate increased secretion of growth hormone (GH) and insulin-like growth factor (IGF-1). GH and IGF-1 are essential for bone accrual. In patients with AN, studies show a state of GH resistance.<sup>2</sup> This in turn leads to further decreased bone formation. IGF-1 levels are thus reduced in AN, which inhibits osteoblast bone-forming activity.<sup>1</sup>

## **Diagnostic Imaging in Adolescents**

The preferred method for assessing the state of bone health in AN is with dual-energy x-ray absorptiometry (DXA) scans. This provides an image of two-dimensional areal bone mineral density (aBMD) and bone mineral content (BMC). Any individual with a 9- to 12-month history of AN should have a DXA scan, with follow-up every 2 years while their eating disorder is active.<sup>1</sup> Appropriate interpretation of these values in adolescents relies on the use of Z-scores, as opposed to T-scores, which represent standard adult reference points for older patients. DXA scans are seen as the preferred screening method because of their relatively low cost, low degree of radiation exposure, and widespread availability.

## **Adolescent Data Review**

Several studies have demonstrated increased fracture risk in adults with AN, but few have focused on fracture risk in adolescents. Faje et.al (2014) were the first to examine the risk of childhood and adolescent fractures. The authors compared the risk among 310 patients with AN compared to normal-weight controls. The average age of the subjects was 16 years, with a mean duration of AN of almost 2 years. Faje et al. found increased fracture prevalence and lower aBMD in those with AN compared to controls.<sup>6</sup> Though a single aBMD may not be enough to extrapolate the fracture risk for a patient with AN, the overall increased fracture risk in patients with AN seems to be related to bone strength and accrual disruptions in adolescents. Shepherd et al. (2018) found that bones are 10% smaller in adolescents with AN compared to healthy children. Their retrospective study of 111 patients under the age of 20 was the first to examine bone accrual in relation to linear growth.<sup>7</sup>

One study analyzed limitations of aBMD as a focal measurement of bone health. Singhal et al. (2018) conducted the first study to evaluate both bone microarchitecture and strength with high-resolution peripheral quantitative computed tomography (pQCT). The authors found that microarchitectural changes in the bone may precede measurable deficits in aBMD in females with AN.<sup>8</sup> Their results further illustrate that aBMD does not fully capture all the detrimental effects of malnutrition affecting the bone, especially in younger patients. They also found that adolescents and young adults with AN had thinner and more porous cortices, lower trabecular bone volume fraction with lower trabecular number and spacing, and higher levels of marrow adipose tissue. Higher levels of marrow adipose tissue have previously been associated with greater fracture risks.<sup>8</sup>

## **Treatment Recommendations**

Weight restoration remains the primary goal of treatment for AN.<sup>2</sup> Present data supports that negative energy states increase bone resorption independent of other hormonal influences.<sup>9</sup> Therefore, normalization of nutritional intake and weight gain are the upmost priorities for treatment of an adolescent with AN, and are necessary to stave off further bone mineral loss. Beyond weight restoration, other treatments to improve BMD in adolescents are somewhat controversial.

There are some other potential treatments that may be considered. Physical activity is generally viewed

as being protective of bone health in older, normal-weight individuals. Current evidence, however, has not been able to substantiate such a protective effect in the context of the low-energy state and amenorrhea that characterize AN.<sup>2</sup> Caution is often recommended, with risk/benefit consideration, before allowing aerobic physical activity in patients with AN. Exercise can interfere with the primary goal of weight restoration, and may be deleterious to bone microarchitecture at low body weights.<sup>10</sup> DiVasta et al. (2016) examined whether low-magnitude mechanical stimulation (LMMS) contributes to normalization of bone turnover. Noting that bed rest is often required for critically ill patients with AN, the authors wondered if the suppression of bone turnover associated with bed rest could be attenuated by LMMS. In their randomized, double-blind, placebo-controlled trial, 100 females aged 13-21, admitted to the hospital with medical complications of AN, were assigned to one of two groups: (1) an LMMS platform or (2) a placebo platform. The LMMS platform delivered small vibrations, and the placebo platform made an identical noise but did not vibrate.

DiVasta and colleagues found that participants assigned to the LMMS platform had stabilization in markers of bone formation without adverse effects on weight restoration. In contrast, those who used the placebo platform exhibited significant decreases in bone formation markers.<sup>10</sup> These findings indicate that LMMS may be a safe, noninvasive, non-pharmacologic method to maintain bone health.

Pharmacologic treatment is often used in adult populations for low BMD, but limited data exist for adolescent patients with eating disorders. Hormonal replacement is incorrectly recommended as a means of preventing bone resorption associated with the hypogonadal condition seen in eating disorders. Often, bone loss in AN is inaccurately compared to the osteoporosis of postmenopausal women. A recent study found that the bone loss in AN evolves as a result of different pathophysiological mechanisms. In this study, a comparison of bone microarchitectures using high-resolution pQCT of young AN patients, postmenopausal subjects, and controls found that the reduction of trabeculae is rapid in AN and comparable to that in postmenopausal women, but the cortical and subcortical bones were less compromised in AN.<sup>11</sup> Additionally, great caution is imperative when discussing hormonal replacement in adolescents since increased hormone levels (estrogen and testosterone) can lead to premature closure of growth plates. Overall, a systematic review by Robinson et al. (2017) found discrepancies in outcomes when exogenous hormone replacement was used. The review noted one study that found physiologic replacement doses of transdermal 17- $\beta$  estradiol increased spinal and hip BMD in adolescent women with AN, although "complete 'catch-up' to a comparable BMD in health controls did not occur."<sup>12</sup> Physiologic estrogen replacement achieved by transdermal administration does improve BMD in adolescents with AN, though weight gain appears to improve BMD more.<sup>9</sup> A number of studies have suggested that the use of estrogen/progesterone combination oral contraceptives has been ineffective and could also be detrimental to bone health, due to suppression of endogenous gonadal secretions as well as suppression of systemic IGF-1 secretion.<sup>9</sup> In contrast, the "physiologic" doses achieved through transdermal application may be effective because this does not suppress IGF-1 and it avoids hepatic first-pass metabolism. According to the American College of Obstetricians and Gynecologists, the combination of transdermal estradiol and cyclic oral progesterone for sexually active adolescents, to treat loss of BMD, is not effective for preventing pregnancy.<sup>13</sup>

Bisphosphonates are also used in adult women with AN to treat their osteoporosis but there are few studies of bisphosphonate use in adolescents with AN. Golden et al. (2005) conducted a double-blind, randomized trial comparing alendronate with placebo in 32 adolescent females. They found that in the treatment group, there was a positive independent effect on BMD, increasing it at the femoral neck and lumbar spine. However, the authors concluded that weight restoration remained the most important determinant of BMD and recommended that until additional studies could demonstrate efficacy, the use of bisphosphonates should be limited to controlled trials.<sup>14</sup> The adverse side effects associated with bisphosphonates limit their use in adolescent females.<sup>12</sup> Bisphosphonates have a long half-life and can be released slowly from bone over a period of years.<sup>2</sup> There is also a teratogenic risk, which is important to

consider.<sup>12</sup> Yet, it is interesting to note that bisphosphonates have been used for years in adolescent patients with osteogenesis imperfecta without reports of significant adverse effects.<sup>1</sup> There are, as yet, no studies of teriparatide or denosumab in adolescent patients with AN.

## Conclusion

There are some notable limitations in reviewing currently available data for adolescents. First, there are more available data regarding medical complications in adults than in adolescents. Of the studies that did focus on adolescent populations, most were retrospective in nature and only evaluated female patients with AN. There are very little data on adolescent males with AN. Additionally, there are other limitations when conceptualizing and defining BMD abnormalities in children and adolescents. One interesting point is that the International Society of Clinical Densitometry (ISCD) recommends that the term "osteopenia" be limited to adult patients with mild deficits in bone mass. In fact, a DEXA Z-score of  $\leq -2$  is labeled as "below the expected range for age" for adolescents (Misra et al., 2015, p. 3). The Pediatric Position Development Conference (PDC), a subgroup of the ISCD, limits diagnoses of osteoporosis in children and adolescents by requiring a BMD Z-score of  $\leq -2$  and at least one vertebral compression fracture or the presence of a significant fracture history (fractures of two or more long bones by the age of 10 years or three or more long bone fractures at any age up to 19 years). The DXA scan itself may not be as useful in adolescents and, as studies mentioned earlier have indicated, it will be important to consider microarchitecture in future studies that evaluate bone outcomes in AN.

Use of HR-pQCT may provide more accurate assessment of bone health, and may be more accurate in predicting prognosis as well as for reliably tracking outcomes throughout treatment.<sup>8, 15</sup> All studies have commented on the need for more longitudinal data and for judicious deliberation before initiating medicinal treatments. But, in the meantime, some assessment of the state of bone health in patients with a history of AN is a prudent practice and is the first step to initiate further treatment considerations, given the high prevalence of low BMD in adolescents with AN.

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## UPDATE: New York Expands Coverage for Eating Disorders

A bill awaiting New York Governor Andrew Cuomo’s signature will greatly expand insurance coverage and access to care for persons with eating disorders in New York State. New York’s Mental Health Parity Law currently provides insurance coverage for anorexia and bulimia, but has excluded individuals with other eating disorder diagnoses such as pica, rumination disorder, avoidant/restrictive food intake disorder, binge eating disorder, other specified feeding or eating disorders, and any other eating disorder included in the latest version of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*.

New York State Senator Alessandra Biaggi, who has lived with an eating disorder for 15 years, sponsored the new legislation. She said, “The purpose of this bill is to close the gap in healthcare coverage to include all iterations of eating disorders so that every New Yorker striving to overcome this disease—no matter what it looks like—can access the care they need.”

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# From Across the Desk: Advances in Diagnosis and Treatment

Although the field of eating disorders is still relatively young, compared to many other specialties, many advances have been and are being made in diagnosis and treatment. Several articles in this issue attest to this.

The growth of patient outreach and screening via the Internet can be seen in the recent screening tool that NEDA and a group of clinicians developed. Another is the changes in long-time treatment approaches, such as the shorter course of cognitive behavioral therapy (CBT) proposed by Dr. Glenn Waller at the recent ICED meeting in New York. In our lead article, Dr. Erin K. Knopf and Dr. Philip Mehler, of the Eating Recovery Center in Denver, CO, bring us up to date on managing low bone mineral density in teens with eating disorders. While normalization of nutritional intake and weight gain are the upmost priorities for treatment of an adolescent with AN, and are necessary to stave off further bone mineral loss. They also share some of the newer approaches being used to help restore bone loss

And, in the continuing search for better treatment approaches for patients with eating disorders, this issue contains a report by Dr. Jennifer Beveridge and co-workers at Swinburne University of Technology, Hawthorne, Australia, of an innovative peer mentoring program using patients recovered from an eating disorder as mentors to patients currently undergoing treatment. The mentoring relationship was a positive experience for both mentees and mentors, instilling increased hope for recovery in mentees and an opportunity for mentors to reflect on their own recovery.

— MKS

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## Anorexia Nervosa 30 Years after the Diagnosis

### *Some unexpected results occurred.*

In 1985, a long-term study of Swedish adolescents was begun in Gothenburg, Sweden. First, every eighth grader (4291 students born in 1970) was screened for anorexia nervosa (AN). This uncovered 254 teens with the disease, to be included in a long-term study. An additional 27 adolescents with anorexia who were born in the early 1970s were added to the study. The final study group included 51 patients with AN and 51 healthy gender-matched controls, bringing the total number of participants to 102.

Follow-up has been done every 10 years (the last at the 30-year mark), and the researchers were able to include all but 4 of the original group in the follow-up, for a 96% rate. Sandra Rydberg Dubros and colleagues noted that the outcome might be more favorable due to the fact that teens only were included and half the sample came from the general community (*Br J Psychiatry*. doi.org/10.1192/bpj.2019.11).

### **Results: Age and perfectionism played a role**

There were no deaths, but as for full recovery, the outcome was the same as that reported in earlier long-term studies. Seventy-six of the original 102 patients had fully recovered. During the elapsed 30 years, participants had an eating disorder for 10 years, on average, and 23% did not receive psychiatric treatment. Good outcome was predicted by later age at onset among individuals with adolescent-onset eating disorders and premorbid perfectionism.

At an earlier follow-up point 18 years after the study was begun, 6 of the 51 participants with AN still had their eating disorder. Twelve years later, the researchers were very surprised to learn that the percentage of those with eating disorders had modestly risen, not fallen, as expected. The outcome was more

favorable than most clinicians would expect, perhaps due to the non-clinical portion of the sample.

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## **Early Results of an Online Screening for Eating Disorders**

### ***The National Eating Disorders Association online program reveals a treatment gap.***

Two years ago, a group of clinicians working with the National Eating Disorders Association (NEDA), headquartered in New York City, developed an online screener to examine the possibility of eating disorder diagnosis and risk among adult respondents. Such an online screener might raise awareness about EDs, and more people might seek treatment as a result. The clinicians recently reported their preliminary results (*Int J Eat Disord.* 2019. 52:721).

Dr. E.E. Fitzsimmons-Craft at the Washington University School of Medicine, St. Louis, MO, and colleagues at numerous institutions, analyzed the results from 71,362 adults who completed the Stanford-Washington University Screen on the NEDA website over 6 months in 2017. The profile of the respondents was: 91% female; 7.7% between the ages of 18 to 24 years; 89.6% non-Hispanic; and 84.7% White. Remarkably, 86% screened positive for an ED. Additionally, 10.2% were screened as being at high risk for developing an eating disorder and 85.9% had never received treatment. Only 3% were currently in treatment, and another 11% had been treated in the past.

The authors believe that the NEDA screening tool may be an important and helpful way to detect eating disorders in the general community, citing the fact that more than 71,000 adults responded over only 6 months. The screen readily identifies large numbers of people who appear to have eating disorders. Most striking is the finding that most were not receiving (or never had received) treatment. This underscores the importance of past work emphasizing that improving treatment utilization will have a more positive impact than increasing treatment effectiveness (Moessner and Bauer, 2017; 50:1378). [The results may also indicate that the screening may confirm the visitor's suspicions that they have an eating disorder and thus help move them one step closer to treatment.]

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## **Ten-Session CBT Proposed**

### ***A shorter period of CBT might reduce costs and make treatment available to more patients.***

During a plenary session at the 2019 ICED meeting in New York in March, Glenn Waller, DPhil, of the Department of Psychology at the University of Sheffield, Sheffield, UK, described a 10-session cognitive behavioral therapy (CBT-T) program that he and his colleagues have recently developed.

Dr. Waller pointed to the ICED conference theme, "Start Spreading the News," and asked where the news is coming from and where is it going. "We should be listening," he said. "We have effective but not perfect therapies; these could be better," he added. Dr. Waller and colleagues have developed a shortened form of CBT that is showing early promise. He added some key (and perhaps provocative) points contrasting traditional psychotherapy and CBT-T:

1. More therapy does not make for a better outcome, according to Dr. Waller. He said, "Typically, if we do wait for patients to spring into action in bulimia nervosa, the number of sessions is usually a mean of 45. This is twice the recommended number of sessions."

2. Manuals improve outcomes but many clinicians don't even pick them up; "we still rely on osmosis," he said.
3. Therapists don't need specific training for a specific disorder.
4. Most therapists are over-trained for what they do.
5. If he had his choice, Dr. Waller said, he would develop treatment models that don't rely on over-trained, overly expensive therapists. More therapy doesn't make for better outcomes, he added.

Dr. Waller said that CBT-T began as a result of many frustrations, especially from poor attention to patient outcomes. One of the questions his group and others have had to face was how to get patients into therapy quickly and effectively. A faster turnover was needed to deal with resource limitations, where lengthy waiting lists keep people from receiving needed treatment.

To test the efficacy of CBT-T, Dr. Waller and colleagues recently treated 93 non-underweight adult eating disorder patients. These patients received a protocolized 10-session program of CBT, which was delivered by clinical assistants, under supervision (*Int J Eat Disord.* 2018; 51:262). By the end of their therapy 31% of the patients had dropped out. Statistically significant changes in EDE-Q Global and subscale scores as well as ED behaviors were seen at the end of treatment and at a three-month follow-up. The authors note the magnitude of change was in the range seen in studies of more traditional CBT approaches. (More recently, Pellizer, Waller, and Wade [*Eur ED Rev*, 2019, epub ahead of publication] reported a second trial of 52 individuals treated by 6 different trainees, with similarly encouraging results.)

Dr. Waller and his colleagues were pleased to find that the shorter-term CBT showed similar efficacy as that reported in larger, separate studies of longer-term therapy, and it could mean reduced patient costs and improved access to care. He added, "We initially thought that shorter treatment would not be as effective, but patient experiences were generally very good. Briefer therapy can work just as well as longer therapy. Now we have to transmit the news: we as clinicians can be more treatment-resistant than patients are, and we need to spread the news to patients and others that briefer treatment is better."

These results should prompt discussion and perhaps reconsideration of treatment models for eating disorders. Can some therapies be shorter? Which individuals might benefit, and which need longer treatment? And, finally, while short-term outcomes are encouraging, is long-term outcome similarly positive?

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## **Eating Disorders Treatment and Concomitant Substance Use among Teens**

### ***The combination can affect completion of outpatient treatment.***

Chemical dependency and eating disorders commonly co-occur. This produces many challenges; for example, ED programs tend to be uncomfortable with clients with addiction, and addiction programs are often uncomfortable dealing with clients with eating disorders. It appears that treating one problem at a time does not work optimally.

A 2015 study published in the journal *Psychiatry Research* found that more than 13% of female patients with bulimia also had a substance use disorder. About one-third of men and 7% of women diagnosed with the binge-eating/purging type of anorexia met the criteria for alcohol dependence.



Adolescent patients with substance abuse and eating disorders have different characteristics and are more likely to drop out early from eating disorder treatment, according to a team of researchers from Montreal. Dr. Ryan Kirkpatrick and psychologist Linda Booij, associate professor of psychology at Concordia University, Montreal, and their colleagues investigated whether teens with eating disorders who used substances responded better to outpatient treatment compared to teens with eating disorders who did not use substances (*Int J Eat Disord.* 2019. Doi:10.1002/eat.23017 [E-pub before print]).

Dr. Kirkpatrick and colleagues specifically wanted to study teens who used drugs, tobacco, or alcohol socially (off and on), without developing addictions or showing problematic behavior. One goal was identifying teens at greater risk of dropping out of treatment or those who might need a more specific form of treatment. The study group included about 200 teens who received outpatient treatment at Hotel Dieu Hospital at the Kingston Health Sciences Center, Montreal.

### **Heeding warning signs that can improve outcome**

As previously described in the literature, teens who used substances were more likely to have bulimia nervosa or binge/purge type anorexia nervosa. They also reported that teenagers who used substances before entering treatment regularly used more self-harming behaviors, like cutting, and displayed more impulsivity. However, the two groups showed similar severity of eating disorders. As noted earlier, dropout was higher in the substance use group.

These findings might help clinicians be more alert to the possibility that a teen with substance use is more likely to drop out of treatment early. More broadly, the results raise the issue of refining eating disorders treatment to improve their fit for people with co-occurring EDs and substance disorders.

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## **Peer Mentoring Program Yields Positive Results**

### ***A pilot program in Australia helped both mentors and mentees.***

A “mentor” is someone who teaches or gives help and advice to a less experienced and often younger person. This very modern word goes back to the ancient Greeks and to a character, Mentor, a trusted friend and advisor to Odysseus in Homer’s *Odyssey*. This concept has reached across the ages and now is found in most specialties, particularly education and social work. A pilot study in Australia recently evaluated a peer mentor program for “mentors,” persons recovered from an eating disorder, and “mentees,” individuals who currently had an eating disorder (*J Eat Disord.* 2019. doi: org/10.1186/s40337-019-0245-3).

In this pilot study, Dr. Jennifer Beveridge and co-workers at Swinburne University of Technology, Hawthorne, Australia, and St. Vincent’s Hospital, Melbourne, Australia, recruited 30 mentees and 17 mentors for a peer mentoring program. The mentors were all recovered from an eating disorder for at least a year, and for study purposes were staff members at St. Vincent’s Hospital, employed specifically for the program. Mentees had current eating disorders, and had actively transitioned out of an inpatient treatment program but remained in outpatient treatment for their eating disorder.

The program consisted of 13 sessions given over 6 months. The participants completed the EDE-Q and measures of quality of life, mood, and perceived levels of disability. Semi-structured interviews were conducted for qualitative evaluation of the overall program. An individualized Wellness Plan was designed for each participant. The mentors all attended separate bimonthly group supervision sessions, where the participants received further education, including training, and peer support.

Thirty participants (28 females and 2 males) agreed to participate in the study. The mentees ranged in

age from 18 to 50 years (median age: 28 years). Most mentees (28) had diagnoses of anorexia nervosa, 1 was diagnosed with bulimia nervosa, and 1 had other specific feeding or eating disorder (OSFED). Eight withdrew during the study, due to need for overseas travel, moving, returning home to a regional area after treatment, and lack of motivation to continue with the program.

### **Improvements noted at the end of the study**

Over the time of the study, the mentees increased their body mass index (BMI, mg/kg<sup>2</sup>), in contrast to the typical weight loss reported after discharge from treatment. They also had improvements in eating disorders symptoms over the course of the study, including improved mood, less disability, and improved quality of life.

Overall, the mentoring relationship was a positive experience for both mentees and mentors. The mentees reported feeling inspired by their mentors, and that the sessions were much more relaxed and nonjudgmental than treatment sessions. However, the mentors themselves had increases in the EDE-Q Global Eating Concern and Shape Concern scores, though none reached the pathologic range. Dr. Beveridge reported, "Qualitative results highlighted that the mentoring relationship was a positive experience for both mentees and mentors, instilling an increased hope for recovery in mentees and an opportunity for mentors to reflect on their own recovery with increased confidence."

This strategy has been shown to be helpful in mood disorders and although results were mixed, deserves further attention for EDs as well.

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## **Different Approaches to Weighing Patients**

### ***Patient wishes overruled established treatment guidelines.***

A recent study sought to uncover reasons that clinicians regularly fail to weigh patients appropriately during cognitive-behavioral therapy (CBT) for eating disorders. Drs. A. Daglish and G. Waller of Sheffield University, Sheffield, UK [see also article on abbreviated CBT elsewhere in this issue] evaluated patient- and clinician-based reasons this occurs (*Int J Eat Disord.* 2019. June 7. doi:10.1002/eat.23096 [epub ahead of print]).

After surveying 74 clinicians who practice CBT, using case vignettes that varied in patient diagnosis and distress levels, the two researchers found that clinicians were more likely to weigh patients with anorexia nervosa than to weigh patients with bulimia nervosa, but less likely to weigh those who were distressed at the idea of being weighed.

Clinicians who thought weighing was helpful were more likely to do so. The authors note that their recruitment strategy may have tended to attract participants already predisposed to weighing. Moreover, it seems possible that such a survey might bias reporting toward what is perceived to be best (rather than actual) practice. In each case, actual rates of weighing could be lower than described. The authors suggest these findings call for enhanced training and supervision around the benefits of open weighing of people in eating disorders treatment.

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## **QUESTIONS AND ANSWERS: A Case of Mysterious Pulmonary Disease in an Anorexic Patient**

**Q:** One of my patients with AN, who continues to be severely malnourished, now has a number of suspicious pulmonary symptoms, including coughing, fatigue, and chest pain. She has a long history of AN. I am wondering if there are other issues to consider.

**A:** Could this be tuberculosis? While reports of eating disorders and development of tuberculosis (TB) are rare, your patient sounds very much like a woman described in a recent report from Francesco Garaci and colleagues at Tor Vergata University in Rome (*Radiology Case Reports* 14. 2019, 423). Dr. Garaci and co-workers reported a case of a 31-year-old woman who had a long history of AN and BN, who was admitted to the gastroenterology department of their hospital for compromised general overall conditions and severe protein-energy malnutrition. Over the last 6 months, she reported losing more than 15 kg (33 lb) and had a body mass index (BMI) of 12. She was fatigued, but did not have a fever.

After she agreed to the tests, CT scans showed multiple lesions. After this, a sputum test showed *Mycobacterium tuberculosis* (the bacterium that causes tuberculosis). The patient was immediately placed on a four-drug regimen of isoniazid, rifampin, ethambutol, and pyrazinamide. Five weeks later, the patient was able to return home to continue drug treatment.

Tuberculosis is one of those diseases that seem to have been eradicated, but in September 2018, The World Health Organization reported that tuberculosis (TB) is one of the top 10 causes of deaths worldwide, and that in 2017, 10 million people fell ill with TB, and 1.6 million died from it (including 0.3 million among people with HIV). In 2017, an estimated 1 million children became ill with TB, and 230,000 children died of TB (including children with HIV-associated TB).

The situation in the US and other westernized countries has been much better, even though concern about TB has been reemerging lately, due to increased immigration and travel to areas where the disease is still endemic. As the Centers for Disease Control and Prevention's *Morbidity and Mortality Report* (*MMWR*. 2019. 68:257) notes, since 1993, the number of cases of TB has steadily declined. TB incidence in 2018 (2.8 cases per 100,000 persons) was the lowest ever reported. Non-US-born persons accounted for approximately two-thirds of cases. In 2018, 9,029 new tuberculosis (TB) cases were reported in the US, representing a 0.7% decrease from 2017.

TB remains an important infectious disease problem. AN may impair immune response and could increase risk for various infections, including TB.

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## In the Next Issue

### **Eating Disorders, Depression, and the Strong Black Woman Archetype**

**By Carolyn Coker Ross, MD, MPH, CEDS**

While eating disorders have long been considered a predominately “white female” problem, recent findings show that eating disorders are becoming a major health issue for black women.

Dr. Ross explores the roadblocks to care among African-American women and how when working with African-American clients, it's important to explore a history of trauma. The patient cannot change a difficult past, but she can change how she cares for herself in light of her experiences.

### **PLUS**

- **More genetic evidence in anorexia nervosa**

- **Bone mineral density and estimated hip strength in men with AN, atypical AN, and ARFID**
- **Defining orthorexia nervosa: separate clinical entity, manifestation of obsessive-compulsive disorder, or an entity on the eating disorders spectrum?**
- **Differences by gender and ethnicity/race among adults with eating disorders seeking help**
- **How primary care physicians can improve recognition, diagnosis and treatment among males with eating disorders**
- **Adapting treatment to better meet the needs of patients with ARFID**
- **And much more...**

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